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Dennis McNeil, KA8QAY (left), president of Monsanto Amateur Radio Association, at command post

Miamisburg train derailment

William Frost, WD8DFP

The Monsanto Amateur Radio Association (W8DYY) of Miamisburg, Ohio, takes part in the yearly simulated emergency tests as do other clubs across the country. However, on July 8, 1986, the implementation of their emergency plan was not a test of their skills. It was the real thing.

The W8DYY club is proud of their emergency plan, as it was conceived in 1978 by Jeem Newland, WB8RXI, and four other club members. The plan was also reviewed and revised by Mike Rentfrow, K7GMR, Deputy Executive Secretary of the National Industry Advisory Committee FCC. It is the second emer-

gency plan to be signed off by the FCC.

A train derailed in Miamisburg, Ohio, at approximately 1638 hours on July 8. One of the derailed cars was a tanker car containing 12,000 gallons of white phosphorus. The tanker car ruptured after being dragged along the track. This allowed oxygen to enter the car, igniting the white phosphorus, which sent billowing white clouds over the city.

The W8DYY president, Dennis McNeil, KA8QAY, was alerted at 1648 hours. He contacted Junior Hart, K8ZQQ, the club's emergency coordinator, who set off the pagers, thus setting the club's emergency plan into action. Harold Homous, W8RJY, established a

net control station on the W8DYY repeater. Lou Lang, W8KOO, established a net control at the city police department and amateurs were dispatched to the accident site by 1658 hours. The W8DYY members checking into the emergency net totaled 29. This would put the plan into effect. However, it was soon realized that the W8DYY club would not be able to handle this disaster without help from fellow amateurs.

Ron Moorefield, W8ILC, District Emergency Coordinator of the Dayton Amateur Radio Association (W8BI), was called on to supply amateurs to help in the evacuation of Miamisburg and (please turn to page 3)



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

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We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and

September 1986

Vol. 16, No. 3

humanitarian uses of Amateur Radio.

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Ham's plight attracts attention

The CRRL NEWS-letter said that financial support for Jack Ravenscroft, VE3SR, is coming from all over — including several commercial broadcast and paging companies. Jack is the Canadian amateur who was ordered off the air by a court for interfering with a neighbor's appliances — even though the government found his station to be clean.

More than \$34,000 has been raised so far for the JRSD Fund (Box 8873, Ottawa, Ontario K1G3J2 CANADA). An appeal, which will cost thousands of dollars, has been filed. Jack will be represented by the best communications lawyers in Canada.

— W5YI Report

Correction

On page 20 of our August issue, the contact for Denver, Colorado's August 9th VE exam was listed as being W0IRJ. It SHOULD be W0IJR. Sorry about that!

The same group (Mile Hi VE Team) will be giving an exam September 13, in Denver. Contact (303) 366-9689 — W0IJR. Pre-registration is preferred, but walk-ins are accepted.

Antenna farm vandalized

The antenna farm at ARRL Headquarters in Newington, Connecticut has been vandalized. The W1AW rhombic antenna incurred extensive damage over the Memorial Day weekend when vandals loosened the turnbuckles that support a 50-foot antenna tower. The remainder of the antenna has since been

taken down, and ARRL officials are now deciding whether to put it back up or replace it entirely.

New protection against future vandalism is expected to be implemented by the Headquarters staff, effective immediately.

— Westlink Report

House passes Privacy Act bill

On June 23, the U.S. House of Representatives, by a voice vote, passed the Electronic Communications Privacy Act bill. On June 10, the bill had been favorably reported out of the House Judiciary Committee, where the number of the bill was changed from H.R. 3378 to H.R. 4952, by a vote of 34-0.

In the Senate, Sen. Patrick Leahy (D-VT), has introduced an identically worded bill, S. 2575, for consideration by the Subcommittee on Patents, Copyrights and Trademarks. It is expected that the Subcommittee will act on the bill sometime after mid-July.

— ARRL Letter

Help a friend become a ham!

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Mini-editorial

Much is written with the theme that we must bring more people into Amateur Radio.

True. But another related topic that is not discussed is: Why does this activity have so many "Drop-Outs"?

Why do so many people who went through the work to obtain a license leave the ranks of this avocation?

It does seem odd that people exposed to what Amateur Radio has to offer would let their licenses lapse when one of the most "safety-factor" items is a hand-held 2-meter rig kept under the car seat.

Could it be that we have dragged into Amateur Radio a bunch of insensitive galoots who never figured out what is offered to them in the way of their own protection?

Could it be that the newcomers meet coldness when they go to their first meeting at a ham club? From a group of people who delight in talking about what a fine bunch of people hams are?

How odd, when time comes to "re-up", that so many pass up their no-cost renewal.

What is the problem?

ATTN: California

The California State Military Reserve is looking for Communications men and women. Prior military service is desired but not necessary MARS operators will find a special welcome.

The CSMR is a "back-up" for the National Guard Meetings are one Saturday a month and a two-day muster once a year.

For more information and location of your nearest CSMR unit contact: California State Military Reserve, 2829 Watt Ave., Sacramento, CA 95821 or call (916) 920-6596.

Memo to our readers

This month, *Worldradio* is pleased to welcome back to the fold Christine Wilson, KA6TAL. Chris is returning as Managing Editor, a post she admirably filled for five years in the past.

For those attending the ARRL convention in San Diego, plan on dropping by our booth. We will have quite a crew: Publisher Armond Noble, N6WR; Associate Editor Norm Brooks, K6FO; Computer and Hams columnist Julian Macassey, N6ARE, and I will be there, and look forward to meeting one and all. — *Lou Ann M. Keogh, KB6HP, Consulting Editor*

Pass it on . . . **WORLDRADIO**

Miamisburg

(continued from page 1)

surrounding cities. Reports estimate that a total of 30,000 to 40,000 people were evacuated, including downtown stores, businesses and the R.L. Drake Company Service Department. The W8BI club also assisted in setting up another net to cover road block assistance to police departments and communications to evacuation centers.

The Kettering Medical Center Radio Club and the Miami Valley FM Association were also called on for relief ama-



Wayne Kesling, W8ILK, at road block



Kent Shirley, KD8KM, Miamisburg Police Department Central Dispatch

teurs and the response was great. Amateurs began arriving from Cincinnati, Columbus, Springfield, and Richmond, Indiana, at their scheduled times to relieve those that had completed their six-hour shift.

The Monsanto Research Corporation provided a constant update on wind speed and direction from ARAC (Atmospheric Release Advisory Capability). This was a 15-minute average and was (continued on next page)

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Lost child found

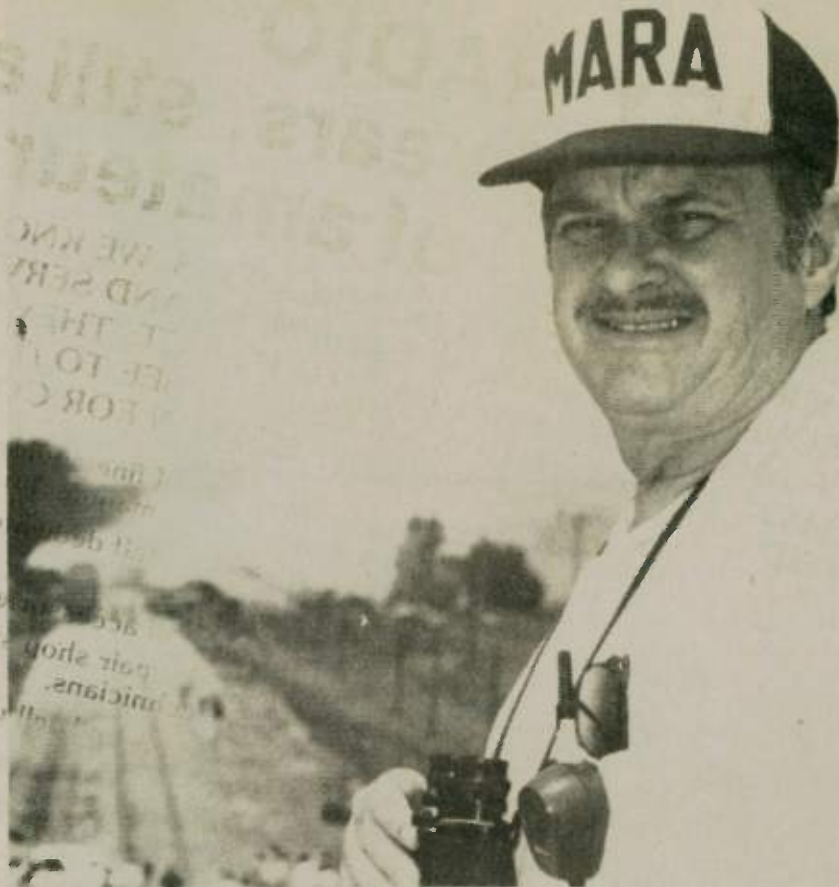
Rich Moseson, N2BFG

When a 5-year-old boy was reported missing near a heavily-wooded area in the New York suburbs, Amateur Radio operators were called in to help find him.

New Castle police officer Sal Lagonia, who's also N2EQM and president of the Westchester Emergency Communications Association (WECA), was on duty when the lost child call came in at around 5 p.m. on June 10. After deploying his own officers, Lagonia called the county fire control center to call out volunteer firefighters, and then called Westchester County Emergency Coordinator Willard Smith, K2CFX, to activate ARES.

An appeal for help on the WECA 2-meter repeater brought out about a half dozen volunteers, each of whom was sent out with a search team. After about an hour and a half of searching, Scott Smith, KA2WQZ, had the privilege of notifying the searchers that the lost child had been found, alive and well.

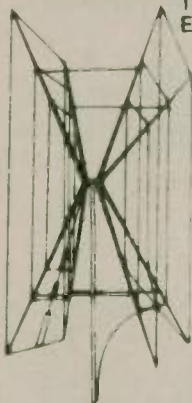
There was, according to Lagonia, just one additional problem: It seems the search team that found the child had a hard time finding its own way out of the woods. Fortunately, the team members made it out before the others had to go searching for them. □



Jerry Wirth, WA8BOF, at command post

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Miamisburg

(continued from page 3)

valuable in assisting the city officials in planning the evacuation and in plotting the plume's course.

The disaster lasted for four days. Finally, the fire was subdued at 1000 hours on Saturday the 12th. This resulted in a continuous emergency net operation of 99 hours. The estimated total of amateurs that volunteered their time was 449 amateurs. The estimated hours volunteered by these amateurs in

aiding the police and fire departments of Miamisburg, Ohio, is over 3,520 hours. □



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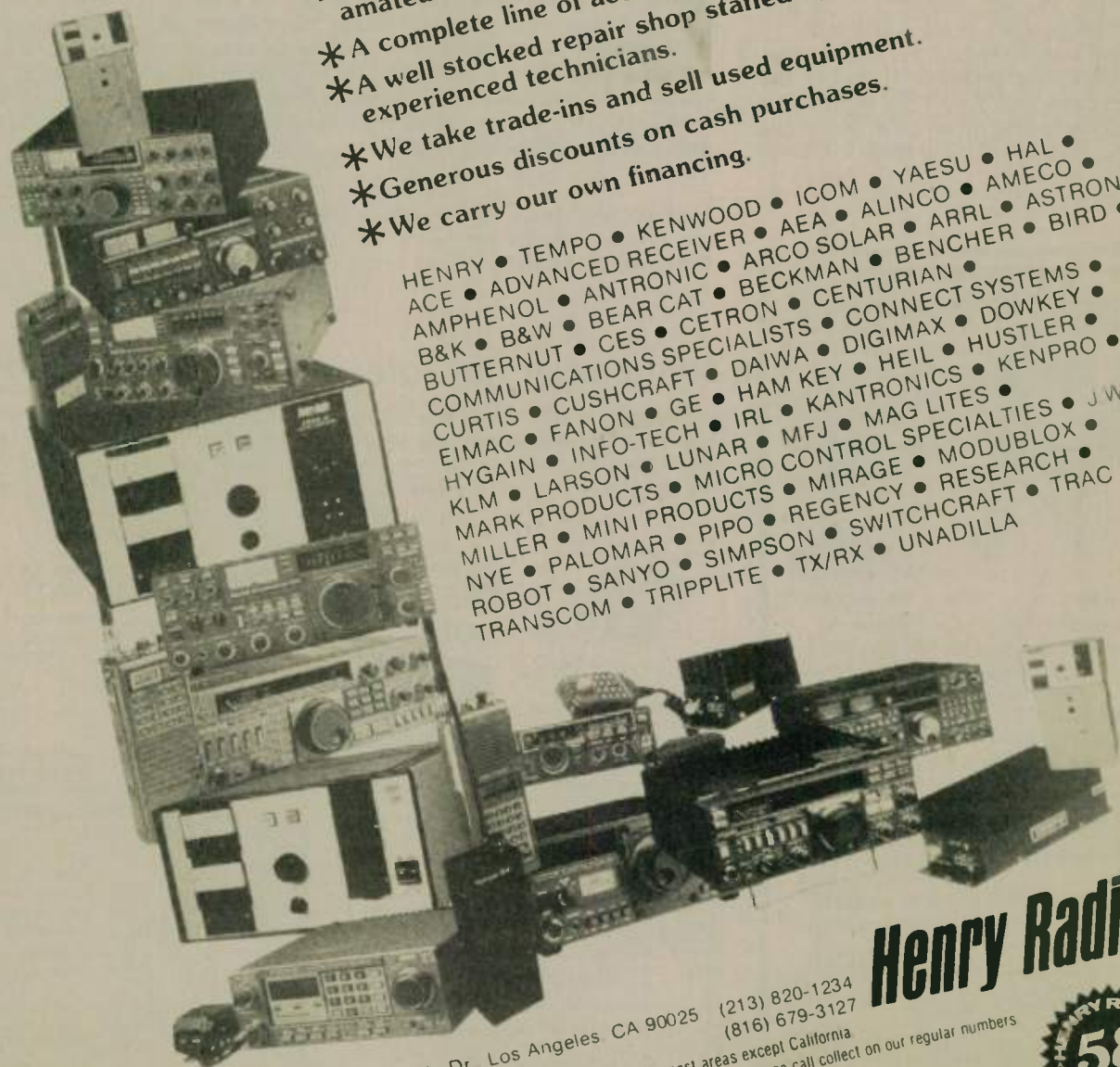


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Fun? Of course! But there is the more serious side to it also. It is truly, for man and machine, a test.

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Over 30,000 amateurs in about 2,000 groups enter the annual competition. Some go at it tooth and toenail to end up at the top (or near) in their classification in the QST listings.

Others may make it more of a family outing and club camaraderie event. And when the actual emergencies occur, it is the Field Day buffs who are on the scene.

In every serious emergency nation-



The Worldradio Staff ARC on Field Day. While clubs set up their stations far from humanity, we went to a city park. Here Norm Brooks, K6FO, explains Field Day and Amateur Radio to a curious couple who were out for their Sunday walk. Also different from clubs who set up massive antennas, we operated more like one would in an actual emergency. With our Spider antenna on CW, we hit four QSOs in four minutes; on SSB we made five QSOs in four minutes. One contact was with Alaska; the very next was with Northern New Jersey. And we were able to demonstrate Amateur Radio to many people. (Photo by N6WR)

wide and worldwide, it has always been the Amateur Radio operators who get the message through.

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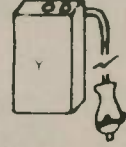


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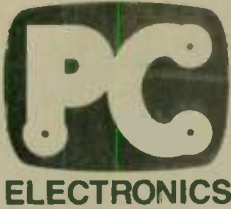
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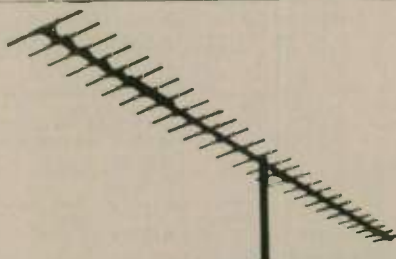
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7/86



**Bill Grenfell,
W4GF**

The ARRL has written FCC indicating its interest in finding a way in which Amateurs' requests for specific unassigned station call signs can be honored. In the League's 06/17/86 letter, Vice President Sumner wrote: "As the only national Amateur Radio organization which represents the entire spectrum of radio amateurs' interest and activities, the ARRL would be the logical choice to assume the exclusive role of fulfilling such requests for special call signs, and would be interested in doing so if its associated costs could be recovered from the licensees so served."

He notes that Amateur Radio organizations in other countries are similarly involved, and continues with: "Our preliminary investigations have revealed no legal impediment to the privatization of the area, particularly in view of the Commission's recent actions concerning frequency coordination in the land mobile services, provided that the basic station license continues to be issued by the Commission."

Informal discussion with a key FCC official reveals there is a definite interest in establishing some such type of call assignment procedure and, when asked when it could be in operation, he said it might be by the end of 1986!

The ARRL VEC put the new Advanced Class written element question pool into use in tests beginning 07/01/86. The FCC issued the pool in January 1986. Also, because FCC released its

new Extra Class question pool in April 1986, the ARRL/VEC will be changing the tests for the Extra Class on 10/01/86. (ARRL Letter, 06/06/86)

The FCC chief engineer dismissed an ARRL petition to require the labeling of home electronic equipment relative to its susceptibility to radiofrequency interference. Indication of whether the device incorporated shielding, filtering or circuitry designed to reduce its susceptibility to nearby radio transmitters, was requested.

He stated that the Commission approached this problem with the view of minimum regulatory involvement and took note of the voluntary RFI standards recently set by an ad-hoc committee of the Accredited Standards Committee (May QST, page 47). "However, if we find that such voluntary efforts do not afford an adequate degree of susceptibility control within an appropriate period of time, then mandatory standards and enforcement methods could be considered." (ARRL Letter, 06/06/86). At its June 12-13 meeting, the ARRL Executive Committee directed the ARRL General Counsel to file a petition for reconsideration of the denial. (ARRL Letter, 06/20/86)

When asked whether it would be possible to collect fees for repeater coordination to offset costs of doing it, FCC officials at the Atlanta Field Office and at Washington said they could find no specific regulation which precluded it! "Whether the FCC will close this loophole is not known." (Westlink Report, 06/13/86).

A very restrictive antenna ordinance has been revised to bring it into line with the terms of the FCC preemption order, PRB-1, on Amateur Radio antennas, support structures and stations, by the city council of Kirkland, Washington, as suggested by a consulting law firm. Before the May 19 change, antennas (structures) required prior approval at a public hearing, payment of a minimum \$350 fee and issuance of a construction permit/variance. (Westlink Report, 06/13/86)

A request for 500 kHz of the 220 MHz band to provide reading services to the visually impaired has been assigned RM-5434, which was to be used for reference by those filing comments with the FCC on the petition. The deadline for comment was specified as June 22. FCC's Office of Engineering and Technology has responsibility for frequency allocation rulemaking. The Association of Radio Reading Services, Inc., which provides their service via subcarriers of FM broadcast stations, filed the request on the grounds that FM broadcast subcarriers are becoming unavailable to them. (Worldradio, 06/13/86). At its June 13-14 meeting, the ARRL Executive Committee directed the ARRL General Counsel to file comments in opposition to RM-5434.

Responsibility for initial punishment of amateurs causing rules violations, such as malicious interference, has been shifted to FCC's Field Operations Bureau which will assess sizable fines for (please turn to page 10)

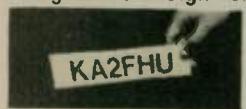
Amateur Radio Call Signs

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 1 July 1986.

For more information about call sign assignment in the Amateur Radio Service, see Section 97.51 of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17325.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech. Gen.	Group D Novice
0	NT0A	KE0GG	N0HFA	KA0YCL
1	NF1N	KB1YW	N1EFH	KA1OQG
2	NS2F	KD2TV	N2GJJ	KB2AYF
3	NB3P	KC3XR	N3EZD	KA3PTH
4	AA4UB	KJ4VP	N4OFO	KB4TQE
5	WM5U	KF5NP	N5JJA	KB5ADD
6	WU6O	KI6GS	N6NUF	KB6NFA
7	NU7Y	KE7RH	N7IHP	KA7ZDC
8	NS8G	KE8GC	N8HNY	KA8ZWY
9	NM9E	KD9XP	N9FWW	KA9VRC
N. Mariana Is.	AH0E	AH0AC	KH0A1	WH0AAG
Guam	AH2W	AH2BI	KH2CC	WH2AJH
Johnston Is.	AH3A	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Hawaii		AH6HD	NH6GK	WH6BJG
Kure Is.			KH7AA	
Amer. Samoa	AH8B	AH8AC	KH8AD	WH8AAW
Wake Wilkes Peale		AH9AC	KH9AB	WH9AAE
Alaska		AL7IA	NL7IQ	WL7BKK
Virgin Is.	KP2O	KP2AZ	NP2BT	WP2AEW
Puerto Rico	WP4R	KP4KK	NP4VX	WP4FRP

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FCC HIGHLIGHTS

(continued from page 8)

such violations. Repetitive violations, such as continued incidents of malicious interference, will result in proceedings by the Private Radio Bureau to revoke the license of the violator. As a result, the Private Radio Bureau's Compliance Branch was eliminated effective July 1, 1986. (*W5YI Report*, 06/15/86). The former head of the Branch, Carol F. Foelak, is now engaged in the FCC's preparation for participation in the next World Administrative Radio Conference.

The ARRL comments filed in PR Docket 86-161 will support the enhancement of Novice operating privileges as directed by the ARRL Executive Committee at its June 13-14 meeting. "The comments will argue that Novice Privileges in the 220 MHz band are an intra-service matter and not affected by the moratorium on new allocations to the band. The comments would also urge the Commission that Novice examinations be supervised by two volunteer examiners rather than one, as stated in the original ARRL Petition for Rulemaking. (*ARRL Letter*, 06/20/86).

See last month's **FCC HIGHLIGHTS** for the proposed new Novice/Technician privileges. The comment deadlines for this proceeding were 07/16/86 for originals and 08/20/86 for replies.

"Amateur Radio is not to be used for routine functions of the weather service." This statement is attributed to FCC's Raymond A. Kowalski, Chief of its Special Services Division and was reported in the 06/15/86 issue of the *W5YI Report*. He further advised that "Reporting routine weather by phone is consistent with the policy." I am assured by Mr. Kowalski that his "by phone" means by wireline telephone. See last month's **FCC HIGHLIGHTS** paragraph advising that transmitting routine weather reports to a TV reporter via Amateur Radio stations is in violation

of FCC rule Section 97.110.

An organized "hamwatch" using Los Angeles Radio Amateurs to spot and report car break-in thefts via their portable and mobile stations was depicted in a NBC "Today" show program on the subject at 8:12 a.m. EDT on June 26. Section 97.3(w) of the Amateur Radio Service Rules defines: "Emergency Communication. "Any Amateur Radio communication directly relating to the immediate safety of life of individuals or the immediate protection of property." "Section 97.110 business communications prohibited." states that "The transmission of business communications by an Amateur Radio station is prohibited except for emergency communications (see 97.3(w))"

Some comments on the license fee program not being applied to Amateur Radio licenses say that FCC ought to have fees so that it "... can have a real strong enforcement program. "What they don't understand is that the fees don't go to the Commission to spend on the service that collected them, but rather they simply go into the General Treasury." (*W5YI Report*, 06/15/86 quoting Ray Kowalski, Chief, Special Services Division, FCC, Washington).

A request by the licensee of K1MAN to have his station power level case against the FCC regulations heard by the supreme court has been denied. Two Justices felt that the hearing ought to be denied "... not on the grounds that he ought to be allowed to proceed without conforming to the Court's procedures — but rather that they felt it was a pointless discussion because they knew full well that the Court was not going to grant a petition to have his case heard." (*W5YI Report*, 06/15/86). Baxter (K1MAN) argues that FCC wrongly went to PEP output power rather than DC input power limits and that maximum permissible AM power was thereby greatly reduced

FCC'S Fort Lauderdale, FL monitoring station is being moved because the present site is no longer suitable due to unacceptable levels of RF interference at that location.

The Electronic Communications Privacy Act reported as H.R. 3378 in last month's **HIGHLIGHTS** has been redesignated as H.R. 4952. "Although Amateur Radio is specifically exempted from the Act, the legislation still makes it a crime to monitor certain portions of the radio spectrum. "It has strong support of certain segments of industry ... particularly those firms associated with the cellular telephone business." (*W5YI Report*, 06/15/86).

On June 6 FCC chairman Mark Fowler was renominated by President Reagan for the \$73K, five year position. Fowler released a statement indicating his gratitude and acceptance but that he probably won't stay the whole term. The Senate has to vote approval. No date for the vote has been set. However, he may serve without reconfirmation through December 1987.

On June 25 Patricia Diaz was sworn in as a new FCC commissioner. A former member of the National Labor Relations Board, she fills the vacancy left by the departure of former Commissioner Henry Rivera. This brings the Commission up to its full allowable membership of five people. Recently FCC commissioner terms were reduced from seven to five years which gets the terms in step with the current FCC five commissioner limit.

On June 6, FCC's San Diego office moved to: 4542 Ruffner Street, Room 379, San Diego, CA 92111-2216; (619) 293-5478.

In answer to several inquiries: Yes, K6KPS was indeed fined \$2000 for violation (please turn to page 22)




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1410 1410G	144-148	160	10	6 15
1412 1412G	144-148	160	30	6 15
2210 2210G	220-225	130	10	7 12
2212 2212G	220-225	130	30	7 12
4410 4410G	420-450	100	10	1.1 12
4412 4412G	420-450	100	30	1.1 12

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SPECIAL EVENTS

Paradise, Arizona

The Desert Rats DX Club will operate KB7ND on August 30-31 and September 1 (Labor Day weekend) from its annual Paradise, Arizona ghost town location.

Suggested frequencies are 3.970, 7.270, 14.270 and 28.570 MHz. A business-sized SASE will bring a certificate attesting to having reached Paradise. QSL to P.O. Box DX, Sierra Vista, AZ 85636.

Collectors Show

Members of the Hastings ARC will operate W0WWV from 1900Z September 6 to 1900Z September 7 from the Old Trusty Antique and Collectors Show at Clay Center, Nebraska.

Suggested frequencies will be the general portion of the 75-40-20 meter bands. Send QSL and \$10 SASE to HARC, P.O. Box 128, Hastings, NE 68901.

Labor Day safety

The Tri-City ARC will operate special event station KA1BB from Waterford (Connecticut) 195 weigh station to promote safe Labor Day holiday auto travel. This event is in conjunction with the fourth annual Stay Awake Coffee Shop offered by BSA Troop 24, Niantic, Con-

Coach "Bear" Bryant

The West Alabama Amateur Radio Society (WAARS) of Tuscaloosa, Alabama will sponsor a special event station in honor of college football and its greatest coach, Paul "Bear" Bryant.

Using the call WD4DAT, the Bear Bryant Special Event Station will be held on Saturday, September 6th. The station will be in operation from 1300Z to 2300Z on that date. The station will

Jack London

The Valley of the Moon Amateur Radio Club will be operating a special event station, N6KM, commemorating world famous writer Jack London, author of *Call of the Wild* and *The Sea Wolf*. Operating from the Wolf House, his home in Jack London State Park in Glen Ellen, California for two weekends, September 13, 14 and 20, 21 from 8 a.m.

Septemberfest Station

The Schaumburg ARC will operate club station WB9TXO from the grounds of the Schaumburg Septemberfest, 1600Z-2100Z August 31, 1986. Suggested frequencies are 7.286, 14.286, 21.386.

For certificate send QSL to SARC, P.O. Box 94251, Schaumburg, IL 60194.

Rockafellow's 25th

The Stu Rockafellow Amateur Radio Society of Plymouth, Michigan will be celebrating their 25th anniversary in conjunction with the Plymouth Fall Festival, September 4-7, 1986, operating radio station W8NJH.

Phone 10 kHz up from the lower end of the General Class band, CW center of the Novice band. Certificate will be issued for QSL and SASE. QSL via W8NJH, 201 S. Main St., Plymouth, MI 48170, or Ken Nowak, WD8IAE.

necticut. Mobile operators are especially encouraged to call.

Operation will be from 1700Z, August 30 through 2300Z, September 1, on 14 295, 7 245 and 3 395 MHz phone and on 7.130 MHz CW.

Talk-in to coffee stop on FM-146.52 direct. QSL via Tri-City ARC, P.O. Box 686, Groton, CT 06340.

operate on the lower 25 kHz of the General 80, 40, 20 and 15-meter bands.

WAARS will be offering a handsome commemorative 8½ × 11 certificate for contacting their station. The certificate is a newly redesigned award.

To receive a certificate send an SASE with your QSL card to WAARS Special Event, P.O. Box 1741, Tuscaloosa, AL 35403 or the Callbook address of WD4DAT.

PDT Saturday to 6 p.m. PDT Sunday (1500 UTC Saturday to 0200 UTC Monday). The club will operate stations in the General phone band on 21.360 MHz on 15M, 14.275 MHz on 20M, and 7.255 MHz on 40M, ± depending on QRM.

A beautiful 8" × 11" certificate, suitable for framing, with London's picture and history, and featuring a Jack London (please turn to page 22)

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CaGen SCRATCH PAD

The CaGen Scratch Pad is a general utility (machine language) program which will prove useful to all C-64 owners, with special value to programmers - for screen design and plotting. Users can store and retrieve information such as program documentation, schedules, shopping lists, recipes, appointments, etc. Use as an "electronic notebook". Programmers can eliminate costly printing bills for instruction manuals by creating documentation files on the actual program disks for user printing or viewing on screen. A very handy tool. \$45

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CaGen DISPLAY

The CaGen Display program is a variation of "Scratch Pad" which produces continuous information displays on a monitor for advertising, public information, or any general informational purpose. Any screen that can be created with the C-64 keyboard (text and/or graphics) will be displayed. Perfect for point-of-sale advertising, club displays and the like. Use it anywhere you need an "electronic bulletin board". Has all the features of "Scratch Pad" except for special files such as documentation described above. It produces up to 19 continuous screens with variable display times for each screen. \$45

■●●●■

CaGen CUSTOM CATALOG (Disk Library)

The CaGen Custom Catalog is a machine language program for the C-64 & 1541 disk drive which will catalog and sort disk directories on screen and then produce printouts of the resulting lists. Placed in the public domain because of its universal appeal to all C-64 owners and as a sample of CaGen Software.

CaGen DISK-KIT 128 (Sector Editor)

The CaGen DISK-KIT 128 is a machine language sector editor for the new C-128 & 1571 disk drive. Useful for all C-128 owners and programmers. It will read and write to all sectors on both sides of a 1571 GCR Formatted disk. It will not handle MFM format. Placed in the public domain as a courtesy of CaGen Software.

We will be happy to provide either the Custom Catalog or the Disk-Kit 128 for a charge of \$4.00 per program to cover the costs of disk, production and mailing to any U.S.A. or Canada address.

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VA residents add 4% sales tax. Ham clubs & User Groups - 10% discount on orders of 5 or more programs. For more details regarding our programs please send SASE. We welcome your inquiries regarding custom machine language programming needs.

R-X NOISE BRIDGE

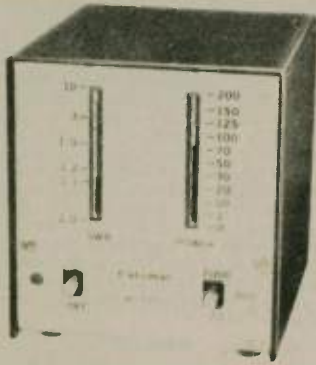


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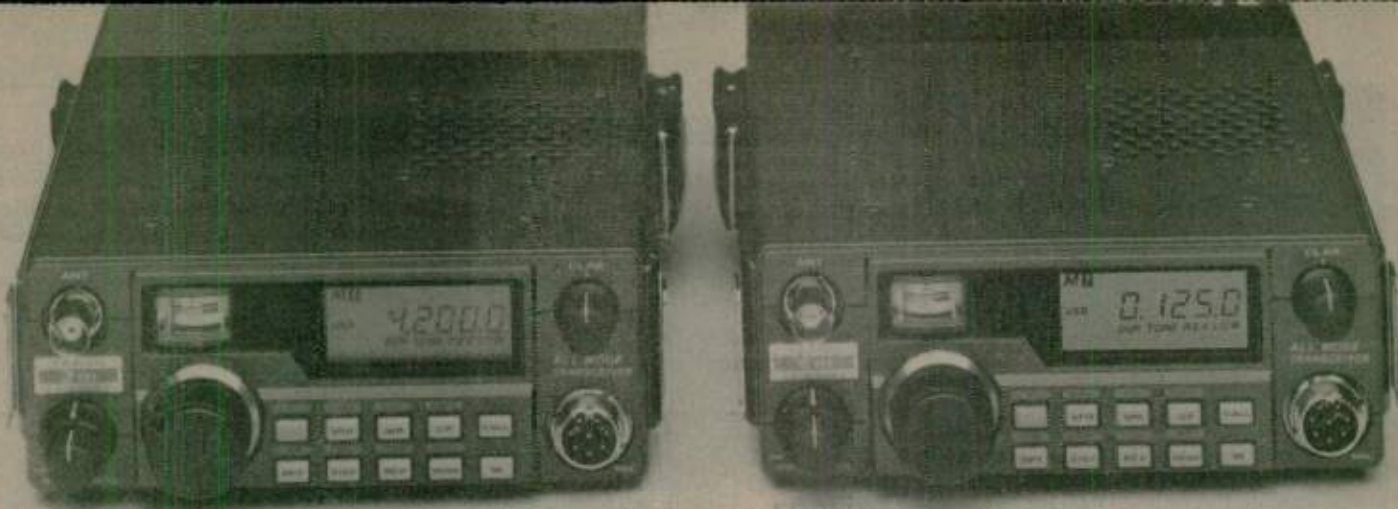
VE Exam Schedules

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 two months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid July.

Our address is Worldradio, 2120 28th St., Sacramento, CA 95818. Please mark the envelope "VE Exams".

List the location, and information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

Date	City	Contact person	Notes
Arizona			
Sept 27	Flagstaff	NN7A (602) 779-2288	25 day pre-reg some walk-in (w/i)
California			
Sept 5,6,7	San Diego	(619) 465-EXAM	
Sept 6	Visalia	WA6OGB (209) 733-3109	pre-reg by 8/26
Sept 6	Napa	W6DNY (707) 224-1530	
Sept 6	Riverside	(714) 780-2680	7 day pre-reg
Sept 6	Van Nuys	(818) 762-5059	
Sept 7	Chico	KE6EP (916) 893-5208	
Sept 13	San Marcos	(619) 465-EXAM	pre-reg by 9/3
Sept 13	Los Altos Hills	W6NLG (408) 255-9000	
Sept 13	Vandenberg AFB	(805) 929-3710	
Sept 13	Victorville	(619) 244-2025	
Sept 14	Pleasant Hills	W6NLG (408) 255-9000	
Sept 17	Long Beach	(714) 895-5170	
Sept 20	Anaheim	KD6DA (213) 691-1514	
Sept 20	Chula Vista	(619) 465-EXAM	pre-reg by 9/10 w/i
Sept 20	Huntington Beach	KD6DA (213) 691-1514	
Sept 20	Novato	N6AQY (415) 897-8950	
Sept 20	Rancho Palos Verdes	(213) 374-7176	
Sept 27	El Cajon and Escondido	(619) 465-EXAM W6NLG (408) 255-9000	pre-reg by 9/17
Sept 28	Santa Cruz		
Colorado			
Sept 13	Denver	W0IRJ (303) 366-9689	w/i OK
Florida			
Sept 11	Jacksonville	W4PTT (904) 781-0972	
Sept 13	Miami	WN4L (305) 247-2944 after 6	
Sept 13,14	Melbourne	WB9IVR (305) 724-6183	24 hr phone
Indiana			
Sept 1	Plymouth	KB9V (219) 784-8540	w/i OK
Sept 6	New Castle	W9JUU (317) 288-0481	
Sept 20	Michigan City	K9ET (219) 874-3386	30 day pre-reg
Sept 21	Kokomo	Will (317) 453-6542	
Sept 26	Mishawaka	(219) 255-3089	
Sept 27	Seymour	KI9R (812) 372-5006	15 day pre-reg in advance
Oct 4	Speedway	KA9H (317) 241-1272	
Kansas			
Sept 19	Kansas City	NC0M (913) 262-0631	
Massachusetts			
Sept 17	Cambridge	WA2EYC (617) 646-1641	2 day pre-reg w/i OK w/i OK
Sept 19	Holyoke	KO1R (203) 623-4850	
Minnesota			
Sept 20	St. Paul	Jay Bellows (612) 222-7253	30 day pre-reg
Sept 26	Marshall	WD0BZU (507) 532-2581	30 day pre-reg some w/i
Missouri			
Sept 5	Liberty	N0EWP (816) 987-3936	call ahead
Sept 25	Joplin	NE0F (417) 624-5231	orig. license
New Jersey			
Sept 13	Trenton	Delaware Valley ARC	(please turn to page 14)



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World Radio History

Sad postscript to FD

Just at press time, we received a word of a Field Day accident which cast a shadow across this usually fun and festive occasion. North Dakota Section Manager Mike Mankey, WB0TEE, was killed when an antenna he was helping to install at a Field Day site came into contact with power lines.

The unfamiliar site had trees that looked ideal as antenna supports, but it was discovered — too late — that there were power lines hidden behind them. Mike was 36 years old. Our deepest sympathies go to his family.

While it cannot in any way reduce the loss to Mike's family, and to the Amateur Radio community, we hope this note will remind all of us to put safety at the top of the checklist for antenna projects, at home or in the field.

— ARRL Letter

Hams win in Tucson

Amateur Radio won a very important tower ordinance exemption in the Tucson, Arizona area, but cellular telephone service providers will have to go through the special permit hassle to put up their installations.

It seems that the need for an antenna ordinance in Pima County, Arizona, came about as the result of cellular telephone operators wanting the right to put up a number of 200-foot-high radio towers in residential neighborhoods. Residents petitioned the county for an ordinance to restrict these "eyesores."

The local Amateur Radio community got wind of the proceedings early on and went to work behind the scenes to help staff members write the ordinance so that Amateur Radio would not be affected by it. This draft resolution went before the Board of Supervisors where

VE exams

(continued from page 12)

Ohio			
2nd Sats Sept 27	Maume Mantua	KU8B KJ3O/8 (216) 274-8240	30 day pre-reg org lic. and copy
Oregon			
1st Sat	Portland	Randy (503) 649-5066	30 day pre-reg
Pennsylvania			
Sept 20	McKeesport	KQ3W	w/i OK
Tennessee			
Sept 6	Chattanooga	N4BMR (615) 886-2093	
Sept 7	Chattanooga	W4BEV (615) 894-4726	
Texas			
Sept 6	Cameron County	WA2VJL	30 day pre-reg
Utah			
	TBA	Gordon Smith K7HFV	
Vermont			
Sept 20	Windsor	WB1GXM	30 day pre-reg some w/i
Virginia			
Sept 5	Williamsburg	WJ4X	
Washington			
Sept 13	Seattle (North)	W7WHT (206) 282-1438	call; w/i OK
Sept 20	Seattle (South)	N7IL (206) 242-6501	10 days w/i as room permits
Wisconsin			
Sept 6	Racine	N9DMP (414) 658-8390	30 day pre-reg assures place

only one supervisor opposed the Amateur Radio exemption.

A group of amateurs took him out to see a 90-foot tower with 40- and 20-meter and VHF antennas on it and explained how a 20-meter antenna's takeoff angle is affected by its proximity to ground. They explained that this height is necessary to handle emergency communications, such as those after Mexico City's earthquake.

The supervisor agreed that the appearance of a large beam at 100 feet was better than the same antenna at 34 and agreed to the 100 foot limit for ham antennas.

The Cel-Tel boys were not as lucky. Unless they get various permits, they are limited to a maximum height of 34 feet.

— *Superstition ARC*

Safety demonstration

The Dayton Power and Light Company is to be congratulated for the excellent electrical safety demonstration put on at the Dayton Hamvention. A 7,000 volt distribution system in one of the meeting rooms was set up. They startlingly demonstrated the dangers of high voltage lines and discussed precautions to be taken with overhead wires.

The word got around quickly that this was one demonstration not to be missed. They played three times to packed, standing room only audiences each time. Charles Peck and Denver Harter, DPL employees made with the high voltage demonstrations, and Clarence Kurns, also a DPL employee, explained measures taken by the utility to minimize RFI problems. All three were very knowledgeable and did an excellent job. Dayton Power and Light is fortunate to have such capable people on their payroll. To the Dayton Amateur Radio Association: How come these three fellows aren't amateurs?

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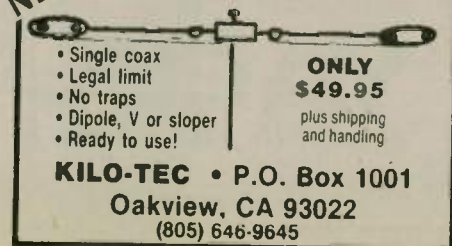
LJM2RK decoder kit includes all component, relay, and P.C. Board. . . . \$15 plus \$1.50 shipping.

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Hams help Voyager crew set new records

Amateur Radio operators can be proud of the part they played during the record-setting Voyager flight in mid-July.

Don Rietzke, KC0XG, Communications Director for the project, said that all who worked on the flight — from the technicians to the pilots themselves — were hams. "They all did a very professional job," said Rietzke.

Eight hams assisted with communications during the 111-hour (4½-day) flight, working 10-hour shifts. Among the amateurs who assisted were: Dick Blosser, WA6RJE; Chuck Whittington, WB4TEO; Greg Kordis, WA6EEB; and KC0XG.

The pilots — Dick Rutan, KB6LQS, and Jeana Yeager, KB6LQR — set four new records for distance and endurance on this flight. However, it was only a prelude to the 12-day non-stop flight around the world that will be attempted in September (14th to 28th).

The records set were: absolute record for distance over closed circuit (11,600.9 miles — exceeded previous record by over 263 miles); non-stop mileage flown by two classes of piston-engine aircraft; and unrefueled endurance (previous record was 83.2 hours), which will be entered in the next Guinness Book of World Records. These were confirmed by the Federal Aviation Agency and the National Aeronautic Association. (The pattern flown by the plane was north-south along the California coast.)

Rietzke told Worldradio that hundreds of hams nationwide have volunteered their services in assisting with communications for the September flight. The Army and Air Force have supplied many of those volunteers. United Airlines, Qantas and Cincinnati Electronics have also volunteered to help with communications.

Rutan, 48, has been a pilot for 32 years; Yeager, 34, (no relation to retired

Air Force General Charles Yeager, who broke the sound barrier in 1947), has been a pilot for nine years. They met while doing airshows and decided to try setting a new record in aviation. Thus, the idea for Voyager was born.

Burt Rutan, brother of the pilot, designed the Voyager plane.

— Information from Don Rietzke, KC0XG; Sacramento Bee; and USA Today □

Japan launches ham satellite

Amateur Radio's newest satellite, JAS-1, was set to be launched at 2000 UTC, July 31. The joint Japanese National Space Agency/Nippon Electric Corporation-built satellite, was to be launched from Tanegashima Island, Japan, aboard an H-1 two-stage launch vehicle. (Lift-off was actually August 1 their time.)

The telemetry, electronics and transponders were designed by JAMSET volunteer engineers. It will circle the Earth every two hours, yielding about eight passes per day each with a 20-minute window.

It has two parts to it. The first part will be much like the OSCAR-8, Mode J transponder. JAS-1 carries two separate Mode J transponders. One is voice, the other is a digital "store and forward" transponder. The digital transponder will provide "error-free" packet radio communications.

Mode JA — (Voice)

A ground station with a 10 watt 2-meter SSB transmitter and a 10dBi beam for uplink and a 70cm receiver and a 15dBi beam for downlink should be adequate. The transponder will have an output of 1 watt PEP. Passband is 100 kHz wide.

Uplink channel: 145.90-146.00 MHz
LSB Downlink channel: 435.80-435.90 MHz
USB 100mW CW beacon: 435.795 MHz

Mode JD — (Digital)

JAS-1 has four uplink FM channels and one downlink. One of the four channels was to be selected by the satellite and rebroadcast on 70cm. A simple packet station (TAPR-style TNC, a 2-meter FM transmitter and a 70cm receiver) are all that is needed.

Uplink channel 1: 145.850 MHz
Uplink channel 2: 145.870 MHz
Uplink channel 3: 145.890 MHz
Uplink channel 4: 145.910 MHz
Downlink channel: 435.910 MHz
(please turn to page 28)

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Dayton: Forums

The following reports continue World-radio's coverage of the many informative seminars and forums presented at the Dayton Hamvention '86.

The Dayton packet radio introduction forum

If you want to learn about packet radio, ask someone who is doing it. If you want to learn more, talk to "Packet Pete." Attendees at the Dayton Hamvention had their chance at a forum called "Packet Radio Introduction and Tutorial" given by Pete Eaton, WB9FLW, "Packet Pete" himself.

The forum started off with a brief mention of how packet was "big at the show." It certainly was. At least six manufacturers of TNCs (Terminal Node Controllers) were there.

Channel sharing, explained Pete, was one of the many advantages of packet. When consideration is made of how crowded bands are right now and that we are not likely to get more, being able to share a channel simultaneously with other stations was a major way of accommodating more users. As packet transmits in bursts and is inherently polite, not transmitting while another station is transmitting, it will accommodate many "simultaneous" QSOs on the same frequency.

The point that most attendees were not prepared for was that packet (digital radio) is currently limited to text but will certainly include voice and pictures in the near future. Packet speeds are starting to increase and in the future will allow more and more users per channel.

One of the features of packet is the ability for any station to be a "repeater," not in the commonly understood meaning of the word of full duplex split frequency use. The digital repeater is called a "Digipeater." What a digipeater does is store a packet in the TNC RAM (Random Access Memory) and when it has been received, go into transmit on the same frequency and spew that packet out. This enables two stations that cannot hear each other to communicate via a mutually visible station which may or may not be on high ground.

The first digipeater, Pete told the crowd, was one put up in San Francisco by Hank Magnuski, KA6M. This digipeater was on a high mountain in the middle of the repeater sub-band. As this was the first digipeater and the rules were unclear, it was treated as a repeater. So every few minutes it put out a CW identifier, KA6M/R.

In the summer tourists came to San

Francisco with their walkie talkies and looked around for repeaters. They heard KA6M/R and occasional noises like intermod. They tried to get in -600; that didn't work, so they tried up 600. Those with PL tried them all. No go. So in frustration, they looked up Magnuski in the phone book and called up saying either "The repeater is down" or "What's up with the repeater?"

Hank had to explain to bewildered tourists that it was a digital repeater, on only one frequency and handling

"Packet Radio". Many tourists went home convinced those guys in California are all fruits and nuts. They decided their next vacation would be in Hawaii.

The simple thing about putting up wide coverage digipeaters is that they are cheap to install. A digipeater is one single channel transceiver, one antenna, and a TNC. No cavities, no isolation problems and no need to beg or conspire for a repeater pair. As each digipeater is addressed by the station using it, many (please turn to page 18)



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Friday September 5

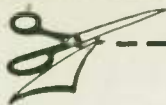
1500 Exhibits Open
1830 Dinner Dance Cruise
2100 Exhibits Close

Saturday September 6

0700 Registration Open
0730 International Breakfast
0900 Exhibits Open
0900 Tech Sessions & Forums Start
1130 Ladies Luncheon
1300 Old Town & Tijuana Shopping Tours
1300 WORE Youth Forum
1600 ARRL FORUM
1700 Exhibits Close
1830 Social Hour
1930 Banquet
Midnight Wouff Hong

Sunday September 7

0700 Registration Open
0800 DX Breakfast
0800 Other Special Interest Breakfasts
0900 Exhibits Open
0900 Tech Sessions & Forums Start
1200 Exhibits Close
1200 Closing Ceremony
• And Grand Prize Drawings
1300 Convention Closes
1300 "T" Hunt Starts



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— Banquet (1st 1100)	Sat @ 25.00	_____
	<u>Sat</u> <u>Sun</u>	
— Tijuana Trip (1st 80)	_____ @ 10.00	_____
— Old Town (1st 80)	_____ @ 6.00	_____
— San Diego Zoo (1st 80)	_____ @ 14.00	_____
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Forums

(continued from page 16)

digipeaters can be on the same channel and will only digipeat when asked to by a station using it.

The other smart thing about packet that Pete explained was the Gateway BBS system, sometimes referred to as the WØRLI system, named after the in-

ventor Hank Oredson. WØRLI. This is a system of mailboxes that pass traffic automatically between each other (unattended operation) so that mail can be sent from one region to the other, enabling hams to keep in touch with each other and pass news.

The future, growing from this, is an automated National Traffic System with no human intervention. Put some traffic in your end with its destination

noted and computers, and packet radio will get it to its destination. Another part of the future that will get more traffic there faster is high-speed TNCs.

The forum was ended with an introduction to POOP. Packet Pete and Lyle Johnson, WA7GXD released to the public a document called: "Poor Operating On Packet" (POOP). They explained with quips and good humor what those poor operating practices are.

Packet radio: the future

Over 200 packet fiends filled a room at Dayton to hear Lyle Johnson, WA7GXD give them the word about where TAPR (Tucson Amateur Packet Radio) and packet in general were headed in the future. Lyle is one of the handful of dedicated amateurs who ignored derision and put together the first TAPR TNCs and drafted AX.25, the protocol that runs the world's TNCs.

Lyle started out explaining the future goals of TAPR. They will be turning their attention to the regulatory affairs of packet, petitioning the FCC to enable packet to grow. As packet does things with radios that were not even dreamed of five years ago and the FCC part 97 rules were written with other modes in mind, this will be important work and

TAPR is probably the best organization to do this.

The next area to be addressed by TAPR is the whole business of networking. Getting packets to their destination, rapidly and automatically. Lyle showed the crowd a prototype of the new NNC (Network Node Controller) which sits on a small card that can be bolted onto a 5¼ inch disk drive. The purpose of the NNC is to rapidly route wideband data around the growing packet network, providing real coast-to-coast relaying, which is what the ARRL was founded for all those years ago. With TAPR's vision the relays will be machines, not people.

The NNC will probably be priced at about \$175 and the modem to go with it will cost \$125. There will only be one NNC per area. It is to aid TNCs to move traffic, not replace them.

Something new from TAPR is for a packeteer's shack was the HF tuning indicator kit. This will give a visual indication of correct tuning when running packet on HF. This kit will cost about \$25.

TAPR will be releasing a MODEM board to enable packet stations to work

the upcoming JAS-1 packet satellite. As the launch nears, more information about this product will be released.

Someone in the audience asked about the release of new EPROMs for TNC1s. Harold Price, NK6K came up to the podium to explain that he had it "working in the lab" but was having trouble implementing it. The new EPROMs, known as 4.0, will have the same commands as a TNC2 so all those old-timers running TNC1s will be able to do the same fancy things as the owners of TNC2s.

The really interesting news for the assembled experts was that the source code of the TNC2 EPROMs has been released to all the manufacturers of TNC2s. No date for release to the general public was given, so all the hackers will have to wait awhile. □

Farewell Florida Skip

Due to a stroke suffered by Andy Clark, W4IYT, on June 7, FLORIDA SKIP will no longer be published. In a letter sent to all FLORIDA SKIP members and advertisers, Andy explained that his doctor has advised him that he must give up stressful activities immediately, which is why he will no longer be putting out the publication. He and his wife, Betty W4GGQ, had done over 90 percent of the work each month, for the past 30 years.

Andy says they still plan to continue mailing the Florida Repeater maps, their traffic publications, and FCC 610 forms (with SASEs), as long as they last. Questions can be addressed to: P.O. Box 660501, Miami Springs, FL 33266.

Our wishes for a speedy and complete recovery go out to Andy. — *Worldradio*

Traveling to Canada?

If you're traveling to Canada, you must have your original FCC license with you. If you have any problems, ask a customs officer to refer to Memoranda D2-1-1 and D19-4-2. These will remind the officer your license is valid and your equipment entering as personal luggage. *Beaver Valley ARA, Darlington, PA*



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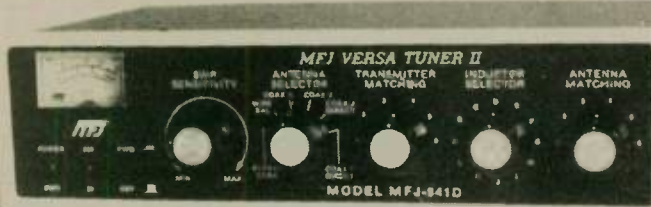
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Young Ham of the Year Award

Yaesu USA has announced its corporate underwriting of the newly created *Westlink Report* "Young Ham of the Year" award. This award was created to give American Amateur Radio operators under the age of 18, special recognition for their contributions to the amateur service.

As corporate sponsor, Yaesu will provide the award winner with transportation to and from the Ham/West convention where the award will be presented; furnish the winner with a room at the convention hotel and provide the winner with an amateur transceiver as a prize.

In his letter pledging corporate support for the *Westlink Report* "Young Ham of the Year" award, C.H. "Chip" Margelli, K7JA, who is Yaesu USA Vice President and Director of their Amateur Products Division, wrote in part: "... We hope that the sponsorship will lead to greater youth participation in Amateur Radio..."

Responding to Yaesu's letter, *Westlink Report* publisher Bert Hicks, WB6MQV, noted his personal appreciation to the amateur manufacturer for their decision to underwrite the award,

and hoped this would be the first of many such offers of support to come as the award program progresses over the years.

Westlink Report Editor Bill Pasternak, WA6ITF, noted that it is his belief the decision by Yaesu USA to underwrite the *Westlink Report* award is a major step toward interesting young people into entering Amateur Radio. "... While there are many programs that offer young amateurs education through scholarship awards, few if any offer the award winner immediate enjoyment of Amateur Radio as a prize.

"With Yaesu as an initial corporate underwriter, giving the world of immediate Amateur Radio enjoyment to a young ham who has accomplished something special is now a reality. Can you imagine the reaction of classmates when the winner returns to school and can show an actual reward for being a ham? If that does not interest other young people in becoming radio amateurs, nothing will!"

The actual award will initially take the form of a certificate and/or trophy to be presented to a licensed radio amateur under the age of 18 years, whose devo-

tion to Amateur Radio has benefited his community and/or nation, has significantly contributed to furthering the state of the art in communications technology, has helped to promote widespread growth in our ranks, or any combination thereof. The presentation will be made at the annual Ham-West Amateur Radio Convention banquet held in Las Vegas, Nevada in November.

The criteria for this award are as follows:

1) Nominees must hold a currently valid U.S. Novice Class or higher license and be a U.S. citizen.

2) Letters of nomination must be accompanied with materials that verify any claims made. Such verification might include but are not limited to newspaper clippings, magazine articles, news videotape or film describing the achievement, etc.

3) In cases where letters of nomination are submitted by a minor, all such letters of nomination must also be countersigned by the parent or legal guardian of the person making the nomination. Said adult then takes full responsibility for the truthfulness and completeness of the materials supplied.

4) Educators may nominate students as long as they take responsibility for the accuracy of materials supplied.

5) The nomination period runs from January 1 to September 30 of each year. Winners will be notified by mail no later than October 15 of each year. *Westlink Report* assumes no responsibility to provide transportation to and/or lodging at the Ham-West convention.

6) Letters of nomination and associated materials should be sent to: Young Ham of the Year, c/o *Westlink Report*, Editorial Office, 28197 Robin Ave., Saugus, CA 91350.

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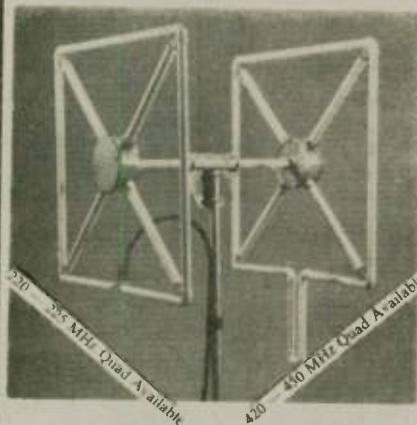


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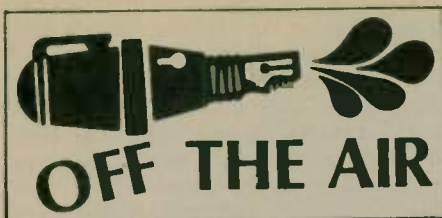


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Ident-A-Kid program

I wanted to let you in on a new endeavor our special services club — the Central Georgia ARC — is undertaking.

We are continually looking for ways to provide a service to the public while upholding the professionalism of the hobby. The nation has been plagued with lost and stolen children, and we can hardly go about our daily lives without being reminded what is being done to bring about the safe return of those children. Several club members use video equipment in the hobby and for personal use. We thought, why not do a session on the video ID'ing of children for parents desiring this service?

We talked at length with local law enforcement officers, who felt that video ID'ing, along with fingerprints, could prove invaluable in the recovery of these lost or stolen children.

We felt that while a videotape could be invaluable, we also believed we could improve on that by the addition of a voice print of the child. Also, we could highlight — by way of voice-over — the taping by including closeups of such points as birthmarks, scars, etc.

We performed this public service at a local mall in February, at no charge, providing blank tapes for parents. Through the cooperation of a local merchant, we were able to provide tapes at a very nominal price for those who failed to bring blanks. We had the full support of community law enforcement officials, as well as the city and county leaders.

Amateur "Hi"

Lorenzo Padgett, WA4RQT, of Jacksonville, Florida wins this month's Amateur "Hi" award, and will be receiving a free year's subscription.

About four years ago, while in CW QSO with KA8VAC, I sent "NAME IS LORENZO." He came back, "NAME IS LORENZO?" I verified "NAME IS LORENZO." Again he came back "NAME IS LORENZO?" Neither of us being too proficient at CW, this went on for several minutes before we both realized we had the same name.

This has enlightened me on Shakespeare's oft-quoted line: "What's in a name?"



The Ayers family: (left to right) George, W0FXV; Misty, KA9JUP; Candy, KD9QV; and Jerry, W9ET.

On the Ayers

There are four Amateur operators in our family. My grandfather, dad, sister and myself. Together we have 99 plus years of experienced Amateur Radio operating. My grandfather was licensed in 1928, holding a license for 58 years. My

father holds a 32-year-old ticket, licensed since 1954. My sister, Misty, was licensed in 1981 and I've held a license since June of 1982. Next month we will have 100 years of experience.

CANDY AYERS, KD9QV
Indianapolis, Indiana

Our program, Ident-A-Kid, has received positive responses from hams all over the country, with at least two groups indicating they will do a similar service in their respective areas. We would like to hear from other clubs and groups regarding this type of service to the public. We would enjoy sharing ideas.

CURTIS M. CARTER, K4KKQ
Chairman, Ident-A-Kid Program
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N7GMT STATION APPEARANCE

Hugh C. Dean, N7GMT, of Bonanza, Oregon is our September Station Appearance winner. Hugh, retired from the U.S. Air Force, has been an amateur since January 19, 1985. DX is his main interest — he's worked 137 countries with 98 confirmed.

A description of his station equipment follows: (left to right) Digital clock; Kenwood SP-930 speaker; Kenwood TS-930S transceiver; Kenwood AT-230 antenna tuner; (top) HyGain antenna control, HyGain TH3 Jr.; (top) MFJ-482



CW keyer; (bottom) Yaesu FT227R 2-meter transceiver; (bottom) 2-meter power supply; (top shelf) pencil sharpener; Microlog AVR-2; 2-meter beam controller; and TV monitor. Not seen on

right of photo is a Microlog AKB-1 Keyboard. On table is my Kenwood Mc-60-A microphone and Vibroplex key.

Hugh wins a free year's subscription to Worldradio. □

FCC HIGHLIGHTS

(continued from page 10)

lation of Section 97.113 "broadcasting prohibited." He has been paying it in \$200 installments and, had paid up \$1,000 at the time this issue of *HIGHLIGHTS* was written. Section 97.113(d) lists four types of permissible one-way transmissions which "... are not considered broadcasting." Brantly's typical one-way's were: calling CQ and calling nonexistent stations, both for long periods of time. Such operations are not included in the permissible list.

END-OF-MONTH LICENSE TOTALS

April	1986	May
39,405	Extra	39,463
98,237	Advanced	97,856
116,947	General	116,460
85,022	Technician	84,659
79,306	Novice	78,729
418,917	Totals	417,167

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Special Events

(continued from page 11)

don commemorative postage stamp hand-cancelled in his home town of Glen Ellen, will be returned for a QSL card and \$1.00 sent to VOMARC, 358 Patten Street, Sonoma, CA 95476. If you want the certificate returned unfolded, please also send a 9" x 12" SASE. □

Robinson Centennial

The CRAWFORD COUNTY ARC will operate WA9ISV on September 13th and 14th 9 a.m. to 6 p.m. E.S.T. (1600-0200 GMT) to commemorate the centennial of Robinson, Illinois. Operation will be on the following frequencies: 40M-7.250, 20M-14.250, 15M-21.350

plus or minus QRM. Local area hams may use 2M-147.96/36 repeater for their contacts

Send a QSL card and a business size SASE (9 1/4 x 14 1/2 SASE if you don't want certificate folded), for a very nice certificate. Certificates will also be available to SWLs. Send QSL to CCARC, 310 E. Magnolia St., Robinson, IL 62454. □

Winesburg Fall Fair

The CLYDE AMATEUR RADIO SOCIETY will operate station NF8E from 1600Z 0000Z, September 20, and 1600Z-2200Z, September 21, from the Winesburg Fall Fair. Frequencies: Phone — 7.250, 21.375, CW — 7.125, 21.150.

For certificate send #10 SASE to NF8E, 302 Hamer St., Clyde, OH 43410. □

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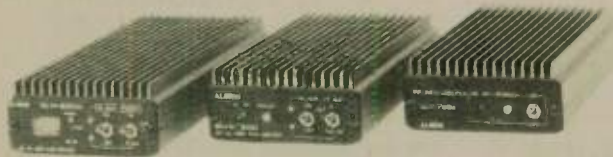
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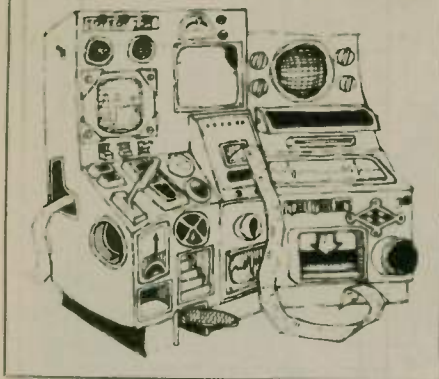
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Everett L. Gracey
President

Computers and Hams

Julian Macassey,
N6ARE



Serial is not just for breakfast anymore

This is mainly going to be disconnected ramblings on the subject of serial ports. There are Entre ports, Air ports, deep water ports, foreign ports and Navy ports. None of these will work with a computer, but whether a port is on the cost or on the back of a computer, it does the same thing. It is the point via which things enter and exit.

A "computer" is really just one IC or so and as such is pretty useless. The user must be able to get data into the computer and the computer must have a way of getting its data to the outside world. Some ports are "two-way"; they accept both input and output. Some ports are either input or output. Some can be programmed to go either way. Obviously a keyboard can only input data. A video screen or printer can only output data. A disk drive inputs and outputs, if not, get it fixed.

For the attachment of random devices, there are two "standard" ports; for high speed the favorite is a "parallel" port, usually described as "Centronics" compatible. Parallel ports are

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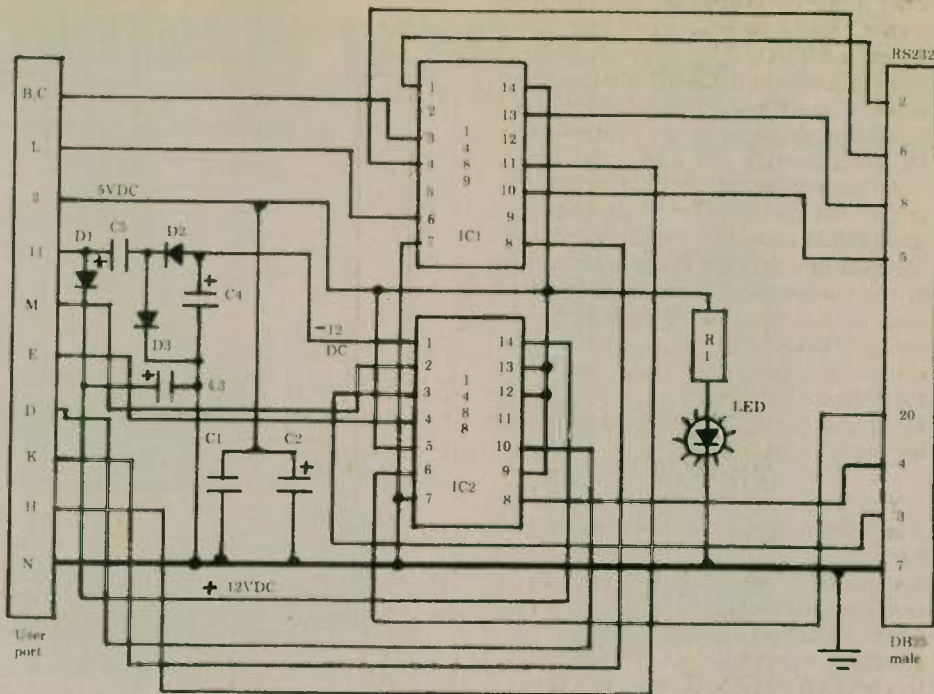


Figure 1

Parts list

FIGURE 1

- IC 1 MC1489 Quad Line receiver.
Radio Shack #276-2521
- IC 2 MC1488 Quad line driver
Radio Shack #276-2520
- D1-D3 1N4001, 1N914, BAX16 (any diode)

- LED Standard LED (optional idiot light)
- C1 100NF 50V ceramic or mylar film
- C2-C5 100uF Electrolytic
- R1 1.8K OHM (see LED)
- DB25 Male and 24 pin edge connector
0.165-inch center.

mostly used with printers. I put the word standard in quotes, because there are really no standards as any owner of a computer has found out. The shape of the plug may be the same, but not always; what comes out on the pins can vary widely. We shall ignore parallel

ports for the time being.

The serial port is the most common user port on most computers. Some computers may have two or more attached. The usual name for a Serial port is RS232. This is a document number assigned by the Electronic Industries Association (EIA). It is the most poorly written, misapplied and misunderstood document since the Treaty of Rome.

The connector normally used on computers with the RS232 standard is a Female DB25. This is a D-shaped 25-pin connector. Apple uses DIN and DB9 connectors. IBM uses a male DB25 connector. Radio Shack and Ollivetti have been known to use a PC board edge connector. What sort of signal and voltage is found on an RS232 port is also whatever the manufacturer feels should be there.

Despite all this cheering news, it is possible to get most devices designed to accept RS232 signals to work. It may require tweaking and much frustration. But in the end it will work. As an aid to the perplexed, there is a device called a Smart Cable that will look at the signals on an RS232 cable and light LEDs and allow the user to switch connections around until things start working

So what works on the RS232 stand-

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ard? Lots of stuff that no computer owner should be without. Printers, modems and TNCs. Most devices that are "Computer"-controlled — modern transceivers, machines, medical equipment, telephone systems — are controlled via the serial port.

As a general rule, the device to be controlled via the serial port also has a female DB25 connector on it. So between the two devices is a cable with a Male DB25 connector on each end. Most devices do not require every pin to be connected. Some of the 25 pins on a DB25 connector have never been assigned a task. Some have specific tasks, such as sending a signal when a telephone ringing signal is detected.

Yes, folks, the secret is out. RS232 was given to us by those wonderful folks back at Bell Labs. The Bell standard documents about RS232 have some interesting little gems in them. How computer manufacturers ignored the standard when Bell had worked so hard to come up with such a wonderful system I will never understand.

Each connection on an RS232 link is assigned a pin number, a three-letter abbreviation explaining what it does, a two- and three-letter code that does not match the three-letter code, and — just to keep things international — a three-digit number that is assigned by CCITT (Committee Consultatif International Telegraphie et Telephone), the international telephone standards association. The CCITT is part of the ITU. The CCITT, by the way, call RS232 "V.24". Table 1 gives the DB25 pin numbers and associated letters and numbers.

To get any RS232 device to work, the minimum number of connections needed are pins 2, 3 and 7. Pin 7 is ground, pin 2 is for received data and pin 3 is for transmitted data.

There are two basic ways to wire up a DB25. Computers are wired as DTE (Data Terminal Equipment) and stuff connected to computers are wired as DCE (Data Communications Equipment). That was the Bell labs idea, so if pins 1 to 25 were connected to pins 1 to 25, everything would work. Alas, other manufacturers know better, which means their shiny new thing will not work until the connections have been messed with. If the shiny new thing will not talk to your computer, try switching pins 2 and 3 on one connector.

Despite the apparent complexity of all this, there is a blind approach. If a 232 cable is wired up with pins 2 - 8 and 20 all connected pin to pin, it will work most of the time.

Also if you have a program or ASCII file on one computer that you would like to transfer to another computer with incompatible disk drives (IBM to APPLE for example), the serial port will do it. This is how: take a RS232 connecting ca-

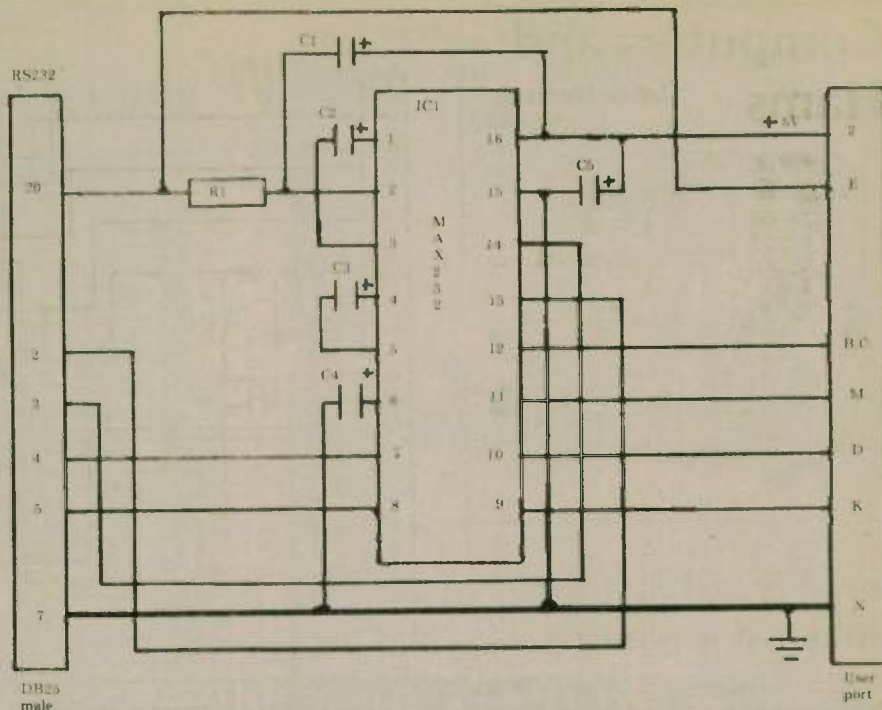


Figure 2

Parts list

FIGURE 2

IC1 MAXIM MAX232 RS232 TX/RX

C1-C5 22 - 47uF electrolytic
R1 3K OHM
DB25 Male and 24-pin edge connector
0.165-inch center.

ble and swap pins 2 and 3 on one end. Now the data sent from one computer comes out of the transmit pin (2) and goes into the receive pin (3) of the other computer. This trick is called a "Null" modem. Doesn't work on all computers.

Some have their ports messed up, so leave the cable alone and connect pins 2 to 2 and 3 to 3.

Some manufacturers, in their stupid belief that non-standarization will make them rich, they abandoned the RS232

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Carey - W4HIR
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C-64

Ham Radio Applications

C-64

The CaGen CONTEST LOG — is a rapid action (machine language) program for the C-64 & 1541 disk drive, with optional printer. It handles up to 2500 QSOs per disk file, producing a permanent log and dupe sheet for all contest situations. Duping is very speedy, with audio & screen notification of status. Only call and exchange information are entered by the operator. It offers many more features — see June 1985 issue of 73 Magazine for a complete review. \$35

NEW! CaGen SUPER DUPER — as its name implies, is a machine language program which provides IMMEDIATE dupe notification when the RETURN key is depressed after entering a call sign. It handles up to 2500 QSOs per disk file. You have to see it to believe it! If, after purchasing this program, you find a program for the C-64 that will handle 2500 QSOs and can be proven to us to be faster, we will cheerfully REFUND YOUR MONEY! \$35

NEW! CaGen UNIVERSAL LOG — is also a machine language logging program designed for all general logging applications. It is flexible in format, allowing for use in tracking 10-10, County Hunters, net members (great for NCS operations), general logging of daily QSOs or tracking awards progress. Its appeal is in fast retrieval and the ability to "key" searches on call sign plus any other single log item (such as name, 10-10 number, net membership number, etc.). You control its format, and its uses are limited only by your imagination. \$35

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RS232 Connections (From the computer end. DTE)

Pin #	EIA Designation	CCITT Equiv	Common Designation	Description
1	AA	101		Chassis Ground
2	BA	103	TXD	Transmitted data
3	BB	104	RXD	Received data
4	CA	105	RTS	Request to send
5	CB	106	CTS	Clear to send
6	CC	107	DSR	Data set ready
7	AB	102	GND	Signal ground
8	CF	109	DCD	RX line signal det
9	+P		+12	Testing voltage
10	P		-12	Testing voltage
11	SCA	120	SRTS	Secondary RTS
12	CI	112	SPD	Baud rate select
13				Not used
14				Not used
15	DB	114		Transmitter timing
16				Not used
17	DD	115		Receiver timing
18	CN			Analogue loop
19				Not used
20	CD	108.2	DTR	Data terminal ready
21	RL		RDI	Remote digital loop
22	CE	125	RING	Ring indicator
23	CH	111		Baud rate (DTE)
24	DA	113		Baud rate (DTE)
25	TM			test mode

Table 1

standard altogether. The most famous of the "captive market" companies that have helped many garage operations get started making weirdo to RS232 converters is Commodore. They use TTL serial ports on their VIC 20, C-64 and C-128 computers. This has not caused Commodore owners to only buy Commodore accessories. Most Commodore owners have at least one TTL to RS232 converter.

To help the confused and frustrated, I am providing two circuits to allow Commodore computers to work with RS232 accessories.

The first diagram was supplied by Kevin Dallmann. KD2ML. This is a good circuit and follows Macassey's second rule of design: If you can't buy the parts at Radio Shack, it's a lousy design. All parts to the KD2ML circuit are available at Radio Shack.

The second diagram does not follow Macassey's second rule of design. It uses a hard-to-get IC. The IC is made by Maxim and is called the MAX232. It is designed to take TTL (5V) level signals and convert them to RS232 (+ & - 12V). It does a nice job and Maxim certainly deserves the Nifty IC Design of the Year Award for this chip. If you hunt and call a few electronics distributors, you should be able to track this device down.

To connect into the back of the Commodore serial port (the left-most edge connector on the C-64), you also need to get a special connector that most radio/electronics stores have. The Connector is a 24-pin edge connector with 0.165 inch centers. The top of the PC board edges are marked 1-12 and the bottom fingers are marked as A-N. Letters G and I are omitted. The C-64 board is marked, so you can't go wrong.

So there you have it, just enough information to get you into trouble. □

Ni-Cad battery hints

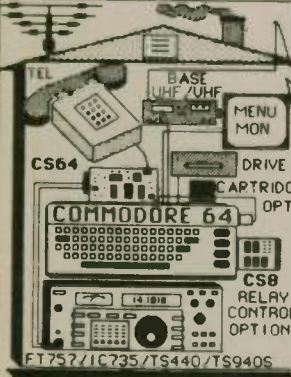
Lee Bunch, WB7CYO

- 1) Don't deliberately discharge packs to Zero.
- 2) Don't continue to use your HT after the low battery indicator comes on.
- 3) Don't use a wall charger for more than 15 hours per charge.
- 4) Don't do a 15 hour slow charge on a battery that is only slightly discharged.
- 5) Don't charge your pack in freezing temperatures or in direct sunlight.
- 6) Don't continue to charge a battery if it gets warm during charging. Check for a shorted cell or a misadjusted charger.

— Idaho newsletter, Boise, ID □

If a foreign amateur visits your area, do a picture story for Worldradio

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AUTOPATCH TONE OR PULSE, CALL WAITING, ANSWER SECOND INCOMING CALL, LAST NUMBER MEMORY, VOICEPAGE ON INCOMING CALL * AUTODIAL NUMBER

H.F. REMOTE 9 MEMORY FREQUENCIES SCAN UP, DOWN, FAST, SLOW * ENTER OR RECALL ANY FREQ FROM MEMORY * CHANGE MODES USB/LSB /FM/AM CONTROL 8 RELAYS (CS8 OPTION) ON/OFF WITH VOICE CONFIRMATION * TIMER AUTO RESETS WITH DTMF TONES

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26 WORLD RADIO, September 1986

World Radio History

FM & Repeater Newsbeat



Bill
Pasternak,
WA6ITF

The ubiquitous SCRRBA list

A list of Southern California UHF repeater systems, including closed, private and remote-base operations, should be available from the Southern California Repeater and Remote Base Association before the end of 1986. SCRRBA's Board of Directors told the membership on May 31 of its decision to make public the heretofore highly secret information as a general listing of area activity on UHF in the Southern California area. The list will be general in scope, giving only system call sign, approximate location and operating frequencies.

A 120-day waiting period before publication is in place to permit any system not wishing to be listed to request deletion from the list, which when completed will only be made available to other coordinators and publishers of repeater directories such as the ARRL. The decision by SCRRBA to publish such a list is a 180 degree turnaround from their previous position that all information about Southern California UHF repeater operations was totally proprietary and never to be made available to anyone outside of their coordination committee for any reason.

Thus far, it's been impossible to determine what effect — if any — this decision by SCRRBA to become more "public" will have on its membership, who for many years have supported the organization because it, in turn, supported their personal privacy.

SCRRBA and F8E Department

Coming up with a public UHF repeater list isn't the only thing that SCRRBA has been up to of late. On the regulatory front, the group has petitioned the FCC asking more freedom for experimentation on some pretty high frequencies and as a result, SCRRBA has gotten the FCC to issue a Notice of Proposed Rule Making to permit amateur F8E operation on amateur frequen-

cies above 1240 MHz has been released by the FCC. Designated as P.R. Docket 86-207, it is based on a regulatory request filed earlier this year by the Southern California Repeater and Remote Base Association.

For those not familiar with F8E-type emission, it's a form of multiplexing that permits several different channels of information to be transmitted simultaneously. This in turn makes for a more spectrum-efficient form of operation. Commentary due date was August 15, with reply comments to be at the FCC no later than September 15, 1986.

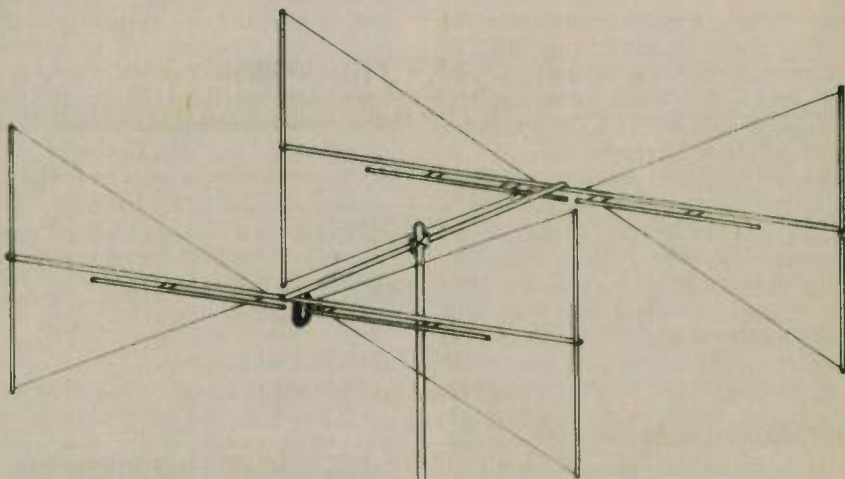
Going Overseas Dept.

Not all of this month's news is from either Southern California or from the USA. Take this tidbit from the United Kingdom. It's not FM, but rather ATV-related, and we will relate it to you.

The Borehamwood & Elstree Amateur Radio Society in the United Kingdom is planning to operate a special event station form 1200 UTC, September 20 to 2000 UTC, September 21, to commemorate the 50th anniversary of the first transmission of high definition television pictures ever made.

The event took place on November 2,

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Compact Size

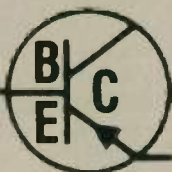
The HF4B's 12½-foot elements and 6-foot boom are ideal for home-station use and for weekend retreats, condos, apartments and other places where oversized beams are prohibited. Its light weight (17 pounds) means it can be turned with a tv rotator, yet it is robustly constructed in the best tradition of our world-famous Butternut verticals.

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The HF4B BUTTERFLY™ has not sacrificed performance for compactness. Its unique design with fanned elements and L-C circuits avoids use of power-robbing traps yet provided high-efficiency operating on all bands. The BUTTERFLY™ outperforms anything in its class.

The HF4B offers an SWR of 1.5:1 or less at resonance. Its 2:1 bandwidth is 200 kHz on 20 meters, 450 kHz on 15, 1.7 MHz on 10, and across the entire 12 meter band. And it will handle the legal power limits both CW & SSB. Gain is at least 3 dB on 20, 4.5 dB on 15 and 5 dB on 10 & 12 meters. Front-to-back is up to 18 dB on 10, 12 and 20m, and up to 15 dB on 15m.

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1936 when the British Broadcasting System, using hastily converted studios in North London, put video signals on the air, alternatively using the mechanical Baird system and the totally electronic EMI system. The latter quickly became the accepted standard. To mark this occasion, the aforementioned radio club plans to operate SSB, CW and RTTY on 2, 10, 15, 20, 40, and 80 meters, with bands chosen subject to propagation. Local 2-meter FM operation is also planned. All transmissions will be under the call sign GB2TV, and a special commemorative QSL card will be available.

For further information write to Ivor Rosenberg, G4XEW, 11 Parkside Drive, Edgeware, Middlesex, ENGLAND, HA8-8JU.

The ARRL & the Repeater Owner Dept.

So much for our quick excursion to the U.K. Obviously we had to pay full fare for the trip, since we failed to stay over the weekend. But while we are on our way back to Los Angeles, let's make a brief stop in New England.

Since the very first repeater coordinator was self-appointed, there has been a question as to the role played in repeater coordination by the ARRL. Actually, they hardly play any role at all, and they seem to want to keep it that way. But keeping a neutral posture for the better part of two decades has not been without its problems. The following analysis was adapted from an East Coast repeater council newsletter. The explanation should put the matter of ARRL repeater coordination to bed, once and for all.

The ARRL does not coordinate repeaters

The ARRL is not a frequency coordinator. There has never been a frequency coordinator and the ARRL has officially indicated on more than one occasion that they never will become a frequency

coordinator under any circumstance. Over the years, some coordinators and/or coordination councils have had arguments with minor-level ARRL appointees who felt that their positions within the League's infrastructure authorized this activity. There have even been a number of repeater owners who lay claim that their systems were "coordinated" by an ARRL appointee. Neither is correct, and of late, senior ARRL officials have been taking action to insure that minor appointees know that their position does not permit them to supercede the decisions made by bonafide and recognized frequency coordinators or councils.

The only involvement of the ARRL in frequency coordination is that of publishing an annual repeater directory to which they lay no claim for accuracy of content. They also help edit and publish a national *Frequency Coordinator's Newsletter* and are presently assisting in the establishment of a national repeater coordination data-base to give coordinators around the country a guide as to how other regions are handling the coordination process. However, they do not appoint coordinators or coordination council members and have no other direct concern with the practices involved in local or regional frequency coordination. (Adapted from the *CVRA Journal* — May, 1986)

Addendum Dept.

I have been asked by a number of people if I will be continuing this column in light of my return as a regular contributor to Wayne Green's *73 Magazine*. It's no secret that I spent the better part of a decade writing the "Looking West" column for *73*, and only departed when *73* changed format at a time when I assumed the editorship of the old *H.R. Report* newsletter, which is now the *Westlink Report*.

Last winter, when Wayne visited Los Angeles, he and I discussed, among many other things, the possibility of my again writing for his magazine. Specifically, that of reviving "Looking West." I agreed, and last June marked the return of the column. But it does not mean the end of my involvement with this column here in *Worldradio*.

Please keep in mind that this column appears only when there is enough FM, repeater and marginally related material to warrant my writing it. I can see no reason to fill pages with worthless prose. This is basically a news and feature interest column, while "Looking West" is something entirely different.

Those of you who read both periodicals do already understand. To those of you who do not, I invite you to do so. In fact, I am a firm believer that you cannot be a truly informed amateur unless you read every major publication, so that you can be informed of what's happening, and at the same time get the differing views of the various leaders in Amateur Radio. Many amateurs immediately think there are only two — the ARRL and Wayne Green. But do not forget Skip Tenney, W1NLB, who puts out *Ham Radio Magazine*, Alan Dorhoffer, K2EEK, who edits *CQ*, and the people in Sacramento who put out this fine publication. The views vary, but together they keep you informed.

So, to answer the question, *FM & RPT NEWSBEAT* will continue. See you soon. de WA6ITF

Japan

(continued from page 15)

The power system, consisting of 979 solar cells covering its 26 faces, will generate 8.5 watts of power. Eleven Ni-cad batteries (capacity 6 ampere hours) supplies 14 volts to the satellite's main power buss. There are three antennas aboard JAS-1. A 2-meter reception antenna and two 70cm transmitting antennas.

A launch information service was to be established by AMSAT on 75 meters on Monday July 28, and Wednesday, July 30 — 3857 kHz. On launch day (July 31) a 20-meter HF net was to convene at 1930 UTC; frequency had not been determined at the time this was written.

Launch was scheduled for 2000 UTC. The satellite itself should turn on around 2132 UTC. The low Earth orbit satellite should be first hearable on the East Coast of the United States in the hours following and then move over to the West Coast.

— de Harold Price, NK6K


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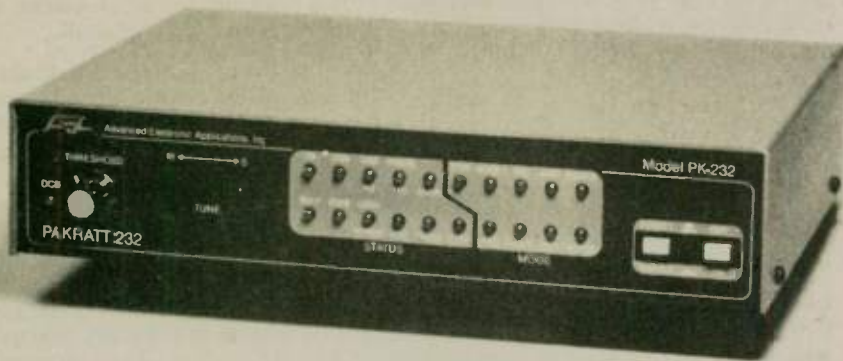
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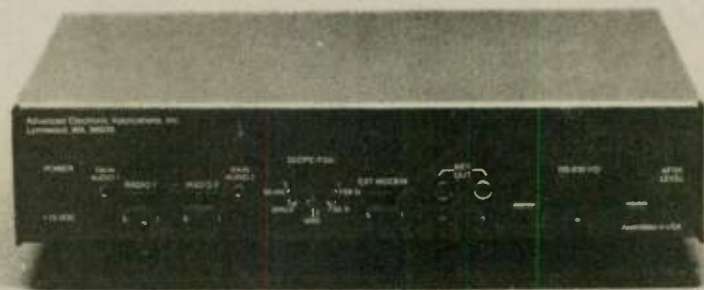
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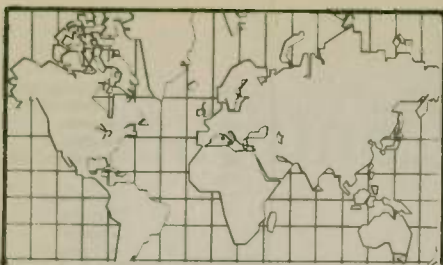
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DX WORLD

John F.W. Minke III, N6JM

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Activities Calendar

- 22-23 August JARL All Asia Contest (CW)
- 02 September BFRA Bulgarian DX Contest (CW)
- 06-07 September IARU Region 1 Field Day (SSB)
- 13-14 September DARC European DX Contest (SSB)
- 20-21 September EDR/NRRL Scandinavian Activities Contest (CW)
- 20-21 September CRRL Can-Am Contest (SSB)
- 27-28 September SSR/SRAL Scandinavian Activities Contest (SSB)
- 27-28 September CRRL Can-Am Contest (CW)
- 27-28 September California QSO Party
- 04-05 October NZART/WIA VK/ZL Oceania Contest (SSB)
- 12 October RSGB 21/28 MHz Contest (SSB)
- 18-19 October NZART/WIA VK/ZL Oceania Contest (CW)
- 18-19 October RKDDR Worked All Y2 Contest
- 25-26 October CQ World Wide DX Contest (SSB)
- 26 October RSGB 21 MHz Contest (CW)

W-100-N

Three entries for Worldradio's Worked 100 Nations Award were received during the month of June. Our congratulations to the following DXers: 277. YC0DNK William Tanujaya 278. YC0DPZ M. Sibarani 279. KA5TQF David Charles Zulawski

Two years ago we ran the complete rules for the W-100-N Award. We have decided that it is time to do it again as many readers may not know anything about the award. Following the rules is the Nations List, countries that are valid for this award.

Worked 100 Nations Award, Series II

In an effort to encourage personal communications among peoples around the world via Amateur Radio, Worldradio offers the *Worked 100 Nations Award, Series II* to those confirming two-way amateur communications with permanent stations in 100 distinct coun-

tries having a permanent, native population.

The purpose of the Worldradio Worked 100 Nations Award, Series II (hereafter referred to as W-100-N) is to demonstrate the unique opportunity Amateur Radio offers for communications between international borders to further worldwide understanding.

The W-100-N is not a radio sport award as such, but a token of achievement in communication. At the same time, it offers all Amateur Radio enthusiasts several features not found in other awards.

1. W-100-N virtually eliminates the need to work geographic areas heard only during DXpeditions. Almost all national entities have amateur stations consistently active on the air.

2. Since almost all national entities are active, W-100-N will be of perennial interest, since the advantage of those having worked a national entity long since inactive on the air will be minimal.

3. W-100-N is difficult to achieve, yet it is within reach of all moderately well-equipped operators utilizing good communications skills. There is no need to wait for a station in a single area of the world to appear on the air to qualify for W-100-N.

Rules

1. The Worked 100 Nations Award is available to any licensed Amateur Radio operator who can prove confirmation of two-way communications with government-authorized Amateur Radio stations in at least 100 different nations of the world.

2. No contacts with stations using reciprocal calls will count toward this award, such as N6JM/UL7.

3. All contacts must be with land-based stations. Contacts with ships, at anchor or otherwise, and aircraft cannot be considered.

4. All contacts shall be made from the same country.

5. Only contacts made on or after 01 January 1978 will count.

6. The application shall include the following:

a. Letter of transmittal requesting the W-100-N.

b. List of contacts in order by prefix showing nation, station call, date, band and mode.

c. A signed statement by two other licensed radio amateurs that they have inspected the required QSL cards.

d. A fee of \$5.00 to cover the cost of the award.

7. All applications and requests shall be addressed to: W-100-N Award Manager, Worldradio, 2120-28th St., Sacramento, CA 95818 USA.

8. There are no special endorsements to this award. All modes and bands may be used.

Upon approval of an application for W-100-N, a certificate will be issued and the issuance of the award will be noted in a future issue of Worldradio.

W-100-N nations list criteria

1. In all cases each "nation" will be both a political and a geographical entity at the same time.

2. In all cases each "nation" will be a geographical and political entity independent enough to issue distinctive postage stamps acceptable in international mail.

3. In all cases each "nation" will be a geographical and political entity whose amateur stations are

a. identifiable by a specific call sign prefix series allocation assigned to that entity by the International Telecommunications Union, or

b. identifiable by a specific call sign prefix or suffix series normally used in the issuance of amateur licenses to new amateur licensees under ITU prefix allocations by the sovereign government of the entity.

4. No geographical or political entity that does not have a permanent, native population will be considered for "nation" status.

5. Geographical and political entities which do not issue distinctive postage stamps but have permanent, native populations will be considered to be part of the same entity that issues postage stamps for use in that area.

6. Geographical and political entities that issue postage stamps but do not have permanent, native populations will be removed from consideration as "nations" entirely.

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D-52	10-15-20-40-80	7	105	\$49.95
D-56	10-15-20-40-80	6	82	\$39.95
D-66	10-15-20-40-80-160	6	160	\$79.95

TRAP VERTICALS - "SLOPERS" -

Model	Bands	Traps	Length	Price
VS-41	10-15-20-40	1	28	\$11.95
VS-52	10-15-20-40-80	2	49	\$19.95
VS-53	10-15-20-40-80	1	42	\$19.95
VS-64	10-15-20-40-80-160	4	73	\$29.95

*Can be used without traps
*Feed line can be buried if desired
*Permanent or Portable Use

ALL TRAP ANTENNAS are Ready to use - Factory assembled - Commercial Quality - Handle full power - Comes complete with Deluxe Traps, Deluxe center connector, 14 ga Stranded CopperWeld ant wire and End Insulators - Automatic Band Switching - Tuner usually never required - For all Transmitters, Receivers & Transceivers - For all class amateurs - One feedline works all bands - Instructions included - 10 day money back guarantee!

SINGLE BAND DIPOLES (Kit form):

Model	Band	Length	Price
D-15	15	27	\$8.95
D-20	20	33	\$9.95
D-40	40	66	\$22.95
D-80	80	130	\$25.95
D-160	160	260	\$34.95

Includes assembly instructions, Deluxe center connector, 14 ga Stranded CopperWeld Antenna wire and End insulators.

COAX CABLE: (includes PL-259 connector on each end)

Type	Length	With antenna purchase	Sellars only
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 9H
 9J
 9K
 9L
 9M
 9N
 9Q
 9U
 9V
 9X
 9Y

Paraguay
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 Namibia
 Sovereign Military Order of Malta
 Monaco
 Mauritius
 Equatorial Guinea
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(please turn to page 34)

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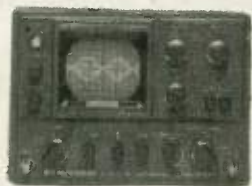


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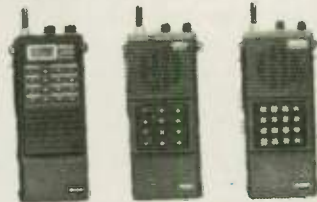
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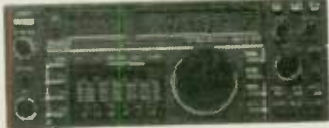
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Bahrain (A92)

A few stations have been reported active from this little island of Bahrein, located in the Persian Gulf. On 20 meters SSB, A92BE has been found on 14.201 MHz as early as 2000 UTC and as late as 0400 UTC on 14.176 MHz.

Also reported is A92EM found on 14.227 MHz at 2100 UTC and A92NH on 14.202 MHz at 2230 UTC. This little nation was once part of the vast British Empire and had been assigned the MP4 prefix.

China (BY)

Yoshi Hayashi, JA1UT, reports through the leading DX bulletins that another Chinese station was due to come on the air. The new station, BY4RB, was scheduled for June 22, with JA1UT, JF1WQC, JG1TSG and JK1KHT attending the opening ceremonies.

The equipment, donated by the team, consists of an FT-77 for the HF bands, and an IC-551 for 6 meters. If you work BY4RB, you may send your QSL to P.O. Box 413, Zhen Jiang, PEOPLE'S REPUBLIC OF CHINA.

Also, another new one should be on by now. This one, operating from Suzhou, is BY4SZ.

At least four stations have been reported active this spring. BY4AA, operated by a YL, has been reported with a good signal into eastern Canada. This one has been reported near 14.200 MHz between 0200 and 0300 UTC. BY5RF is another one reported by the Canadians on 20 meters between 14.185 and 14.246 MHz around 0100 UTC.

The two other calls reported include BY4AOM and BY5RA, both on 14.227 MHz between 0030 and 0115 UTC, working the deserving DXers of The Canadian DX Association.

Cuba (CO)

Perhaps Cuba isn't DX as it is less than 100 miles from Florida, but there are many who still need this one for DXCC. Take a listen for CO2FR on 14.017 MHz at 0130 UTC. Can't copy CW very well? Then get out your keyboard and look for CO2BB, who has been reported on RTTY near 14.092 MHz at 2345 UTC.

Bolivia (CP)

We have seen the reports for at least three from this South American country. Down on 20 meters CW, CP6IB has been found on 14.006 MHz at 2200 UTC



HAR HAR HAR! N6JM's DXCC endorsement got run over by a truck! Maybe that is what Don is laughing about. Meet Don Search, W3AZD, of the DXCC Desk in Newington. He is the one you send your QSL cards to for DXCC applications and endorsements. Don was having a good time with the Carolina DX Association bash in Charlotte last March. (Photo courtesy of KD4RH)

with CP8HD close by on 14.005 MHz at 0100 UTC.

SSB types should look for CP5AI, who has been worked in eastern Canada at 0200 UTC near 14.195 MHz.

Faroe Islands (OY)

Two Norwegian teenagers were to have operated from the Faroe Islands the end of June. If you worked Marius, LA9EEA/OY on CW, or Bjorn-Erik, LA9SEA/OY on SSB, then send your QSL request to Asker og Baerumsgrup-

pen av NRRL, Postboks 144, 1322 Hovik, NORWAY.

Also active from this island group are OY6FRA, who has been reported near 14.040 MHz at 1530 UTC, OY6RA on 14.027 MHz at 1845 UTC, and OY7ML near 14.026 MHz at 1630 UTC. We also have a report of single-suffix OY2J worked on 14.015 MHz at 1400 UTC. From the reports we have seen, it appears that CW is the favorite among these DX types.

Mexico (XE)

Just in case you haven't worked Mexico yet, or would like to work some more of them, take a listen for XE1X who has been found on 14.028 MHz at 1230 UTC. Also on CW, further up the band, is XE3OQV on 14.060 MHz at 1700 UTC and on SSB is XE2AFL on 14.193 MHz at 0345 UTC.

If you are a prefix hunter, look for 6F1L who has been found on 14.195 MHz at 0015 UTC, 6F1OT on 14.227 MHz at 200 UTC, and 6F3RT on 14.180 MHz at 0045 UTC. There are several of the XE/6F types that have also been active on RTTY.

Israel (4X)

In a short span we have seen reports for at least a dozen Israeli DX calls, which includes the following (frequencies in MHz and times in UTC):

4X4BL	14.237	0300
4X4XL	14.007	0030
4X6FR	14.193	2145
4X6KF	14.178	0200
4X6QN	14.047	2215
4X6RA	14.192	0115
4X6TT	14.225	0100
4Z4DX	14.025	2130
4Z4IK	14.243	0700
4Z4TV	21.236	2015
4Z4UR	14.175	0315
4Z4NUT	21.011	1345

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2 80, 40M	85 ft. ..	\$ 55 ..
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- W2: North Jersey DX Association, P.O. Box 599, Morris Plains, NJ 07950.
- W3: Cumberland County Amateur Radio Service, P.O. Box 448, New Kingstown, PA 17072-0448.
- W4: Mecklenburg Amateur Radio Society, P.O. Box DX, Charlotte, NC 28220 (for W4, K4 and N4 only), Sterling Park Amateur Radio Club, Call Box 599, Sterling Park, VA 22170 (for all other U.S. Fourth Area Calls).
- W5: ARRL W5 QSL Bureau, P.O. Box 44246, Oklahoma City, OK 73144.
- W6: ARRL 6th District DX QSL Bureau, P.O. Box 1460, Sun Valley, CA 91352.
- W7: Willamette Valley DX Club, P.O. Box 555, Portland, OR 97207.
- W8: Columbus Amateur Radio Association, Radio Room, 280 East Broad Street, Columbus, OH 43215.
- W9: Northern Illinois DX Association, P.O. Box 519, Elmhurst, IL 60126.
- W0: AK-SAR-Ben Radio Club, P.O. Box 291, Omaha, NE 68101.
- KA2: Far East Amateur Radio League - M, c/o S. Fleming, Sagami Facility, APO San Francisco, CA 96343.
- KA6: Radio Club of Okinawa, Box 217, Torii Station, APO San Francisco, CA 96331.
- KG4: Guantanamo Amateur Radio Club, box 73, FPO New York, NY 09593.
- KH2: Marianas Amateur Radio Club, P.O. Box 445, Agana, GUAM 96910.
- KH4: U.S. Naval Air Facility, FPO San Francisco, CA 96614.
- KH6: J.H. Oka KH6DQ, P.O. Box 101, Aiea, Oahu, HI 96701.
- KH0: P.O. Box 7388, Saipan, NORTHERN MARIANAS 96950.
- KL7: Alaska QSL Bureau, 4304 Garfield Street, Anchorage, AK 99503.
- KP2: Virgin Islands Amateur Radio Club, P.O. Box 11360, Charlotte Amalie, St. Thomas, VI 00801.
- KP4: Radio Club de Puerto Rico, P.O. Box 1061, San Juan, PR 00902.
- KX6: Kwajalein Amateur Radio Club, Box 444, APO San Francisco, CA 96555 (Kwajalein stations only), Eniwetok Amateur Radio Club, Eniwetok, Marshall Islands 96737 (Eniwetok stations only).
- SWL: M. Witkowski, 4206 Nebel Street, Stevens Point, WI 54481.

And for our neighbors to the north, the CRRL QSL Bureaus are as follows:

- VE1: L.J. Fader, VE1FQ, P.O. Box 663, Halifax, NS B3J 2T3.
- VE2: A.G. Daemen, VE2IJ, 2960 Douglas Avenue, Montreal, PQ H3R 2F3.
- VE3: Ontario Trilliums Amateur Radio Club, P.O. Box 157, Downsview, ON M3M 3A3.
- VE4: L.R. Lazar, VE3SL, 30 Bathgate Bay, Winnipeg, MB R3T 0L2.
- VE5: B.J. Madsen, VE5FX, 739 Washington Drive, Weyburn, SK S4H 3C7.
- VE6: N.F. Walthe, VE6VW, General Delivery, 9714-94th Street, Morinville, AB T0G 1P0.
- VE7: Burnaby Amateur Radio Club, P.O. Box 80555, South Burnaby, BC V5H 3X9.

- VE8: R. Ziemann, VE8RZ, 2888 Lanky Court, Yellowknife, NWT X1A 2G4.
- VO: P.O. Box 6, St. John's, NF A1C 5H5.
- VY1: Yukon Amateur Radio Association, P.O. Box 4597, Whitehorse, YT Y1A 2R8.

And, we might add. Even though you send your QSL cards direct with or without SASE, IRCs, etc., it is advised to keep envelopes on file. DX stations sometimes ignore your request for a direct reply and send your card to you through the ARRL/CRRL. So if you want your cards...

EXPO '86

Long Skip reports that VE7EXPO, the special events station at EXPO '86 in Vancouver, B.C., will be on the air from 10 a.m. to 10 p.m., Pacific Daylight Time. All modes, SSB, CW, RTTY, AMTOR, Packet, FM, ATV and SSTV, will

Propagation

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OCTOBER 1986

UTC	AFR1	ASIA	OCEA	EURO	SO AM
0100	15.7	20.4	23.6	8.9	16.4
0200	11.2	17.6	23.9	8.9	12.6
0300	9.9	15.8	19.7	7.7	10.6
0400	9.3	14.1	15.5	7.1	10.4
0500	9.6	12.4	12.7	7.3	11.2
0600	9.9	11.4	11.7	8.9	12.3
0700	9.9	11.0	11.7	10.5	13.5
0800	9.5	10.9	11.8	10.3	13.0
0900	9.0	10.8	11.8	10.1	13.9
1000	8.5	11.4	12.5	9.6	13.4
1100	8.7	11.3	13.2	9.3	11.5
1200	10.0	10.9	12.8	9.9	11.6
1300	12.2	10.4	11.6	11.6	14.5
1400	14.7	11.1	12.4	14.0	18.6
1500	16.6	12.8	13.7	17.0	21.6
1600	17.8	13.3	11.5	17.1	22.8
1700	18.6	11.9	9.5	15.8	23.5
1800	19.2	11.9	10.0	14.5	24.5
1900	19.8	13.0	13.3	13.2	26.0
2000	20.3	15.1	17.0	11.5	27.1
2100	20.4	17.9	19.0	9.9	27.7
2200	20.1	20.7	19.9	9.5	27.1
2300	19.6	21.5	20.9	8.9	24.9
2400	18.3	21.8	22.3	9.3	21.0

be used on all bands, 1.8 MHz through 1.2 GHz. The station will be operated through October 13th. The station is housed in the Canada Pavilion.

If you are attending EXPO '86 this summer be sure to visit VE7EXPO.

RTTY

We took a closer look at the DX bulletins and noticed that there is much DX to work on RTTY. Such calls include C31SD, CE0ZIJ, EA6OV, EA9JE, FR8AH, JW0A, OD5NG, T8AA, ZD8KM, 3C1MB, 3D2ER and 9H4C to name a few.

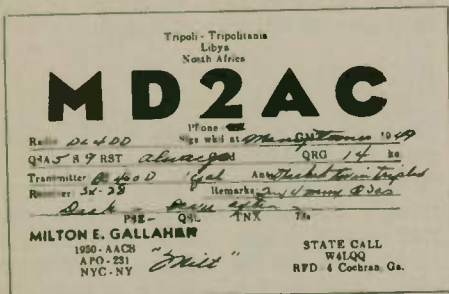
Of course, this is the new-fangled RTTY, no longer the old mechanical monsters that were surplus from Western Union a couple of decades ago. A little over 20 years ago we made an attempt at RTTY, but were unsuccessful in getting rid of the noise and wound up with a lot of garble. To make things worse, I was crystal-controlled.

Antique QSL Department

Here are some more of Dick Gray's old QSL cards that Paul Wolf, W6RLP, gave us. Dick, now WD6BCL, had signed D4ABD, D4ADD, DI4DD and F7AJ back in those days during the early years of occupational forces in Europe.



John Marden of the American Consulate in Jerusalem was the operator at ZC6JM. The contact dated October 8, 1951 and Dick was given a 5 by 8 report for his 20-meter AM contact. Palestine was to become a deleted DXCC country 17 years later.



Back in 1949, Libya seemed to be a bit more pleasant toward the United States as there were several Americans operating from there. The call MD2AC was that of Milt Gallaher, whose home call

was W4LQQ in Cockran, Georgia. Milt's card confirmed contacts of "many times" in 1949 with Dick. Milt was using a BC 460 D transmitter, although we are not familiar with that military designation. The card is printed in red on pink card stock. There is no W4LQQ in the 1986 Callbook. Anyone know the whereabouts of Milt ex-W4LQQ?



Here we have a card for VS7RM of Colombo in Ceylon. Here Dick operated as D4ABD when he worked this one on 10 meters back on February 29, 1948. The operator of VS7RM was Reg Mylroie of the R.A.F. The card was printed in green on buff stock. Ceylon would later be renamed to Sri Lanka (4S7).

QSL routes

CE1FGT	-LUBDPM	EO2QGL	-UQ1GWF
CE3DNP	-LUBDPM	EO3ALE	-UZ3LWN
CE3FIP	-LUBDPM	EO4AHK	-UZ4HWA
CE3FTV	-LUBDPM	EO7L	-UL8QWR
CE4GTA	-LUBDPM	ER3A	-UZ3AZO
CE5BTS	-LUBDPM	EU2C	-UC1AWR
CE5SG	-LUBDPM	EU8I	-U19AWA
CE6CGU	-LUBDPM	EV4AW	-U44WF
CE6EDZ	-LUBDPM	EV9AW	-UW9WR
CE6EEO	-LUBDPM	EV9AX	-U79XWA
CE8ABF	-LUBDPM	EW6CL	-UC1LWA
CE8EMM	-LUBDPM	EW1AA	-UZ1AWA
CX2DC	-LUBDPM	EW3AK	-UZ3AZM
EK1P	-UP2BBM	EW6AA	-UW6AM
EM2C	-UC1AWB	EW8TJ	-U74JWA
EM4AAW	-UZ4AXM	LU2E	-LUBDPM
EM7BRN	-UB4RWW	LU8FEU	-LUBDPM
EM8CIL	-UC11WF	ZP6JCY	-LUBDPM
EM9BWL	-UB4WVA	ZP6JCZ	-LUBDPM
EO0AAK	-U08AWA	ZP6LOY	-LUBDPM
EO1AAK	-UZ1AXH	ZP6LHY	-LUBDPM
EO1ACL	-UZ1AXH	ZP6JCY	-LUBDPM
EO1QWA	-UZ1QWA		

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 KG9N/V4 - P.O. Box 57, Goodfield, IL 61741

Contributors include KD4RH, WD6BCL, W6FGE, W6RLP, KG9N, LU8DPM, LONG SKIP (VE3IPR), DX NEWS SHEET (G4DYO), THE DX BULLETIN (VP2ML) and QRZ DX (W5KNE).

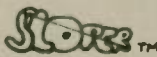
By the time this hits the mails, I will be home from vacation and probably back on the bands. If you take a look at the Activities Calendar, you will notice there are some interesting contests to look into. We have also listed California QSO Party, (often referred to as the California Sweepstakes), which you will note is a week earlier this year. There is a possibility that I will go and operate from a rare California county, most likely Sierra. I used to go up there for that about 10 years ago.

Hope your summer is a good one. Very 73 es GL DX, de John N6JM.



Here is another one of those photos of antique stations, sent to us by Mick McDaniel, W6FGE. Mick says that these come from a photo album that is the collection of a local amateur. As this is made by a copying machine, some of the details are not clear and the inscription appears to read: "To my Radio friend U-6CMQ wishing you successful... "The signature is illegible, but the call reads 3EF. We don't know if this is the present W3EF or not. This photo dates back to May 1926.

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10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

End of the sunspot cycle?

The March 1986 issue of *Sky and Telescope* magazine carries a most interesting letter by Jean Meeus, the widely-respected Belgian astronomer. Although Meeus could no doubt care less when 10 meters will open, he has developed an interesting formula to calculate the end of this current sunspot cycle. Here's a quote for our scientific-type readers:

"It's true that longer than average solar cycles tend to have fewer spots at maximum than shorter ones, but the correlation is not high. Using the values for the period from 1755 to 1976, which spans 20 cycles for 11 years, I find a coefficient of correlation of only -0.33. The

linear regression through the 20 values, using the least-squares method, yields the formula $12.19 - 0.0102M$ for the duration of the solar cycle in years, where M is the maximum value of the smoothed monthly means. For the present cycle this gives a length of 10.5 years, with the predicted minimum in 1986.7."

This figure agrees well with George Jacobs, W3ASK's forecast of "Late this year" in the March 1986 issue of *CQ Magazine*.

Although this may make sense to many, I for one am glad that a few with knowledge beyond me can make such predictions. I hope like everyone that these predictions not only come true, but come true earlier than predicted. One thing is for sure — we are very near the bottom and conditions can only get better from here on.

Thanks to Q6RQ and the *Northern California DX Foundation Newsletter* for this complex but interesting bit of information.

Membership roster

The 1986 addition of the 10-10 Membership Roster is now available for \$4.50 (U.S.) from your Call Area Manager. This 72-page volume covers 10-10 members issued and call revisions through March 1986, and has #41201 as the highest number listed. If you are interested

in this updated issue of the Membership Roster, send your \$4.50 to your Call Area Manager now!

ARRL National Convention

As has been widely publicized, the ARRL National Convention will be held this year in San Diego, California on September 5, 6, and 7. Ten-Ten will have a booth with information on 10-10. If you are a 10-10 member, stop by and sign the log. Even if you are not a 10-10 member, please stop by and say "HI" and let us tell you about 10-10 and how you can join. We'll even give you an application.

A 10-10 forum is scheduled for Saturday morning, September 6. Check your program and plan to attend. See you in San Diego!

A new one for the paper chasers

A new chapter from down Argentina way, The Tango Chapter. Certificate Manager is Martin Cadirola, LU1CBL, P.O. Box 70, 1419, Buenos Aires City, ARGENTINA. Look for LU1BJW, LU1CBL, LU1ABT or LU6AJA. They are all instant qualifiers for the Tango basic certificate. Net meets Saturday at 1730Z on 28.650 MHz. Welcome to this group from Argentina.

Feedback

Thanks to the many of you who have dropped me a line or QSL card. Among the many who requested info on 10-10 were Jerry Hicks, KJ5SF; Jack Cermak, KA9KBO; Bernie Puerzer, NG9Z; D.W. Baker, W2MUH; Val Quinn, WN6R, of Vackerville, California, says "All I hear on 10 meters is CQ 10-10. Send me info on 10-10," and Beatrice Wilson, N7FQQ, of Myrtle Point, Oregon, asks "How can I become a 10-10 member?"

These, plus many more have received the information packet and application. If you are interested in learning how you can become a 10-10 member and have your own 10-10 number, drop me an SASE to 18130 Bromley St., Tarzana, CA 91356-1701. A sample copy of the latest issue of the official *10-10 International News* 32-page magazine is also available for 56 cents in stamps.

Briefly

If you did not receive your latest copy of the *10-10 International News*, it just may be that your dues have expired. Why not check right now and if your dues have expired, send a check to your Call Area Manager. Band conditions will be starting on the upside of the cycle soon, and you do not want to miss the activity on 10 meters and the 10-10 gang. It's important to support 10-10. Your active membership is required.

Thanks to the *Northern California DX Foundation Newsletter* and Jim Beswick, W4YHF and his *10-X Certificate Guide* for information this month. □

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and up to 6 months, Reno Radio will repair unit at no cost, again if the unit has not been damaged or altered. This applies to the original owner and if the product was purchased at Reno Radio. Give us a try. I am sure all amateurs and Reno Radio will have a long and lasting business relationship.

73, Jim Myers, WA6ICB, President



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went down. However, a couple of die-hards, including myself, would stick it out all night and close up shop Sunday morning.

The three years or so we did it, it was great fun. I have memories of eating pizza in the HANDI-HAM office before adjourning to the station, of running into the building for easy access to facilities, or the pop machine at 4:00 a.m.; of sitting with a couple of hams playing guitar in the HANDI-HAM office at 10:00 a.m. Sunday morning while it poured outside. These were great memories and good times, but after a terrifically successful first year, things dwindled each following year. This seemed to be due to the fact that the numbers of handicapped people (many of whom needed much assistance) would outnumber the volunteers who could assist. This meant quick volunteer burn-out and not much of a fun Field Day for the people who set up and cleaned up the station. However, this was Field Day billed as one for HANDI-HAMS and set up for that purpose, and it did not, therefore, seem to attract many able-bodied folks.

In 1980 I operated Field Day from a very unique location — the New Orleans Superdome. Bruce Humphrys, K0HR, Tom Winn, K0MG, and myself were participants at a booth at the international Kiwanis Convention. We were distributing HANDI-HAM literature and letting Kiwanians know about our services. To this day the Kiwanians are continuing to be wonderful HANDI-HAM supporters and we thank them for their generous efforts. A Field Day in the Superdome was fun, but contacts on HF

were few and far between. With all of the steel, concrete and other electronic interference from other convention displays, and the distance coax had to traverse, we managed three successful QSOs. Two were in New Orleans and one, coincidentally enough, a W0MXW in Rochester, Minnesota where HANDI-HAMS first began. We tried various antenna arrangements and finally loaded up the dome itself by attaching a wire to the metal railing surrounding it.

For the last two years I've operated from the comfort of my own shack. I have thoroughly enjoyed this. I have been able to stay up as late as I want, run to the refrigerator or the coffee pot for sustenance, and keep good logs of QSOs in the Braille computer. What I didn't have, however, was the camaraderie of others in the shack, the ability to have an efficient means of quickly making QSO after QSO since I was doing my own logging and, NO MOSQUITOS!

This past weekend I was invited to attend Field Day on beautiful "garbage hill" in Anoka. The Anoka Radio Club, which is the home club of HANDI-HAM Manager, K0HJC, used the call W0CF and had a wonderful time. "Garbage hill" is an old sanitary landfill which has since been covered over. The grass was hip high and the ground was filled with ruts and patches of loose gravel. But it was a gorgeous site.

There was a 7K generator with a diesel tank pulled up next to it to ensure plenty of fuel. The 1 Alpha station was in a trailer. The shack could hold a maximum of five people. Those who weren't on the air sat around tables eating or chewing the fat. Keith provided a won-

It is June 30th, a gray, rainy, dreary Monday morning here in Minnesota. However, my spirits don't reflect the weather. I am still elatedly reviewing the experiences of another Field Day weekend just completed. This year, especially for me, was a truly exciting Field Day since it was my first one being "out in the field"

I have been fortunate enough to have participated in Field Day seven times in my amateur history. The first three times were at the HANDI-HAM Headquarters here in Golden Valley at the Courage Center. Adjacent to where the HANDI-HAM office now stands is a large cement patio area. It is partially covered, and there are asphalt paths leading from other building entrances to the patio for easy wheelchair access.

In the late '70s, HANDI-HAMS used to hold Field Day at this site. It was a perfect location. We would set rigs up on tables using power from the building and the antennas already set up for the station. Occasionally an extra dipole was also constructed. Our signal was never the most wonderful but was enough to make some contacts and have a good time. Most participants would come via the public transportation for the handicapped and stay until the sun

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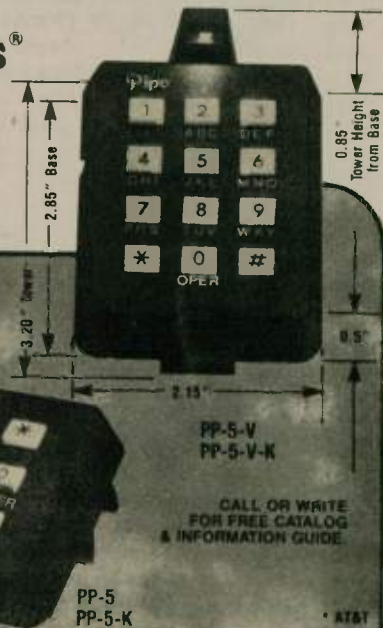
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derful screen house which could easily hold the whole crowd. There were a couple of tents with cots and sleeping bags for those who needed sleep and, of course, the satellite parked down the road. The signals were great and we were able to make many contacts and everyone had a good time.

As I mentally reviewed the weekend I thought of a few things clubs could do in order to encourage their handicapped participants to take part in the excitement of the Field Day weekend.

1) Invite the handicapped. Sometimes handicapped people who haven't experienced something such as Field Day do not know if they can physically participate. No one wants to come and just be in the way or feel that they would come but they don't want to be a bother to anyone. A special invitation or reminder that "we will see you at Field Day, won't we?" can help.

2) Offer to provide transportation. I was able to come to the Field Day in the field this year because a club member offered to give me a ride and between he and the transportation provided one way by my OM, things worked out great. I had received invitations from two other clubs but had no way to get to the sites, so didn't consider them. If you invite a disabled person you may want to offer to have someone in the club provide transportation.

3) Give the participant a job. Most Field Day participants have an assigned task, be it putting up antennas, working on the generator, setting up a tent, cooking or cleanup. Many of these jobs are such that they would be difficult for some disabled people to manage. However, everyone likes to feel they are a participating member of a team effort. Perhaps they could be in charge of bringing munchies, making phone contacts with inactive club members before Field Day to encourage them to come, helping with pre-organization in a large club of who will do what, etc.

4) Accessibility is important. The trailer the Anoka Club used was not accessible to wheelchairs and a ramp would have been nice. If it is possible, it is nice for the club to make the effort to arrange Field Days such that people can be as independent as possible. However, the majority rules and it makes no sense for a club to go through a bunch of extra work so that the one handicapped member can get around. Field Day's purpose is to set up under emergency conditions, which do not usually include blacktop paths, easy access to indoor plumbing and accessible buildings. Operating in 1D conditions from one's home shack may be the best mode for some disabled club members.

5) If your club's operations are such that it would be difficult, uncomfortable physically, or unsafe for a disabled person to participate in the field, 1D is per-

fectly fine. The club may want to ensure that the disabled person's station and antenna are in good working order so they can make several QSO's from their home QTH. They may make a point of arranging a time and frequency to work the individual on HF and VHF to let them feel like they are in touch with the club Field Day activities. Or, they may wish to encourage the individual to act as a message center for families of club members who need to contact club members on site.

If your club has some thoughts on this line or special Field Day experiences to share, let HANDI-HAMS know. □

Novice station contest

The Honolulu ARC is planning to sponsor a statewide design contest for a low-cost (under \$75) Novice station. Competitors will be required to submit a working station, schematics and parts list, source and price. Heading this project is Norman Funamura, KH6R.

The general idea is a low cost 40-meter set up in the neighborhood of 3 watts or better, made of readily available parts — a system that can be repeated, constructionwise, not a one-shot deal. If you're anxious to get started, get in touch with Norman. — HARC Bulletin □

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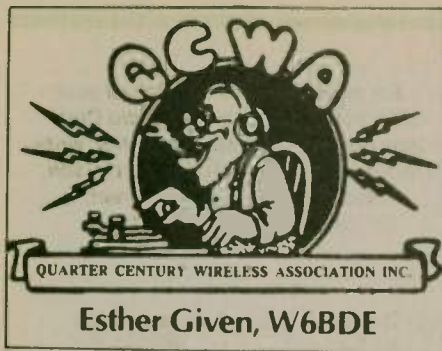
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bears so they can pass on these gems to their descendants. Of course this opens an opportunity to add their own accomplishments for favorable inclusion in family history.

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Thanks again to electronic miracles, there is a simple way to record history. Just take along a tape recorder as part of the listening audience when visiting elderly or seldom-seen old-timers.

A word of caution: frequently an interviewee has "mike fright", loses track of the topic, omits important data or perhaps contradicts a previous statement.

Twentieth century electronic developments have greatly changed mankind's entertainment patterns. All but lost is the age-old practice of gathering 'round the fire or dinner table listening to elders relate folklore or history pertinent to family background. Often people are more aware of and fascinated with the happenings on a radio or TV serial than those concerning their own ancestry.

Midway between the cradle and the crypt, many folks experience a strong desire to know more about their fore-

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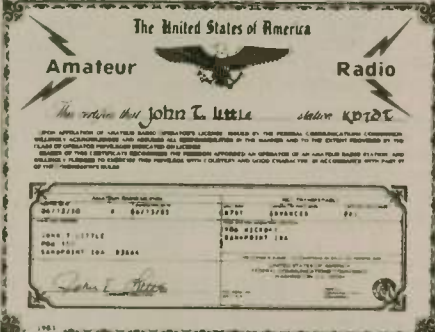
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It is most important that the interviewer is well prepared to ask the right questions and able to stimulate the reporter's memory. Results from a taping session are rewarding and the individual's voice is a treasured possession. However, tapes must be transcribed so the material can also become a written record for ready reference. VCR capabilities combine both audio and video recording, providing an instant electronic family album, but they are costly to use and serve a limited audience.

At the spring QCWA Board meeting, a committee was appointed to immediately begin accumulating history of value to the Association. Contacts have been made with the 13 last survivors of 54 charter members who had already held Amateur licenses for 25 or more years in 1947 and were true pioneers in Amateur Radio. Several have already responded with interesting documentation and photographs.

QCWA members, chapters and friends are asked to assist in this effort to obtain information important to the organization's archives. This includes written or oral history, photographs, news clippings, or any material concerning individual members (current or silent keys), QCWA or its chapters. Material may be sent to QCWA Historical Research Committee, 117 La Granada, Moss Beach, CA 94038. It has been suggested a QCWA historical publication could result if sufficient information is forthcoming.

QCWA's National Convention is scheduled for October 31 and November 1, 1986, at the Econo Lodge in St. Petersburg, Florida. Gator Chapter 32 and Pelican Chapter 128 are co-hosts. In addition to convention program and activities tours to Busch Gardens, Cypress Gardens, DisneyWorld, EPCOT Center, Sea World and Circus World are being arranged. The committee guarantees delightful weather, pleasant temperatures and a memorable visit to Florida's Gulf Coast. Econo Lodge is a full-service hotel with 180 rooms, Olympic-size pool and other attractive features. Off-season rates will be in effect that time of year.

Further information is available in *QCWA News* or write Eli Nannis, K4JMH, 14996 Imperial Point Dr., N. Largo, FL 33544.

Electronic trivia

Alessandro Volta judged a battery by the flash he saw when he touched its wires to his eyelids! Andre Marie Ampere showed that when current flowed through a suspended rectangular wire loop, the loop became magnetized and acted like a compass needle and pointed north — *W5YI Report*

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For info call Chuck Conkell, N4MLN, (205) 322-9620

ALASKA

Anchorage Amateur Radio Club
P.O. Box 101987
Anchorage, Alaska 99510-1987
Meets 1st Friday/monthly - 7 p.m.
KL7AA Rptr. 146.34, 146.94

Arctic Amateur Radio Club
Geophysical Institute West Ridge U of A
PO Box 81389
College, AK 99708
1st Friday/monthly - 7:30 p.m.

ARIZONA

Old Pueblo Radio Club
V.F.W. Club
5307 E. Speedway
Tucson, AZ 85712
Meets: 2nd Wednesday/monthly — 7:30 p.m.

Scottsdale Amateur Radio Club
Scottsdale Senior Center
Corner of Wells Fargo/2nd Street
1st Wednesday/monthly — 7:30 p.m.
rpt. 147.18(+) or 444.000(+) • Call (602) 951-8300

Tucson Repeater Association
P.O. Box 40371, Tucson, AZ 85717-0371
2nd Sat/monthly — 7:30 p.m., Pima Co. Bldg.
Net Thurs 7:30 p.m. 146.28/88 (146.22/82, 147.68/08,
147.70/10-PKT) (602) 747-8903 or 899-4776

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School, Pioneer, CA • 1st Thurs/monthly 7:30 p.m.
WA6WYI Rptr. — 146.835, 146.235.
Net Tues. 7:30 p.m.

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Outpost Restaurant
56400 Hwy #371
Anza, CA 92306
Meets: 1200 noon, last Sunday/monthly

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Hickory Post Restaurant/Lucky Lanes
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First Friday/monthly — 7:30 p.m.
(except January and December)

Fresno Amateur Radio Club, Inc.
P.O. Box 783, Fresno, CA 93712
Meets: 2nd Friday/monthly — 8:00 p.m.
Wawoha Middle School; 4524 N.
Thorne; Fresno. W6TO/R 146.34/94

Gabilan Amateur Radio Club
Monterey Savings & Loan Public Room
Corner First & Westwood
Gilroy, CA 95020
2nd Thursday/monthly — 7:30 p.m.

Golden Empire Amateur Radio Society (VEC)
P.O. Box 508, Chico, CA 95927.
Al Biegler WA6WJZ (916) 343-6141/call 146.25/85
Meets in conference room 1, Enloe N T Memorial
Hospital. 3rd Fridays/monthly — 8:00 p.m.

Hangtown Amateur Radio Club
P.O. Box 305, Placerville, CA 95667
Meets: 3rd Wednesday/monthly — 7:00 p.m.
Senior Citizens Center, Spring St., Placerville
Info: (916) 622-9488

Kern River Valley Amateur Radio Club
P.O. Box 1902, Lake Isabella, CA 93240
4th Saturday/monthly — 4:00 p.m., (Pot Luck)
Veteran's Hall, Lake Isabella
WA6UYW Repeater 146 085/146.685

Livermore Amateur Radio Klub (LARK)
Dublin Library • Livermore, CA
3rd Sat /monthly—9.30 a.m. • Net-147.12 Mondays 7 p.m.
Dwight Becker KA5EQO (415) 484-1456
3731 Oak Brook Ct., Pleasanton, CA 94566

Marin Amateur Radio Club (MARC) W6SG
Box 1231, San Rafael, CA 94901. Meets 1st Fri./8 p.m.;
MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-
9789 (Summer exceptions; contact Pete N6IYU, 924-1578)
Sunday AM Club at Red Cross, San Rafael

Mt. Wilson Repeater Assoc. (M.W.R.A.)
P.O. Box 1384
Monrovia, CA 91016
Net. Mon 7:00 p.m.
WB6JPI Repeater 146.400/147.435

Naval Postgraduate School Amateur Radio Club K6LY
Monterey Peninsula; 146.97, 444.7
2m net Weds. 8 p.m.; Meets 2nd Thurs. 7:30 p.m.
Contact: Keith Beard WE6R
9 Cielo Vista Terrace • Monterey, CA 93940

North Hills Radio Club
P.O. Box 41635, Sacramento, CA 95841
3rd Tuesday/monthly — 7:30 p.m., Carmichael Elks Lodge
5631 Cypress Ave. • Carmichael, CA
Net 145.19 Thur. at 8:00 p.m.

River City A.R.C.S.
Meets: 1st Monday/monthly — 7 p.m.
Glendale Federal Savings
Maryal Dr. and Watt Ave. — Sacramento
For info: (916) 483-3126

Sacramento Amateur Radio Club, Inc.
Contact: Ron Wenstrom, KJ6R, (916) 962-2415
after 6 p.m. Meets Sac. Blood Bank
32nd St. & Stockton Blvd.
2nd Wednesday/monthly—7:30 p.m.

San Fernando Valley ARC Inc. (W6SD)
Meets 3rd Friday/monthly — 7:30 p.m. • Red Cross
Bldg. 14717 Sherman Way, Van Nuys, CA 91407. Exams
8 a.m. 1st Sat./monthly • Pre-registration via P.O. Box
3151, Van Nuys, CA 91407

San Gabriel Valley ARC
Bowling Green Clubhouse
405 S. Santa Anita Avenue
Arcadia, CA 91006
1st Tuesday/monthly — 7:30 p.m.

San Mateo Radio Club
Beresford Park Recreation Center
28th Ave. and Alameda de las Pulgas
San Mateo, CA 94403
3rd Friday/monthly — 7:30 p.m.

*For information on how to get your
club listed in "Visit Your Radio Club,"
plus receive many other benefits, write
to Dave Tykol, WA6RVZ, Club Liaison,
Worldradio, 2120-28th Street,
Sacramento, CA 95818.*

Santa Clara County Amateur Radio Assoc. W6UU
P.O. Box 6 • San Jose, CA 95103. W6UU 146.385 +
Meets: Santa Clara County Service Center
1555 Berger Dr., Building 2 Auditorium
2nd Monday/monthly — 7:30 p.m.

Sierra Foothills Amateur Radio Club
P.O. Box 3262, Auburn, CA 95604.
Office of Education Bldg., 360 Nevada St., Auburn, CA.
Meets: 2nd Friday/monthly at 7:30 p.m. Net Thurs.
7:30 p.m. Rptr. 145.43- Mon. 7:30 p.m. 28.543 MHz.

Sonoma County Radio Amateurs, Inc.
P.O. Box 116 • Santa Rosa, CA 94502
Emergency Operations Center (rear entrance)
600 Administration Dr., Santa Rosa, CA
Meets: 1st Wednesday/monthly 7:30 p.m.

Southern Calif. Amateur Transmitting Society (SCATS)
Vine Elementary School
1901 E. Vine St.
West Covina, CA 91790
1st Monday/monthly — 7:00 p.m. (coffee 6:30)

Stanislaus Amateur Radio Assoc. (SARA)
P.O. Box 4601 Modesto, CA 95352
Stanislaus Co. Administration Bldg.
12th & H Streets • 3rd Tues./monthly — 7:30 p.m.
145.39 MHz WD6EJF

Tahoe Amateur Radio Association
Meets 2nd Saturday/monthly. 1200 lunch, 1300 mtg.
Zephyr Cove Library. Contact Jim Leitner, WA6VKL
Rptrs: 147.24 +; 146.85-; 442.475 +; 145.60 Simplex —
K6GZK System.

Tehama County ARC
13620 Trinity Ave.
Red Bluff, CA 96080
Meets: 1st Wednesday/monthly — 7:00 p.m.
CDF Training Room

Tri-County Amateur Radio Association
P.O. Box 142, Pomona, CA 91769
Meets: 2nd Monday/monthly — 7:30 p.m.
Pomona First Federal S&L — Basement
399 N. Garey — Pomona

Valley of The Moon Amateur Radio Club
Darel Jones, WD6BOR (707) 938-8086 for info.
358 Patten St., Sonoma, CA 95476 • Meets: Sonoma Police
Station, 175 West 1st St., Sonoma • 3rd Wed./monthly
7:30 p.m. Simplex net 147.47 MHz Wed. 7:30 p.m.

West Coast Amateur Radio Club
Fun Meetings—No Business
Meets 3rd Thursday/monthly—7:15 p.m.
Fountain Valley Elem. School • Fountain Valley, CA
Net every Thursday 7 p.m. • Repeater 145.440-

West Valley Amateur Radio Club
American Legion Hall Post #826
5320 Fallbrook Ave.
Woodland Hills, CA
2nd Thursday/monthly — 7:30 p.m.

Yolo Amateur Radio Society
P.O. Box 659, Davis, CA 95617.
Meets: City Council Conf. Room.
23 Russell Blvd. First Tuesday 7:30 p.m.
Simplex 146.475

CONNECTICUT

Middlesex Amateur Radio Society
Portland Methodist Church
381 Main St.
Portland, Conn. 06480
Meets last Tuesday/monthly — 7:00 p.m.

Tri-City ARC
Groton Public Library
Route 117
Groton, CT 06340
2nd Tuesday/monthly — 7:30 p.m.

DELAWARE

Sussex Amateur Radio Assoc.
Delaware Technical Com. College, Georgetown
211 S.E. Front St.
Milford, DE 19963
3rd Wednesday/monthly — 8:00 p.m.

FLORIDA

Indian River Amateur Radio Club
P.O. Box #5, Cocoa, FL 32922
Grace Methodist Church — Needles Blvd.
Merritt Island, FL
4th Friday/monthly — 7:30 p.m.

HAWAII

Big Island Amateur Radio Club
P.O. Box 1938 • Hilo, HI 96721-1938
Meets: 2nd Tuesday/monthly - 7:30 p.m.
Helco Auditorium, 1200 Kilauea, Hilo
Call in: 146.88(-) or 146.76(-)

IDAHO

Idaho Society of Radio Amateurs
Boise, ID Chapter
President: Mary Jane Allen, N7DYU
P.O. Box 8151 • Boise, ID 83707
3rd Tuesday/monthly — 7:30 p.m.

ILLINOIS

Bolingbrook Amateur Radio Society
P.O. Box 495
Naperville, IL 60566-0495
(312) 420-0342 • Call in 147.93/33
3rd Monday/monthly — 7:30 p.m.

Chicago Suburban Radio Association (CSRA)
Clyde Federal Savings & Loan Assn.
7222 West Cermak Road
North Riverside, IL 60546
2nd Wednesday/monthly — 8:00 p.m.

Dupage Amateur Radio Club W9DUP
Mid-America Savings and Loan
55th & Holmes (55th St. near RT 83)
Clarendon Hills, IL • 4th Monday/monthly — 7:30 p.m.
(312) 971-1156 for more information

Fox River Radio League
Valley National Bank, Lower Level
Northgate Shopping Ctr. & RT. 31, Aurora, IL
(312) 898-2779 for more information
2nd Tuesday/monthly — 7:30 p.m.

Radio Amateur Megacyle Society (RAMS)
Meets: Irvingwood/Acacia Church
3900 N. Plainfield, Chicago, IL (8200W)
Mail to W9DY, (312) 625-2879
3rd Friday/monthly — 7:30 p.m.

Six Meter Club of Chicago - K9ONA
Rptrs. 146.37/146.97 448.300/443.300
Info net - Tues. 9:00 p.m. 146.37/97
Annual Hamfest 2nd Sunday in June
Santa Fe Park, Willow Springs, IL.

INDIANA

Fort Wayne Radio Club
Ron Koczor, K9TUS
P.O. Box 15127, Fort Wayne, IN 46885
The Salem Church
3rd Friday/monthly — 7:30 p.m.

Northeastern Indiana Amateur Radio Club
P.O. Box 745, Auburn Indiana 46706
Meets: 2nd Tuesday/monthly — 7:00 p.m. at members homes
Daily traffic net at 2300Z
on 147.96/36 MHz, the WB9VDK repeater

KANSAS

Sandhills Amateur Radio Club
Wheatland Electric Meeting Room
West Fulton Street
Garden City, Kansas 67846
1st Thursday/monthly at 7:30 p.m., 146.31-91

MARYLAND

The Peninsula Radio Operators Society (PROS)
Family oriented activities — training and
exams held throughout the year.
Info net — K3NOQ/Rptr. 146.925 Tues. 1930 Local
P.R.O.S., P.O. Box 2315, Salisbury, MD 21801

MICHIGAN

South Eastern Michigan A.R.A.
Meets: 1st Fri./monthly 7:30 p.m. K8FC Rptr 147.75/15
Grosse Pointe North High School
Building C, Cafeteria Commons
For info contact N8CDY (313) 885-5557

MISSISSIPPI

Miss. Coast Amateur Radio Assn. (MCARA)
P.O. Box 1785 • Tel: (601) 388-9232
Gulfport, MS 39502-1785
Meets: 3rd Monday/monthly
Harrison County Courthouse

MISSOURI

Heart of America Radio Club
American Red Cross
3521 Broadway
(816) 756-2365 x65
3rd Tuesday — 7:30 p.m.

NEW JERSEY

Gloucester County Amateur Radio Club (GCARC)
Woodbury V.F.W.
1st Wednesday/monthly—8:00 p.m.
Woodbury, NJ • Talk-in 147.18/78
For info call K2JF (609) 589-2318

NEW YORK

Rockaway Amateur Radio Club
100th Precinct Police Station
Rockaway, New York
Berne Ross KO2F • (718)634-2167
Meets: 3rd Tuesday/monthly — 8 p.m.

Staten Island Amateur Radio Assn. (SIARA)
P.O. Box 495, Staten Island, NY 10314-0020
Meets 3rd Friday/monthly — 8:00 p.m.
Rm. B-201, College of Staten Island, Sunnyside
Club Repeater — KA2PBT/R — 440.825/445.825

Westchester Amateur Radio Assoc. (WARA)
Scarsdale Village Hall
Scarsdale, New York
Meets: 1st Wednesday/monthly — 8:00 p.m.
For info call B. Dubbs, Pres. (WA2FSR)(914) 725-1191

Westchester Emergency Communications Assn. (WECA)
147.66/147.06, 222.80/224.40, 447.475/442.475
Mtg: 2nd Monday/monthly - 7:30 p.m. Little Theater
County Center, White Plains, N.Y. For further info write:
P.O. Box 131 N. Tarrytown, N.Y. 10591. Call (914) 631-7424.

NORTH CAROLINA

Cabarrus Amateur Radio Society (CARS)
Western Steer Family Steak House
1390 Hwy 29 North
Concord, NC 28025
3rd Monday/monthly — 7:00 p.m.

OHIO

Ashtabula County ARC
Ken Stenback, AI8S (964-7316)
County Justice Center, Jefferson, OH
3rd Tuesday/monthly — 7:30 p.m.
County Repeater — 146.715

C.A.R.S. (The Clyde Amateur Radio Society)
Ervin Remaley, KA8CAS, Secretary
2nd Tuesday/monthly — 7:30 p.m.
Community Rm., City Building, Clyde, OH
Repeater 144.75/145.35

Northern Ohio Amateur Radio Society (NOARS)
K8KRG/WB8JBM • PO Box 354, Lorain OH 44052
Meets 3rd Mondays/monthly—8 p.m. at Gargus Hall
Info: George—WBANM • (216) 933-2841
Ohio's largest general interest club.

OREGON

Oregon Tualatin Valley ARC
Beaverton Elks Lodge
3500 SW 104th Ave
Beaverton, Oregon
2nd Wednesday/monthly — 7:00 p.m.

PENNSYLVANIA

Penn Wireless Assoc. Inc.
Falls Twp. Municipal Bldg.
Trenton Road
Fallsington, PA 19054
4th Monday/monthly — 8:00 p.m.

TENNESSEE

Middle Tennessee Amateur Radio Society
University of Tennessee Space Institute
Tullahoma, Tennessee 37388
(615) 455-0289 Call in — 146.10/70
Meets: 2nd Thursday/monthly — 7:30 p.m.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK)
Meets: 1st and 3rd Tuesdays
Salvation Army Community Bldg. • Hampton, VA
Operates 146/13 147/73 Repeater
For info call 480-2346 or 851-5573

Virginia Beach Amateur Radio Club (VBARC)
Open Door Chapel
3177 Virginia Beach Blvd., Va. Beach, VA
Meets: First Thursday/monthly — 7:30 p.m.
For information (804) 497-1235

WASHINGTON

Mike & Key ARC K7LED
Good Neighbor Center
305 So. 43rd Street
Renton, WA 98055
Meets monthly on 3rd Sat. - 10 a.m.

North Seattle Amateur Radio Club (NSARC)
Meets: 3rd Tuesday (except Jul. & Aug.) at the First
Interstate Bank, 30th Ave. NE and NE 125th St. (Lake City)
in basement. Info: Mike Jr., W7WHT, (206) 282-1438 or P.O.
Box 20279; Seattle 98102

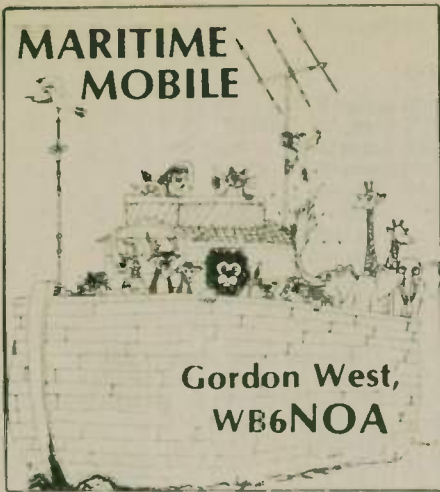
WEST VIRGINIA

Jackson County Amateur Radio Club, inc.
D. Geneal Bailey, NK8P, Sec.-Treas.
113 Winters Dr., Ripley, WV 25271
First National Bank of Ripley
Meets: 1st Thursday/monthly - 7:30 p.m.

WISCONSIN

Fox Cities Amateur Radio Club
Meets: 3rd Monday/monthly — 7 p.m.
Roosevelt Jr. High School • 318 E. Brewster St.,
Appleton, WI 54911. Talk-in 146.76/16
Contact Jack Bigelow, KA9JOL, (414) 766-3861

MARITIME MOBILE



Gordon West,
WB6NOA

Maritime Mobile Nets

This month we feature an up-to-date list of maritime mobile nets throughout the world (see next page). Please clip this list out and keep it handy by your maritime mobile installation. This list has been compiled by the many inputs that my readers have sent me, and I thank you all for your help. Keep those additions and changes coming.

Our maritime mobile net directory was compiled by Roger Krautkremer, W6SOT. "We're looking for current information, as well as updates, corrections, and additions — so please keep me up to date," indicates Roger. You can write Roger at 3508 Gresham Court, Pleasanton, CA 94566. We thank Roger for this net listing.

Remember that most net controllers will "scrub" all call signs to insure that the operators have a minimum of a General class license, and that the license is current. Don't get upset if a net control-

ler should ask you details about your license — if you've recently upgraded, the net controller needs to know about that to include all the details.

Here on the West Coast, underlicensed mariners have found a new trick to getting on the General Class airwaves with just a Novice or a Tech license — and that's getting an XE2 call sign from Mexico that is valid for as long as their visa or tourist card is good. That's right, the enterprising Novice or Tech can get full General Class privileges with this quasi-reciprocal XE2 call sign and operate quite legally on General Class frequencies. Of course, for the Mexican call sign to be valid, the mariner must be cruising within the jurisdictional waters of Mexico. Once the mariner is out on the high seas, his American call sign takes precedence, and the mariner is limited to the privileges for the American call sign.

Right now there are several Americans in Mexico sporting the new XE2 call signs and they openly admit they have nothing more than an American Novice license, and have absolutely no plans to upgrade. I'll leave it up to the rest of you Generals and higher as to whether or not you want to work this station on a maritime net, and whether or not you want to handle his phone patch traffic, which seems to be about the only type of communications that some of these underlicensed American XE2 stations want to pass. I won't work them. Americans that are underlicensed hiding under an XE2 call sign just to get General Class frequencies don't make it in my book. How about you?

We don't really want to put pressure on Mexico — after all, we're just getting them to come around with a reciprocal-

type license that they never used to issue. No sense of rocking this boat. Calling our local FCC won't do the job because they cannot control what Mexico does when it issues call signs. So my recommendation on this call sign Bingo game is to simply ask any XE2 what grade of American call sign they have, and leave it up to those operating the net as to whether or not they indeed want to work an underlicensed American on General Class frequencies.

I hope all of you will take an active part in your maritime mobile net. Remember, net controllers and base stations on the mainland are more than just a telephone booth for a free phone call back home. Keep active on your net and do your share to help — giving maritime mobile weather reports, traffic handling to nearby vessels, and any other assistance that you can come up with to help out the net.

The issue of giving weather reports over the net I think has pretty well been resolved. Amateur Radio is not to be used to support the local weather service or a local radio station that broadcasts weather reports. The weather information given by participating vessels and net control operators is part of a roundtable discussion for our own use — and roundtable discussions are within the rules and regulations.

However, setting up a scheme to transmit and receive weather reports, and then passing this information on to the weather service for their use has now been deemed "broadcasting", and this is not legal. However noble it may be to give this valuable information to our weather service that dearly needs this type of information out on the high seas, the Commission rules indicate that this is indirectly helping an agency that has people for hire, and this is like business, and this is like not legal! Remember, roundtable discussions about the weather are fine — just avoid the word "broadcast."

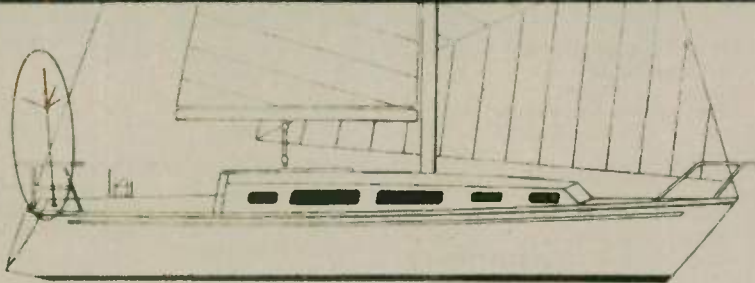
So that's it for this month — I think you'll find the W6SOT maritime mobile net directory quite useful. Be sure and send him any updates that you might have, and smooth sailing. □



*A fine is a tax for doing wrong.
A tax is a fine for doing OK.*

The SpiderTM MaritimerTM Antenna

U.S. Patents 4349825, 4460896



The only amateur radio antenna made specifically for use on the ocean. Non-magnetic stainless steel mast and nickel-chrome plated bronze fittings make it virtually corrosion-proof. Operate on 10, 15, 20 and 40 meters without making any antenna changes. A resonator for 75 meters is available as an accessory. A special marine mounting fixture for deck use is also available.

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7131 OWENSBOUTH AVENUE, SUITE 163C
CANOGA PARK, CALIF. 91303
TELEPHONE: (818) 341-5460



WEATHER BOOT

- Weather seal your coax connection!
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Tel: 805-646-9645 • *Dealer/OEM inquiries invited

Marine mobile nets

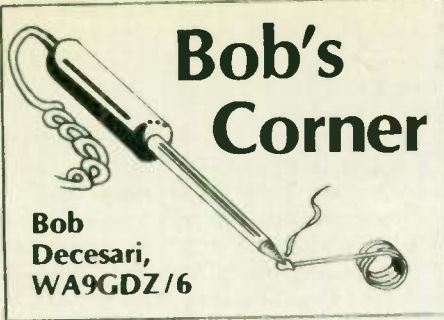
Compiled by Roger Krautkremer, W6SOT

Edited by Gordon West, WB6NOA

Time (UTC)	Freq (MHz)	Net name/designator	Days	Areas	Info	Contact
0100	3.935	Gulf Coast Hurricane Net		G/C USA	Seasonal?	
0100	21.407	Pacific-Ind. Ocean Net		Pac/Ind Oc		
0100/2400+	14.313	Mar. Mobile Serv. Net		Pacific	(Also 1800)	KB5YX
0200+	3.992	Ariz. Traffic Net		Ariz/Baja	M/M TFC OK	
0200+	14.305	Cal-Hawaii (CC&H?) Net		CA HAW/PAC		
0200/0100+	7.290	Hawaii PM Net		Hawaii		
0300/0200+	14.313	Seafarers Net		Pac/W Coast		WA6ZEL or KC7EX VK6ART
0300+	14.106	Traveler's Net		Aust/Ind Oc		
0330	14.040	E/C M/M CW Net		E/Coast	CW oper	
0400+	14.115	Canadian DDD Net	Daily	Pacific	Also 1730	VE7DB
0400	14.075	PAC CW Traffic Net	MWF	Pacific	CW oper.	
0430+	14.314	PAC MAR net-warm up		Pacific	W/U	K7YRU
0500	21.200	VK/NZ/African Net		Pac/Ind Oc		
0500+	14.280	USA/Australia TFC Net		Pac		
0530**	14.303	Swedish Maritime Net		Pacific		
0530+	14.314	Pacific Mar Net		Pacific	Roll call	K7YRU
0630	14.180	Pitcairn Net	Mon	So Pac		
0630+	14.320 105	So. African Mar Net	Daily	Atl/Ind Oc.	(& 1130)	ZS5MU/ZS5GC?
0700+	14.313	International M/M Net		Atl/Med/Car	Also 1700	DK0SS?
0700+	14.265	Pacific Island Net		Pacific		
0700	14.310	Guam Area Net		West Pac		
0715+	3.820	Bay of Islands Net	Daily	Aus/NZ/S Pac		ZL1BKD?
0800	7.280?	Australia TFC Net		Aus S Pac		
0800 > 0830+	14.315	Pac Inter-Island Net	Daily	S Pac/Ind Oc./SEA		P29CC?
0800+	14.303	UK Maritime Net		Atl/Med/Car	(Also 1800)	G80S?
0900	14.313	German M/M Net		Atl/Med		
0900	7.080	Canary Island Net		Atl		
1000	14.330	Pac. Gunkholers Net		So Pac		
1030+	3.815	Caribbean WX Net	Daily	Car	WX Also 2230Z (14.263?)	VP2AYL?
1030	14.265	Barbados Cruising Net		Atl/Car	Weather (Listen 7.230)	J6LDZ KV4JC K4PT KA2CPA
1100	3.750	Marine WX Net		NE Canada	(Also 220)	
1100+	7.080	Bernies Car M/M Net		Car		
1100+	14.313	Intercon net	Daily	N/S/C Amer		
1100+	14.283	Carribus TFC Net	Daily	E/C-Car		
1130+	14.320/105	So African M/M Net	Daily	S Atl/Ind Oc	(0630)	ZS5MU/ZS5GC?
1130+	21.325	So Atl Roundtable	Daily	So Atl/Ind Oc.		PY1ZAK
1200	14.040	M/M CW Net		E/C USA	CW Oper	
1200	14.332	YL Emergency Net		USA		
1200+	14.320	So. East Asia Net	Daily	SEA Indonesia		WB8JDR?
1300+	7.268	Waterway Net	Daily	E Coast/Car		NU4P
1300/1200+	21.400	Trans-Atl M/M Net	Daily	N Atl/Med/Car		WA1WTP/ VP5SL
1400	7.292	Florida Coast Net		Florida		
1400+	3.963	Sonrisa Net	Daily	Baja/CA1	Roll Call	WA6VZH
1500**	7.193	Alaska Net		Alaska		
1545	14.340	Marquesas Net		So Pac		
1600/1500+	7.238.5	Baja Cal Mar Net	Daily	Baja Cal	(Ex-Kates Navy)	W6IM
1600/1700+	14.313	Coast Guard M/M Net	M-F	Atl/Car/USA		K4DZ K4CG
1630	7.285	Serape Net	Sun	Mex Coast		
1630	21.350	Pitcairn Net	Fri	So Pac		
1700+	14.340	Cal-Hawaii Net	Daily	Cal/Haw		KD6DV
1700+	7.240	Bajco M/M net	M-F	C Amer/Panama		HP3XWB
1700+	14.313	International M/M Net	Daily	Atl/Med/Car	(Also 1700)	DK0SS?
1700	14.330	Skippers Net		Pacific		
1730+	14.292	Alaska net	M-F	Alaska		
1730+	14.115	Canadian DDD Net	M-F	Pac	(Summer, Also 0400)	VE7CEM
1800 > 1900+	14.285	Kaffee Klatch Un-Net	MWSa	Haw/Tahiti	News	KH6S
1800+	14.303	UK Maritime Net		Atl/Med/Car	(Also 0800)	G3TJY?
1800+	14.305	Confusion Net	Daily	S/Pac		W7GYR
1800	14.342	Gordon On The Air		W/W		WB6NOA
1800/1700+	14.313	Mar Mobile Serv Net	Daily	Atl/Car/Pac	(Also 0100)	KB5YX
1800+	7.076	So Pac Cruising Net	Daily	So Pac	WX/Harbor- Informal	
1830+	14.342	Manana M/M Net-W/UP	M-Sa	W/C-E Pac	W/U	KA7HVA
1900+	14.342	Manana M/M Net	M-Sa	W/C-E Pac	Weather	KA7HVA
1900	7.255	West Pacific Net		W Pac		
1900**	7.285	Shamaru Net? (Ex-Friendly?)	Hawaii	(EX-SMITTY's/7.288?)		
1900	21.390	Halo Net		N/S Amer		
1900	14.329	Colin's Net (Bay of Isl)		NZ	(14.330?)	ZL1BKD?
1900	3.855	Friendly Net		Hawaii		
1900	3.990	Northwest Mar Net		Pac NW		
2000**	7.060	VK Maritime Net		Aus/So Pac		
2100+	14.315	Tony's Net		NZ	Weather	ZL1AT
2100	21.390	I/Amer Traffic Net		N/S Amer		
2130	14.318	Daytime Pacific Net		Pacific	Informal?	
2130	14.290	E/C Waterway Net		E/C USA		
2200	21.350	Pitcairn Net	Tues	So Pac		
2200+	21.404	Pac Mark Net-W/UP	M-F	Pacific		
2230+	3.815	Caribbean WX Net		Car	WX(Also 1030)	VP2AYL?
2230+	21.404	15 MTR Pac Mar Net	M-F	Pacific		K7YDO
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Legend:

R/C = Roll call, Passage maker positions taken; WX = Weather info avail; W/U = Warm-up session - check ins; E/C = East Coast, W/C = West Coast, C/A = Central America, G/C = Gulf Coast, CW = Morse Code Net, Atl = Atlantic, Car = Caribbean, Med = Mediterranean, "+" = info checked from several sources as of May 86. "**" = no current information - looking for updates. ">" = from/to times of net. Dual times listed = standard to daylight time changes.



Build a 2M quad for about \$5

Could you use a high performance antenna to hit that 2-meter repeater which always seems to be too far away? Or do you live in an apartment which prohibits you from using an outside antenna, and your rubber duckie just doesn't allow you to talk to anyone except the ham in the next apartment? And, finally, is your pocketbook deflated because you just spent your money on that new rig and the XYL took the rest? Well, cheer up, because here is a high performance antenna that will make your signal be heard, cost about \$5 for material, and a couple hours of your time. It can be used indoors as well as outdoors, depending on your particular situation. A hack saw, a quarter-inch drill, and wire strippers or cutters are the only tools needed to make the antenna.

The basic antenna design about to be described in this article is that of a cubical quad. The basic quad loop consists of a full-wavelength of wire in a square or rectangular configuration. The full wavelength loop offers several advantages over a conventional dipole. Of particular significance is the fact that the loop antenna has a lower wave launching angle than the dipole. This means that more power is radiated to the horizon, where the station that you want to talk to is, than to the clouds. The net effect is that gain in the order of a couple dB is offered by the full loop antenna over a dipole. Another advantage of the quad loop is that its bandwidth is significantly broader than a conventional dipole. That is, it can be used over a greater frequency range with a relatively low standing-wave ratio.

Like the conventional dipole, the quad loop may be combined with other loops to form a parasitic array antenna. If these additional loops are designed such that they are resonant at a slightly

higher frequency or a slightly lower frequency than the loop that is driven by the feedline, they become directors and reflectors, respectively. Hence, it is possible to form a quad beam-type antenna, similar to the more familiar Yagi-type antenna. However, due to the lower angle of radiation inherent with the loop design, the performance of a quad beam as compared to a Yagi with the same number of elements is generally superior. As an example, a quad beam consisting of a driven element and a parasitic reflector is just about equal in performance to a 3-element Yagi. Similarly, a 3-element quad is somewhat better in performance than a 4-element Yagi.

Now that the pedigree of cubical quad antennas has been established, let's get with building one! The quad structure will be made of wood, preferably hardwood doweling which is readily available at hardware stores. Do not attempt to make the structure out of metal as the electrical characteristics of the quad loop will be altered drastically! The structure should be made out of some dielectric material; wood is the most cost-effective material for this project. The loops will be made out of 22-gauge insulated wire, although bare wire is acceptable. Figure 1 illustrates the overall design of the antenna.

First, cut the boom to the length indi-

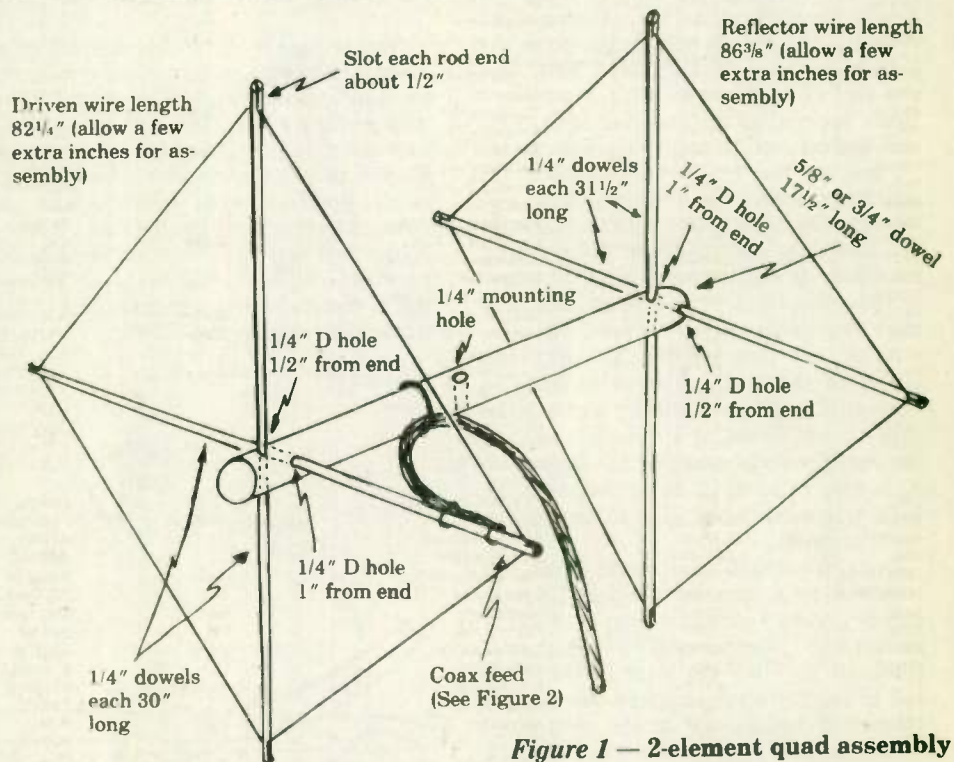


Figure 1 — 2-element quad assembly

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cated in *Figure 1*. Now take a quarter-inch drill bit and drill the right angle holes which will hold the quarter-inch doweling. The best way to drill these holes at right angles is to insert a dowel in the first hole drilled and use it as a reference. With this dowel temporarily in place, align your drill either parallel or at right angles to the dowel for the remaining holes. "Bore sighting" the holes in this fashion will give good parallel and right angle holes. If you have a drill press, use it with the reference dowel in place and your results will even be better.

Next, let's cut the quarter-inch doweling to the size indicated in *Figure 1*. Note that the two dowels used for the reflector are slightly longer than the driven element rods. This is because the reflector will be slightly larger than the driven, as all reflectors are. Now, slot the end of each dowel with a backsaw blade approximately one-half inch. This slot will be used to secure the wire loop.

Now we are ready to assemble the structure. Insert the quarter-inch doweling into the holes in the boom and center the doweling on the boom. Since most hardware doweling comes slightly larger in diameter than what it is specified, it may be necessary to ream out the quarter-inch hole slightly to allow the dowel to slip through it. This may be done with either the drill by rocking the drill up and down, or by using a rat tail file and carefully opening the hole size. Either way you do it, do not oversize the hole. Use some wood glue to secure the dowel in place.

Once the structure is made, mark the reflector loop wire to the length indicated, giving yourself a couple of extra inches for stripping and soldering, and then cut it. Place the wire in the slots cut in the reflector support dowels and stretch it tightly about the structure. Bring the wire loop together at the mark and solder it together. Don't forget to allow for the extra wire needed for soldering!

Cut the driven loop wire in a similar fashion as the reflector. Place the wire in three of the four slots cut for it. The fourth won't be used. Center the wire about the structure. Now, we will attach the feedline. *Figure 2* illustrates the impedance matching system used to feed the quad loop. A 6 to about 40 trimmer capacitor is used to tune out any mismatch at this point. The capacitor, and Arco Type 403 or equivalent, may be purchased at any Radio shack. Also note the short piece of 300 ohm twinlead stub. This is attached right across the loop feedpoint and acts as a slight inductance for the impedance match. When the driven wire loop is connected as shown in *Figure 2*, the coax feedline may be taped to the quarter-inch dowel or secured using wire or tie wraps.

Now we are ready to fire it up! Mount the antenna on a pole or some other convenient support well clear of any metal and preferably outside. For vertical polarization the rod with the coax on it should be parallel to the ground. Horizontal polarization is achieved with the coax rod vertical to the ground. Select a frequency near the center of the 2-meter band; 146.52 MHz will be fine. With an SWR meter in line, energize the transmitter and adjust the trim cap for mini-

mum SWR. If all is well, your SWR should be under 1.5 to 1. If not, check the loop dimensions. If it still doesn't work, try lengthening or shortening the 300 ohm stub.

What about weather proofing? A couple of good coats of spar varnish will work fine. Electrical tape may be wrapped about the trim cap and then coated with spar varnish. Encapsulating the trim cap in RTV is acceptable as long as the substance does not get between the plates of the capacitor. If it does, SWR will go up and antenna performance will degrade. If you intend to use the quad indoors, nothing more needs to be done.

The antenna should be a hot performer. Its performance will be best noted on weak signals more than strong signals. With a weak signal, you will notice good front-to-back performance and directivity. Don't be alarmed if the direction you think a station should be is incorrect. Reflections from nearby cars and buildings can significantly alter the apparent direction of a signal. A word about coax feedlines: at 146 MHz, there is a reasonable amount of loss with standard RG-58/U. Therefore, keep your feedlines as short as possible. Any length to about 30 feet should not significantly alter your transmitted power output. □

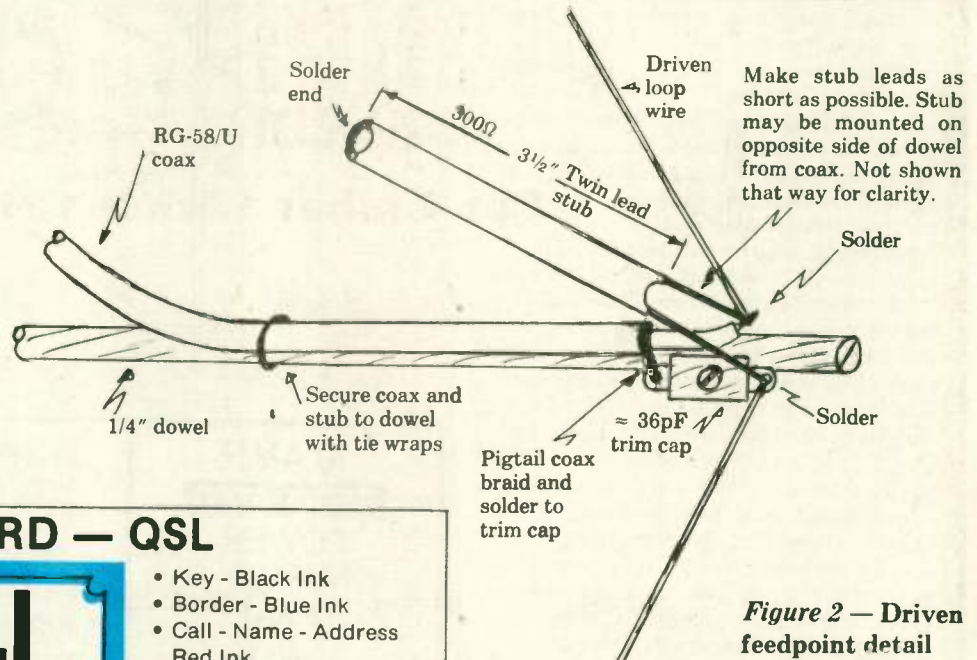
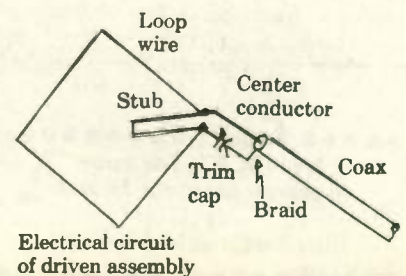
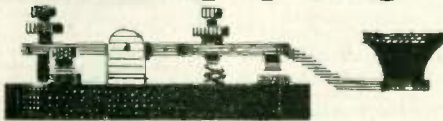


Figure 2 — Driven feedpoint detail



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are really free. Emergency coordinators occasionally encounter this when they approach public officials to offer our services. The officials can't believe that there isn't some catch to it somewhere, that somebody isn't making something on the deal — if not financially, at least politically. From long experience, administrators have learned that when something seems too good to be true, it usually is. But Amateur Radio is an exception. It's free, required to be free by federal law, and is dedicated to public service.

Ever since its beginnings three quarters of a century ago, the Amateur Radio Service has used its equipment and

personnel to help anyone who has needed it. The story has been told many times in books like Clinton B. DeSoto's *Two Hundred Meters and Down* and Vince Luciani's *Amateur Radio, Super Hobby*, and need not be repeated here.

In addition, amateurs have traditionally been free with their time, and often with their pocketbooks too, in helping newcomers get themselves started. Teaching classes or tutoring individuals to prepare them for the licensing examination, helping them pick out or construct their station equipment and set it up, providing practical help that goes beyond what one can find in books, lending gear to youngsters and others who

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are financially strapped, devising special equipment to enable handicapped persons to participate in Amateur Radio, assisting newcomers during their initial operating sessions — we do all this without seeking any reward other than enabling others to share in what we ourselves enjoy in our own hamming.

It's a kind of communism. Marx envisaged a communist utopia as the end product of the evolution of the economic order, where there would be no government, no laws, no crime, no punishment, no private property, no need, no greed, no competition, where everything would be distributed impartially to each as each has need. Marx was no prophet, for obviously economics has not followed his program. After almost 70 years, Marxist nations appear no closer to this utopia than do the degenerate capitalist nations of the West. Yet Amateur Radio has within itself some of the elements of this utopia, quite imperfectly it is true, but at least recognizably.

Yes, there is government, there are laws, but they are generally kept to a minimum, at least in the United States. The FCC has repeatedly complimented the Amateur Radio Service's ability to keep its own house clean with a minimum need for government intervention,

and is now relying on amateurs to do most of the work in connection with the licensing of operators, and again this is without compensation. What government intervention we do have is as often as not there to protect us from those who would take advantage of Amateur Radio to make a fast buck, from people who cast greedy eyes on our frequencies, regretting that they are going to waste when they could be earning money.

We do have a few unsavory characters in our ranks, but they are really few. The nature of our operation makes it possible for them to be more of a nuisance, for their shenanigans can be heard around the world or come out of every receiver in the county tuned to the repeater. Yet we usually can handle them. The few harder nuts the FCC has been able to crack effectively, but they remain a minuscule fraction of the nearly half a million licensed amateurs in the country.

Of course we own our stations, but we also recognize that our station equipment is worth nothing without the great resources that we all share without owning, the radio spectrum, the ionosphere, and everything else involved in propagating radio waves.

Furthermore, we also realize that our gear would be worthless without the gear at the other stations we work, so in a sense we are sharing other people's stations all the time. We profit as much as the owner when we work someone whose receiver can pull our QRP signal out of the mud to make it readable, and whose transmitter has the extra punch to enable our little squawk box to deliver intelligible output. We set up repeaters and launch satellites for the benefit of all. Packet systems are being developed on the same basis. In addition, there is the willingness to help already mentioned, the desire to see that nobody who wants to participate will be denied the opportunity.

Competition? Yes, there is competition in Amateur Radio, and most likely always will be. But it's friendly competition, undertaken to help us achieve the best possible performance of our stations and our operators, not the dog-eat-dog competition often found in the business and political world, where the aim is often to eliminate the competitors so as to have a bigger share of the pie for oneself. In fact, some of the restrictions on the kinds of traffic we can handle are to prevent Amateur Radio from becoming involved in such competition. One of the reasons given by the FCC when prohibiting our handling business communication was the unfair advantage a business might secure by having its communications go by Amateur Radio instead of using the more expensive type-accepted commercial gear or instead of making use of regular common-carrier communication circuits.

This is being written during the most popular contest of them all, Field Day, when one of the aims is to promote the development and to train in the use of equipment that could serve in an emergency in remote locations where commercial power is not available. Public service is the primary purpose, but a little competition is added to make it fun and also to help bring out the best in us. And one thing particularly to be noted about Amateur Radio competition is that whenever we make points for ourselves we also provide points for a competitor, too — the station we are working.

The key: it's voluntary

Why is it that Amateur Radio has succeeded where the Bolsheviks with all the Czar's horses and all the Czar's men have not?

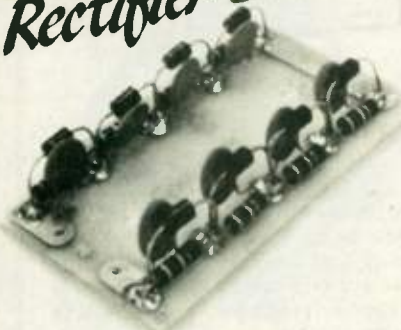
The answer is simple, it's voluntary with us. There are a few regulations, but beyond them the spirit of Amateur Radio is freely accepted by the great majority of hams. And even the regulations themselves are freely accepted; nobody is forced into Amateur Radio. Nobody is required to perform public service, to handle traffic, to operate during an emergency, to help newcomers, give licensing examinations; it's all a matter of free choice. The communists fail because they try to do it by force.

In this, Amateur Radio is in line with the Judeo-Christian tradition, as well as with the teachings of some Oriental wise men. The Hebrew Scriptures are replete with stories of those who freely chose to give themselves for others, and with exhortations by the prophets to do the same. And even today the *kibbutzim* in Israel practice this same sharing. Christ taught the same but with renewed emphasis, and his followers have continued the tradition, both in the religious orders of the Christian churches, where all the members share everything, and in the various works promoted among all the faithful, where those who have been blessed with more share their blessings with those in need.

In all these cases the sharing is strictly voluntary, and it works. In fact, it often works more effectively than government-supported activities which are handicapped because they are not voluntary, and because they often expend most of their resources in operating themselves. It often costs a public agency more to verify and evaluate a need and to account for the funds involved than it does to relieve it.

The fact that we amateurs operate on a voluntary basis helps us operate more economically too. NASA people found it hard to believe that we could develop and construct our OSCAR satellites at such low cost. While we were wondering (please turn to page 54)

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There is an element in QRP which argues, with some justification, that it is no true test of low-power operating skills to be dumping a 3-watt signal into a Super Death Ray antenna at 100 feet and with a dozen or so decibels of gain.

With that type of skyhook, they say, even the lowliest of peanut whistles can be heard on the other side of the world. The antenna substitutes for the power amplifier, is the argument.

While I am *not* willing to dismantle my antenna system to prove myself as a QRPer, there is some merit in the argument against using directional, gain antennas. Perhaps it would be better to say there's a challenge, and where there's a challenge, there's a prize.

Our friends in the G-QRP Club in the United Kingdom have an annual, year-long contest which emphasizes not only low-power output but simple antennas at moderate heights, and the scheme has appeal. It's the Chelmsley Trophy competition, and while it's a little late to get started on it for 1986, it's not too early to prepare for the 1987 edition.

The rules are straightforward, and the competition runs from January 1 through December 31, with a February, 15 due-date for entries. Power output may not exceed 3.3 watts (5 watts DC input) on CW or 10 watts PEP on SSB.

The antenna requirements are the key to the Chelmsley Trophy: No antenna may exceed 35 feet (10 meters) in height above ground; none shall exceed 132 feet in length; although antennas may be changed during the year, at no time may more than one horizontal *and* one vertical antenna be used; and all antennas shall consist only of a radiator element without reflectors or directors. (The Brits play guts ball with this one.)

For each band used, the log submitted must consist of a list of all DX countries worked in alphabetical order of prefixes with figures showing the total number

of countries worked; a similar and separate list of all countries worked two-way QRP; and a note drawing attention to any contacts which, by virtue of the very low power used, rarity or other reason, are considered outstanding contacts.

A separate sheet must be provided detailing the transmitting, receiving and antenna equipment used during the year. The entry also should point out significant work done during the year on simple antenna design or propagation studies — all of which the contest committee will weigh in picking the winner. In other words, it's not just the number of contacts in a year but the circumstances under which they were made which count.

The 1985 winner was Bob Fowler, G3IQF, who not only operated with "a very restricted antenna" from home but impressed the judges with his QRP mobile operating as well. Among Bob's contacts were a VE1 on 40-meter SSB from home and mobile QSOs with CT2, UL7, VE, VP2M and W on 20 meters, QRP.

Entries should be sent to Rev. George Dobbs, G3RJV, St. Aidan's Vicarage, 498 Manchester Road, Rochdale, Lancs. OL11 3HE, U.K.

A contest such as this one underscores the importance of the antenna to QRP operations, and it should encourage some experimenting with antennas to improve their efficiency and performance — especially under circumstances not conducive to erecting massive skywires and/or Super Death Ray beams. It also ought to appeal to apartment dwellers and others whose antenna space is restricted. And there is the challenge to those with plenty of room for antennas to see what can be done with a more modest approach.

It's refreshing that just when we think we've heard it all or seen it all, someone comes along with another idea to keep things rolling. That it came from our British cousins is not surprising, given the G-QRP Club's record for homebrew projects over the years.

They tried another idea not long ago, which met with a surprising degree of success: There was a swapfest limited strictly to components for building it yourself or to the sale or swap of homebrewed gear. Commercially made equipment was not allowed in the door.

I wonder how an idea like that would fly on this side of the pond?

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A closer look at horizontal loops

Curt Wilson, W0KKQ

Why do we not hear more about the horizontal full-wave loop antenna? Perhaps it is because most wire antennas have been disdainfully ignored in recent years, except for dipoles, straight wires or derivations thereof. This is a closer look at one of the best-kept secrets in Amateur Radio, and an in-depth analysis of some aspects seldom mentioned in antenna manuals.

Recent renewed interest has been accelerated as informative articles (January '85 issue of 73, and November '85 issue of *QST*) describe a rediscovery of a super antenna which has existed all along. Thus, we find this device works extremely well; is a highly cost-effective multi-band antenna, and has far greater potential than the ultra-low cost would lead us to believe.

Let us further dissect this antenna and look at the reasons for its desirable characteristics, which include:

- 1) Proper function on several harmonically related amateur bands.
- 2) Low SWR on all harmonically related bands.
- 3) Gain greater than reference dipoles, even at the lowest (fundamental) design frequency.
- 4) Balance currents in the two antenna halves.
- 5) Large capture/radiation area without requiring large real estate.

6) Not dependent upon good earth ground for high efficiency.

7) Excellent RF isolation between antenna and operating position.

8) Single coaxial feedline works fine on all bands. Automatic bandswitching.

9) Broad bandwidth over each harmonic band.

The classic dipole wire antenna can be cut for one precise frequency which offers a nominal match for a 50- or 72-ohm feedline. But most ham bands are harmonically related, and wire antennas tuned to one band do not function well on harmonically related bands. The single-wire dipole or the straight-wire antenna is usually a one-band device or a poor compromise at best. One exception is the 1/2-wave dipole on 40 meters which becomes a good 3/2 dipole on 15 meters. The loop has no such limitations.

Notice how the instantaneous voltage excursions of harmonically related frequencies (i.e., ham bands) conform nicely to the loop designed and tuned specifically for a fundamental frequency. Notice also how opposite sides of the loop are spaced 1/4-wavelength apart on the fundamental frequency, and spaced in finite multiples thereof for each higher band. This in-phase advantage greatly enhances signal strengths.

Because the longest span of straight wire is only 1/4-wavelength on the lowest band of operation, the horizontal loop is ideal for small lots. It may be concealed under the eaves, encircling the house or other building. Although no balun is necessary to make this a splendid antenna for any band. I personally prefer to use it conjunction with a 4 to 1 balun. This keeps antenna currents balanced in each antenna half, and reduces radiation from the coaxial feedline.

Also, loop antennas have a nominal impedance slightly higher than 50 ohms, even on the fundamental frequency where the total antenna length is one wavelength. On successively higher bands where the total wire length is two, three, four or more wavelengths, somewhat higher feedpoint impedances are encountered. The 4 to 1 balun provides a reasonable match on all bands. A transmatch can also offer protection for solid-state finals and precision antenna tuning for that perfect SWR adjustment.

This antenna is much better known among some commercial interests and certain government agencies than among hams. While this is our loss, this situation seems to be changing for the better as its characteristics become better publicized.

Due to the radiator length, spacing and phasing, considerable gain can be realized on each harmonically related band. Higher-gain figures may be expected on higher-frequency bands where the radiating element represents greater

multiples of one wavelength. Single, straight, short wires less than one wavelength long do not work well on more than one band without adjustment. Nor do they offer a very good coaxial feedline match without considerable retuning from band to band.

But here is an efficient multi-band antenna without loading coils, traps, shortened elements, or any other feature which compromises efficiency. Even on the lowest band of operation, this loop constitutes a full wavelength. Notice that a loop has the magical quality of accurately increasing the number of 1/2-wavelengths on each successively higher harmonic frequency band. This maintains a balance of an equal number of 1/4-wavelengths in each half of the antenna, a characteristic which contributes enormously to efficiency on every band.

Several formulas have been recommended to compute the total length of the loop on the fundamental frequency. The one I have found most accurate is: 1005 divided by the frequency in MHz equals length in feet. This formula is especially true where the antenna is mounted fairly high and in the clear, away from other antennas, wires or other metallic objects. Also, when the antenna is used primarily on the CW portion of the band. There is one minor disadvantage: i.e., the loop should be supported in four places. This, coupled with the previous lack of technical information, has likely placed it beyond the capability of some hams.

Waveforms shown here are accurate for a full-wave 40 meter loop. If the lowest band of operation desired is to be 8 meters, the total length of the loop must be doubled. This in no way diminishes the efficiency on the higher-frequency bands. On the contrary, it offers a longer radiator which will resonate with twice the number of standing waves. Like any other resonant, horizontally polarized antenna, it discriminates well against atmospheric noise, especially hash and impulse types of noise.

Now, the inevitable question: What about the WARC bands? I regret to say that during my many years spent in antenna research and development, I had no occasion to test this particular antenna on non-harmonically related bands. Consequently, I haven't the faintest notion what behavior might be expected on those bands if the design frequency were computed for 40 or 8 meters. I would be eager to learn about the results if anyone should try either the 40- or 8-meter version on any of the WARC bands.

The glowing testimonials about loop performance which appear on page 22 of the November '85 *QST* border on the incredible when read for the first time. But when I began to take a critical look

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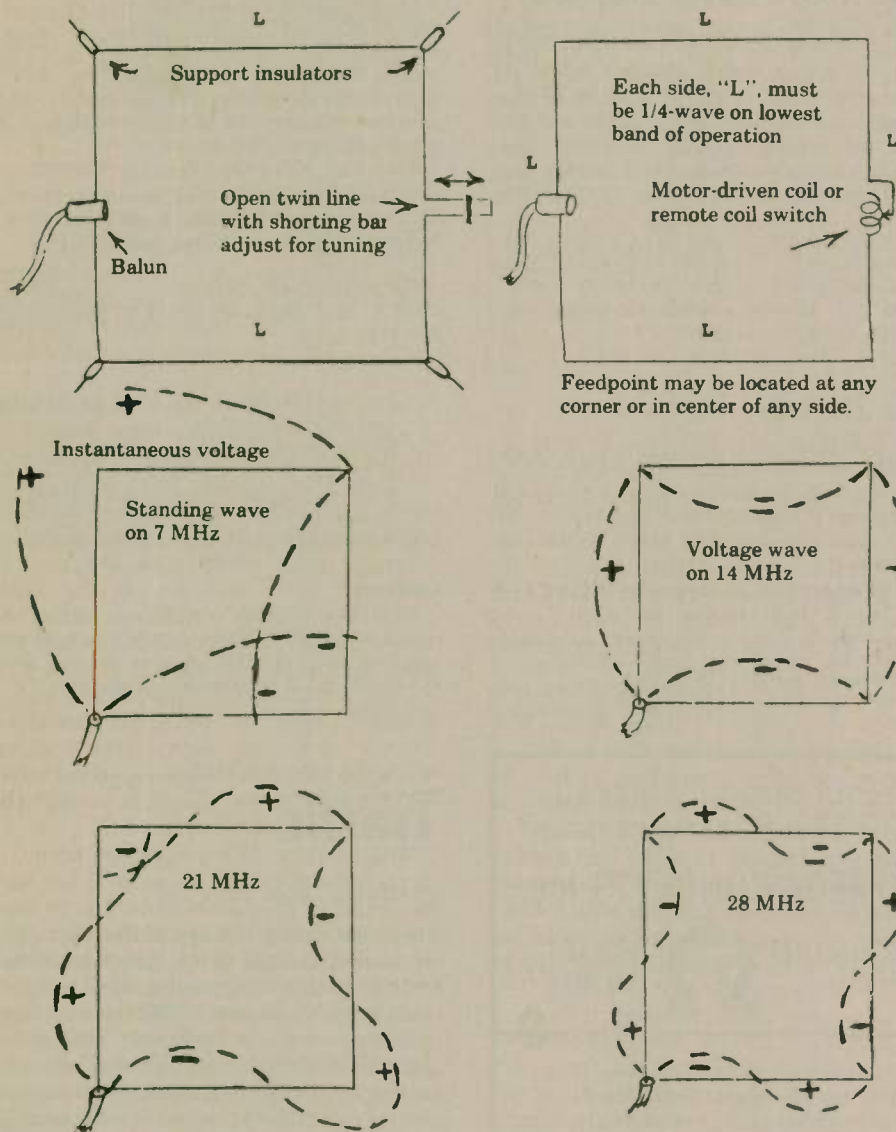
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ALTERNATE METHODS OF TUNING HORIZONTAL LOOP (in lieu of a transmatch)

All loops shown full-wave on 40 meters



at each comment, there was not one I could pinpoint in disagreement. There were the first in-depth evaluations of horizontal-loop performance I had seen in the civilian/amateur world. Their descriptions are emphatic endorsements, and seem to coincide closely with other research projects on the subject. Those hams have done their homework, with contacts and signal reports to substanti-

ate their findings.

Above all else, it offers some assurance that the expenditures and labor required to erect this loop will result in something that performs in a superior manner on all bands. Isn't that what ham radio is all about? Best DX, W0KKQ, Curt

— Grid Leak, Pueblo Ham Club, CO □

VE repeaters

Traveling to Canada? The CRRL's 1986 *Canadian Repeater Directory* is now available. Extensively revised, the new directory lists over 600 repeaters

across the nation. Free copies are available for an SASE with proper Canadian return postage affixed and sent to: CRRL, Box, 7009, Station E, London, Ontario, Canada N5Y-4J9. tnx *Westlink Report* □

Spider AntennasTM and AdaptersTM

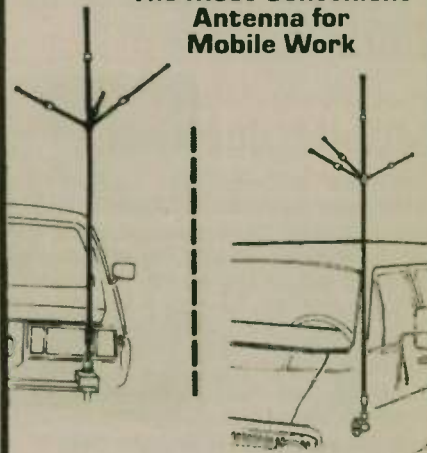
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The Mark of Distinction

As you drive along the road, a SpiderTM Antenna on your vehicle immediately marks you as a *Mobile Amateur Radio Operator* — one of those people who are always on hand when emergency communications are urgently needed.

The Most Convenient Antenna for Mobile Work

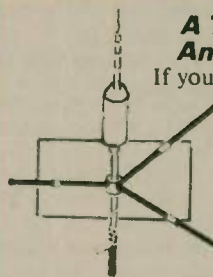


Whether you are driving a full-size van or a compact car, you can't beat the SpiderTM for convenience. Once it is tuned for 10, 15, 20 and 40 (or 75) meters, you just switch from band to band on the transceiver — the antenna follows by itself.

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If you now have a single-band mobile antenna with a 1/2' mast, the Adapter will convert it into a modern 4-band antenna. Complete with 10,

15 and 20 meter resonators — use your present 40 or 75 meter coil for the fourth band.



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In response to requests for 75 meter operation from many SpiderTM users, we now have a 75 meter resonator available for immediate shipment.

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NEW PRODUCTS

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

Mobile duplexer

Amateur systems that operate with 20MHz spacing in the 1250-1300MHz band can now employ its compact mobile duplexer, the PD 5081. CELWAVE has announced.

The PD 5081 provides a minimum of 50dB isolation between TX and RX, with maximum insertion loss per channel of 1.0dB, the company says. The durable, lightweight unit features cooper-jacketed intercabling for low loss, and extruded aluminum cavities.

The PD 5081's four cavities are thermally compensated coaxial resonators. Type N female connectors are standard.

Additional information is available from CELWAVE, Route 79, Marlboro, NJ 07746 telephone (201)462-1880; FAX (201)462-6919.

Digital CTCSS

Communications Specialists, Inc. of Orange, California has just announced that Digital CTCSS is now available as an option on their TP-38 Shared Repeater Tone Panel. The new option, called the TP-DCS, is compatible with Motorola "Digital Private Line," General Electric "Digital Channel Guard," and E.F. Johnson "Digital Call Guard." A TP-DCS equipped TP-38 allows up to 14 DCTCSS subscribers as well as 37 CTCSS subscribers in one repeater panel. Tone translation may be made from one DCTCSS code to any other DCTCSS code. Time and hit accumulation, remote access, and remote data retrieval functions are applicable to all DCTCSS subscribers. All DCTCSS codes between 000 and 777 Octal are available in nor-

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mal or inverted polarity, and squelch tail elimination is provided.

The TP-DCS is available as an option in new TP-38 Shared Repeater Panels, or may be retrofitted into existing TP-38s. Priced at

\$149.95, the TP-DCS is in stock for immediate shipment and is covered by a one year warranty. Contact: Communication Specialists, Inc., 424 West Taft Ave., Orange, CA (800) 854-0547.

Kantronics KPC-2400

On June 7th, at the Dallas Hamfest, Kantronics introduced 2400 baud packet radio with its newest Packet Communicator, the KPC-2400. Along with the KPC-2400, Kantronics also introduced the 2400 TNC Modem, an add-on modem for TNC-1s and TNC-2s, including clones, that delivers 2400 baud capability while retaining 1200 baud operation, software selectable.

Packet radio, still in its infancy in the Amateur community, is already congested in some metropolitan areas. The KPC-2400 and the 2400 TNC Modem are Kantronics solutions to increasing congestion.

The KPC-2400 features both the KPC-2 modem for 300 and 1200 baud packet operation, along with the new phase shift keying (PSK) modem for 2400 baud operation. The KPC-2400 retains the RS-232/TTL jumper for easy direct interfacing, and of course, implements the AX.25 version 2 software.

With the KPC-2400, you get HF(300), VHF(1200), and 2400 baud packet operation with all computers having a serial I/O port, including VIC/Commodores, and IBM PCs.

For more information, contact Kantronics, 1202 E. 23rd St., Lawrence, KS 66046; (913) 842-7745.

IC 28A-H

ICOM announces the IC-28A 25-watt and IC-28H 45-watt packet compatible 2-meter rigs with all the features needed for mobile operation.

Features

- Compact size. Measures 5 1/4" D x 5 1/2" W x 2" H (IC-28H is 7 1/4" D).
- Large LCD readout. With automatic dimmer circuit to reduce brightness.
- Wideband Coverage. Performs from 138-174 MHz. Specifications guaranteed

from 144.00-148 MHz. Ideal for MARS and CAPS operation.

- 21 Memory Channels.
- Scanning. Scan the entire band or the memory channels from the provided HM-12 mic.
- Easy to operate. Only 11 panel controls.

Options

IC-HM14 DTMF mic, PS-45 13.8V 8A power supply, UT-29 tone squelch unit, SP-10 external speaker, HM-16 speaker mic and HS-15/HS-15SB flexible boom mic and PTT switchbox.

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Also, Station Manager/Advanced, a general purpose logging program with several concurrent logs, each up to 1,000 entries. Full color displays. Send postcard for more information.

Traffic

(continued from page 50)

where we would get the \$100,000 or so we needed to build them, they were wondering if anything under \$10 million could possibly succeed. And our satellite terminals: we use ordinary ham gear slightly modified, and perhaps special antennas, also quite simple, and communicate effectively, while a shipboard MARISAT terminal costs about \$65,000.

Amateur Radio then continues in this tradition of people helping people, with no thought of compensation. Those who get into the action soon discover that what the Declaration of Independence says about the pursuit of happiness needs a bit of clarification. Yes, the pursuit of happiness is an inalienable right, but its actual attainment is not necessarily so. Those who pursue happiness for themselves often find it an elusive quarry. The sure way is to forget about oneself and pursue it for other people, when we discover that the greatest happiness of all is sharing in the happiness of others.

Let's hope that we always keep alive and healthy this spirit of mutual help and of service to the public without seeking any reward.



1986 Novice Sprint

(ED: We realize this contest may be a little late for some of you to take advantage of it, but hopefully others will be able to participate.)

A QRP ARCI CW contest will be held Saturday, August 16, from 0200 UTC to 0600 UTC.

Exchanges: Members give RST, state or province and QRP ARCI membership number. Non-members give RST, state or province and power output. Stations may be worked once per band for QSO points. Each member contact 5 pts. Each non-member contact 2 pts.

Multippliers: States/Provinces — A state/province may be worked once per band for s/p multiplier credit. Add s/p's separately for each band, 1 pt. each, then add up s/p points for all bands to arrive at total s/p multiplier. Any non-U.S./Canada country worked may be counted as if it were a state/province.

Power: 4-5 watts output \times 2, 2-3 watts output \times 6, and 3-4 watts output \times 4, 1-2 watts output \times 8. Less than 1 watt output \times 10. More than 5 watts output counted as check logs only. The highest power used for any contact, any band, will determine the power multiplier used to score the log.

Bonus multipliers: Natural or battery power \times 1.5. No other source of power may be used at any time during the contest to qualify for this multiplier. **Antenna Bonus** — single element, non-rotatable antenna (dipole, vertical, Inverted Vee, etc.) \times 1.5. **Double Whammy** — If qualified for both of above then do not use them — instead multiply score by 2.5.

Bonus points: Work all 10 U.S. call districts — add 200 points. Work 5 Canadian Provinces — add 200 points. Work 5 non U.S. Canada countries — add 200 points.

Suggested frequencies: 3710, 7110, 21110, 28110, kHz.

Calling method: CQ CQ QRP DE (call sign). **Scoring:** QSO points (total all bands) \times s/p multiplier (remember, a s/p may be worked on more than one band and counts once on each band for s/p multiplier points) \times power multiplier bonus multipliers (if none, use 1), then add bonus points to equal claimed score. Use of the scoring summary sheet will help avoid errors; summary sheets may be obtained by sending a large SASE or 1 IRC to the contest chairman.

Logs: Separate log sheets for each band is suggested for ease of scoring. Send full log data plus summary sheet and your comments. No log copies will be returned. All entrants desiring results and scores please include a large SASE or 1 IRC. It is a condition of entry that the decision of the QRP ARCI contest chairman is final in case of dispute.

Awards: Certificates to the highest scoring station in each s/p with two or more entries.

Deadline: Logs must be received by September 16, 1986. Logs received after that date or missing information will be used as check logs.

Send logs to: QRP ARCI Contest Chairman, Eugene Smith, KA5NLY, P.O. Box 55010, Little Rock, AR 72225-0010.

Howdy Days

Howdy Days, sponsored by YLRL, will be held from Wednesday, September 3, 1986 at 1400 UTC until Friday, September 5, 1986 at 0200 UTC.

Eligibility: All licensed women operators throughout the world are invited to participate.

Procedure: Call "CO YL".

Operation: All bands and modes of emission may be used. No cross band operation. A station may be counted *only once* for credit. Participants may operate only 24 hours of the 36 hours of the contest. Operation breaks must be indicated in the log.

Exchange: YLRL member or non-YLRL member. Entries in log must also show date, time, band, call of station worked, and operating breaks.

Scoring: Scoring 2 pts. for each YLRL member worked and 1 pt. for each non-YLRL member worked. No Multipliers.

Logs: All logs must show if operator is YLRL member or non-YLRL member to be eligible for awards. *Do not* send carbon copies of logs. Please print or type. Logs must be signed by the operator. No logs will be returned. Logs must show score and be received by October 6, 1986.

Send Log to: Mary Lou Brown, NM7N, 504 Channel View Drive, Anacortes, WA 98221, U.S.A. Please mark your return address clearly.

Duplicates: For each duplicate contact that is removed from the log by the Vice President, a penalty of three (3) additional and equal contacts will be exacted.

Awards: Top scoring YLRL member will receive her choice of a YLRL pin, charm or stationery. Top scoring non-YLRL member will receive a one (1) year membership in YLRL.

Suggested Frequencies: CW: 80 Mtrs. — 3.540 3.570; 40 Mtrs. — 7.040-7.070; 20 Mtrs. — 14.040 14.070; 15 Mtrs. — 21.180-21.210; 10 Mtrs. — 28.180 28.210. **SSB:** 80 Mtrs. — 3.940 3.970; 40 Mtrs. — 7.240-7.270; 20 Mtrs. — 14.280 14.310; 15 Mtrs. — 21.380-21.410; 10 Mtrs. — 28.580-28.610 MHz.

Note: Since band allocations in other countries are often different than the U.S.A., North American YL's should look for DX YL's in other parts of the bands, especially on 40 and 80 meters.

160M Bulletin SSB Contest

The 160 Meter Bulletin SSB Contest will be held from 000Z, 0000Z September 6 to 2400Z September 7.

Classes: Single and multi-operator

Exchange: RST QTH

Scoring: 10 pts. per QSO

Multipliers: number of states, VE provinces, countries and continents (6).

Awards: Certificates to every entry according to final total placement. Certificates to top scorers in each state, VE province, country and continent. Plaques to top score single op and top multi-op.

Logs: Use GMT, RST, state, VE province, continent, country. Deadline for logs is October 31, 1986 (postmark). Send logs to: The 160-Meter Bulletin, c/o R. Koziomkowski, KA1SR, 5 Watson Dr., Portsmouth, RI 02871.

Washington QSO Party

The Washington State QSO Party, sponsored by the Boeing Employees' ARS, K7NWS, from 0100Z to 0700Z, September 13; 1300Z, September 13 to 0700Z, September 14; and 1300Z, September 14 to 0100Z, September 15.

All bands and all modes may be used. Work

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Dean LeMon, KRØV sure is! Dean got active in Amateur Radio when he was 16 years old and earned his Extra Class license in less than four years! "It's a fascinating hobby and a great

way to meet all kinds of new people from all over the world."

Dean has cerebral palsy and got started in Amateur Radio with help from the Courage HANDI-HAM System. The HANDI-HAM System is an international organization of able-bodied and disabled hams who help people with physical disabilities expand their world through Amateur Radio. The System matches students with one-to-one helpers, provides instruction material and support, and loans radio equipment.

Isn't it time you got radioACTIVE with the Courage HANDI-HAM System?



Call or write the Courage HANDI-HAM System WØZSW at Courage Center, 3915 Golden Valley Road, Golden Valley, Minnesota 55422, phone (612) 588-0811.

stations once per band per mode. CW contacts in CW sub-bands only. Work WA stations again as they change counties. WA-to-WA QSOs allowed. Exchange serial number, signal report, and QTH — county for WA stations; state, province, or country for others.

Suggested frequencies: CW — 1.805, 3.560, 7.060, 14.060, 21.060, 28.060; phone — 3.925, 7.260, 14.280, 21.380, 28.580; Novice — 3.725, 7.125, 21.150, 28.160. Count 2 pts. per phone QSO, 3 pts. per CW QSO, and 5 pts. for mobile QSOs. WA stations multiply by total states, provinces, and countries. Non-WA stations multiply by total WA counties worked.

Mail logs by October 15 to BEARS, c/o David Long, N7FNG, 6738-5th Ave. NW, Seattle, WA 98117.

Scandinavian Activity Contest

The 28th Scandinavian Activity Contest will be held during two weekends in September. CW — 1500 UTC September 26 to 1800 UTC September 21; PHONE — 1500 UTC September 27 to 1800 UTC September 28.

This contest is being given to encourage activity on the part of Scandinavian and non-Scandinavian amateurs to work each other and to promote communication skills between amateur stations worldwide. Non-Scandinavian stations will try to work as many Scandinavian stations as possible. Scandinavian stations are defined by prefixes as follows: LA/LB/LG/LJ (Norway); JW

(Svalbard and Bear Island); JX (Jan Mayen); QP/QG/QH/QI (Finland); OH0 (Aland Islands); OJ0 (Market Reef); OX (Greenland); OY (Faroe Islands); OZ (Denmark); SJ/SK/SL/SM (Sweden); and TF (Iceland).

Eligible entrants: Radio amateurs as well as SWL's all over the world are invited to participate.

Periods: CW — 3rd full weekend in September. Phone — 4th full weekend in September. Starts 1500 UTC Saturday. Ends 1800 UTC Sunday.

Sections: a) Single op/Single TX/All Bands only. Single op/Single TX/ All Bands QRP.

Single operator — one person performs all operating, logging and spotting functions. QRP operators may use stations with maximum input 10 watts. b) Multi-op/Single TX/All Bands only. Only one signal allowed on any band. The station must remain on the band at least 10 minutes after the first QSO on that band after band change. c) SWL. Only Single op/All Bands. Log must contain Date/Time UTC, band, Scand. stn hrd, msg sent by Scand. stn, SWL's own report, stn wkd by Scand. stn, multipliers, points. Only Scandinavian stations may be logged for points. Scoring as for transmitting sections.

All sections: — the use of multiplier spotting assistance or any other form of alerting assistance from other persons than the station-operator(s) is not allowed.

Bands: — 3.5 — 7 — 14 — 21 — 28 MHz according to IARU Plans. (NB: 3560-3600, 3650-3700, 14060-14125 & 14300-14350 kHz to be kept free of contest traffic except when this conflicts with national regulations. In that case, split-operation must be used.)

Exchanges: Consist of RS(T) plus serial number, starting from 001. (e.g., 57(9)001). QSO after 999 are numbered 1000, 1001, etc. The same station may be worked once on each band. Only CW/CW and Phone/Phone QSOs are valid.

Scoring: Two-way QSO with sent and received exchange counts for QSO-points. EUROPEAN stations credit their logs with 1 pt. for every complete Scandinavian QSO on any band. NON-SCANDINAVIAN, (EUROPEAN) stations (DX) credit their logs with 1 pt. for every complete Scandinavian QSO on 14, 21, and 28 MHz and with 3 pts. for each QSO on 3.5 and 7 MHz.

Multipliers: Worked call-number areas (0 to 9) are valid on every band in each Scandinavian country. Portable stations without district number counts for the 10th area e.g. W4XXX/OZ counts for OZ0 and G3XYZ/LA counts for LA0. OH0 Aland Isl. and OJ0

Market Reef are separate call areas. SJ9 counts for the 9th call area in Sweden; e.g., SM3-SK3-SL3 are not separate multipliers. Each multiplier shall not be credited more than once on each band.

Final Score: Multiply all QSO-points by the sum of all multipliers worked on each band.

Logs: Signed or original logs (or copies of original logs) must be submitted separately for CW and Phone. Logs to be filled out in the following order: Date and Time (UTC), station worked, sent and received exchange, band, multipliers (e.g. OZ4, SM3, OH0, etc.) and points.

Summary Sheet — All entrants must submit a summary sheet showing station call sign, category, name of operator(s) and address. Indicate number of QSOs per band less duplicates, number of duplicates per band, multipliers per band, QSO points per band and final score.

Duplicate QSO Sheet — Possible duplicate QSOs must be shown in the log and counted for zero points. Each entrant shall submit a duplicate QSO sheet for each band with more than 200 QSOs. Duplicate sheet to contain worked stations listed (e.g., by DXCC countries and call areas).

Declaration: By her/his signature on the Summary Sheet, the participant declares that the contest rules are observed and that the station was operated in accordance with rules and regulations for Amateur Radio stations in the country of the participant.

Send logs to: EDR Contest Manager, Leif Ottosen, OZ1LO, Bankevejen 12, Kong, DK-4750, Lundby, DENMARK. Logs and accompanying sheets, addressed to the organizing League, shall be mailed not later than October 30th the year of the contest.

Awards: Transmitting sections — Top scorer in each country as well as in each U.S. call district, in each category (QRO) both CW and Phone, will receive a Contest Award, provided reasonable score is made. QRP operators will be listed in one common list for all non-Scandinavians. Depending on the number of entrants of each country, additional certificates will be awarded by the Contest Committee. Top scoring Single Operator (QRO) on each continent will receive a Contest Plaque both on CW and Phone, provided reasonable score is made. **SWLs** — Top scorer outside Scandinavia will receive an award. Depending on the number of entrants, the Contest Committee will award additional certificates.

Dispute: Violation of Amateur Radio regulations in the country of the contestant, or of

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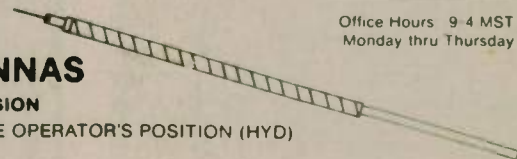
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the rules of this contest, unsportsmanlike conduct and the taking of credit for unverifiable QSOs or multipliers may lead to disqualification. A log showing more than 1 percent unremoved duplicate QSOs results in unconditional disqualification. Each unremoved duplicate QSO found by the Contest Committee results in penalty of 5 QSOs of the same value as the duplicate.

The decisions by the Contest Committee are final and definite. Right to changes in these rules are reserved.

The 29th SAC in 1987 will be arranged by SRAL, Finland.

Results for the Scandinavian Activity Contest 1985 are compiled and edited by: Halvard Torgersen, LA2AD, Tyholtveien 106, 7000 Trondheim, NORWAY.

Delaware QSO Party

The Delaware QSO Party, sponsored by the Delaware ARC, will be held from 1700 GMT, September 27, to 2300 GMT, September 28. Stations may be worked once per band and per mode for QSO and multiplier credits.

Exchange: QSO number, RS(T) and QTH. County for DE stations, ARRL section or country for others.

Suggested frequencies: CW — 1805, 3740, 7070, 14070, 21070, 28070; SSB — 1815, 3975, 7275, 14325, 21425, 28650; *Novice* — 3720, 7120, 21120, 28120.

Scoring: DE stations score 1 pt. per QSO. Multiply total by the number of ARRL sections and DX countries worked. Others score 5 pts. for each DE station worked. Multiply total by the number of DE counties worked on each band and each mode (maximum of 36 multipliers possible). There are three DE counties — Kent, New Castle, Sussex.

Awards: Appropriate awards will be given to top scorers. In addition, a certificate will be awarded to all stations working all three Delaware counties. If you work all three counties

and want the "WDEL" award, send two 22-cent stamps and an address label.

Mailing deadline for logs is October 31, 1986 to: Charlie Sculley, AE3H, 103 E. Van Buren Ave., New Castle, DE 19720. Send SASE for a copy of the results.

California QSO Party

The 1986 California QSO Party, sponsored by the Northern California Contest Club, will be held from 1600 UTC September 27, to 2200 UTC September 28.

Single-operator entries may operate only 24 hours; off times must be clearly marked in your log and must be at least 15 minutes long. Multi-operator entries may operate the full 30 hours. Stations may be worked once on CW and Phone on each band. All contacts must be simplex; no MCW. All CW contacts must be made in the CW sub-band, except for 160 meters. California stations that change counties are considered to be new stations and may be contacted again for point credit.

Object: Stations outside of California work as many California stations in as many California counties as possible; stations in California work anyone.

Exchange: California stations send QSO number and county; stations outside of California send QSO number and state/province/country.

QSO points: Each complete phone contact is worth 2 QSO points. Each complete CW contact is worth 3 QSO points.

Multipliers: California stations use states and VO/VE1-7 and VY1VE8 for a possible total of 58. Out-of-state use the number of different California counties for a possible total of 58.

Total score: The total score is the number of QSO points multiplied by the total number of multipliers.


Frequencies: 160 meters through 2 meters excluding 30 and 12 meters. CW — 1805 and 50 kHz up from the band edge. Phone — 1815, 3850, 7230, 14,250, 21,500, and 28500. Try CW on the half hour, 160 meters at 0500Z, and 80 meters at 0700Z.

Deadline for score submission: All logs and summary sheets must be sent to NCCC c/o Gary Caldwell, WA6VEF, 1830 Polk St., Concord, CA 94521 by November 1, 1986. Please include a business-size SASE for results. Entries of more than 200 QSOs must include duplicate sheets.


Awards: Certificates to the highest scoring single operator entry in each California county, each state/province, and each country, and each station that scores 100 or more QSOs.

Trophies to the top three out of state single ops; the top three California single ops; the top multi single and multi-multi in California; and the high scoring single op and multi-op California county DXpeditions.

Special Trophies — Chairman's Award, sponsored by WA6VEF, to the California single op who makes the most CW QSOs; a trophy to the California mobile team with the most total QSOs; other special trophies to be announced later. □



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Fall Classic Radio Exchange

The 1986 Fall Classic Radio Exchange will last from 2000 UTC, Sunday, September 28 to 0300 UTC, Monday, September 29. Object is to restore, operate and enjoy older equipment with like-minded hams.

A Classic Radio is any equipment at least 10 years old: an advantage, but *not required* to operate in the Exchange. You can use *anything*, although new gear is a distinct scoring disadvantage! Exchange your name, RST, QTH, receiver and transmitter type (homebrew send PA tube, i.e. "807"), and other interesting conversation. The same station may be worked with different equipment combinations and on each band on each mode. CW call "CQ CX", phone call "CQ Exchange". Non-contestants may be worked for credit.

Suggested frequencies: CW — up 60 kHz from low band edges. Phone — 3910, 7280, 14280, 21380, 28580. *Novice/Tech* — 3720, 7120, 21170, 28120.

Scoring: Multiply total QSOs (all bands) by total number of different receivers, transmitters, states/provinces/countries worked on each band and mode. Multiply that total by your Classic Multiplier, total years old of all receivers and transmitters used, three QSOs minimum per unit. If equipment is a transmitter, multiply age by 2.

Certificates and appropriate memorabilia are awarded every now and then for highest scores, longest DX, exotic equipments, best excuses and other unusual achievements.

Send logs, comments, anecdotes, and SASE to Stu Stephens, K8SJ, 1407 Hollywood Rd., Sandusky, OH 44870. SASE for Classic Radio Newsletter. □



California

SONOMA COUNTY RADIO AMATEURS, Inc. will be holding their 4th annual ham radio flea market Saturday, September 20. The time, 8 a.m. to 2 p.m. at the Sebastopol Community Center, 390 Morris Street, Sebastopol, California, five miles west of Santa Rosa, just off Hwy. 12. Largest ham flea market on the north coast. Admission and parking are free. Tables are \$7 at the door or \$5 in advance. (Advance registration gets best indoor spaces.) Vendor set-up starts at 7 a.m.

Talk-in on 146.13/73.

VEC exams, radio clinic, exhibits, refreshments, prizes. Auction around noon.

For tickets and information, write: SCRA, Box 116, Santa Rosa, Ca 95402. □

Connecticut

The CANDLEWOOD AMATEUR RADIO ASSOCIATION (CARA) will hold its annual flea market at the Elks club, 346 Main Street, Danbury, Connecticut on Sunday, September 14, from 9 a.m. to 3 p.m., (dealers 8 a.m.). Admission \$2. Tables \$8. Tailgating \$5.

Talk-in on 147.72/12.

For table reservations send check or money order to CARA, c/o Gene Marino, W11DH, 27 Valley View Rd., Newtown, CT 06470, or phone Gene at (203) 426 8852 for further info.

The WATERBURY ARC will sponsor a flea market on Sunday, September 28, 1986 from 10 a.m. to 3 p.m. at the Waterbury State Technical College off of I-84 in Waterbury, Connecticut.

Light refreshments will be available. Admission at the door will be \$2.

Indoor spaces will be \$10/table and tailgating spaces will be available at \$5. Dealers and sellers to set up at 9 a.m. Dealers and sellers to contact Gary Firtick, K1EB, 589 Hamilton Ave., Watertown, CT 06795 by September 15, 1986. □

Georgia

The 13th Annual LANIERLAND ARC hamfest will be held September 28th, 9 a.m. at Gainesville, Georgia in Holiday Hall at Holiday Inn. Free tables and inside display area for dealers, reserved in advance. Large free parking lot for flea market. Left foot CW contest. Ladies country store. Many prizes and activities.

Walk-in Novice through Extra volunteer exams begin at 9 a.m.

Talk-in on 146.07/67.

For information and reservations contact Paul Watkins W4FDK, 5435 Mallard Pt., Gainesville, GA 30501; (404) 536-8280. □

Illinois

The SHAWNEE ARC will hold its annual hamfest on Sunday, September 14, at John A. Logan College Gym, Hwy. 13 near Carterville, Illinois, 9 miles east of Carbondale.

The hamfest will be held rain or shine — everything indoors. FCC exams will be given Sunday morning. Doors open at 7 a.m. Free coffee and donuts 7-8 a.m. Lunch available 11 a.m. — 1 p.m. Admission is \$3 at the door. Proceeds for scholarship to John A. Logan College.

Talk-in on 146.25/85, 146.52 and 3.925 MHz (8-9 a.m.).

For information, contact Shawnee Radio Association, Inc., 502 W. Kenicott, Carbondale, IL 62901; (618) 457-7586. □

The BOLINGBROOK AMATEUR RADIO SOCIETY will hold BARS Hamfest '86 at Santa Fe Park, 91st and Wolf Road, Willow Springs, Illinois, on Sunday, September 14.

This hamfest will feature computers and electronics as well as ham gear. Dealers' tables available (reserve in advance). Admission is \$2 in advance, \$3 at the gate. Prize drawing. Plenty of refreshments.

Talk-in on 147.33/93 and 146.52.

For more information, contact: Ed Weinstein, WD9AYR, 7511 Walnut Ave., Woodridge, IL 60517; (312) 985-0527. □

SARA Hamfest '86, sponsored by SHAWNEE AMATEUR RADIO ASSOCIATION, will be held Sunday, September 14, in the John A. Logan College Gym on Hwy. 13, near Carterville, Illinois.

Doors open at 7:00 a.m.; free coffee and doughnuts 7 to 8 a.m. Everything indoors. New equipment and computers, displays, flea market, crafts and ladies' activities are among the attractions. Lunch available from 11 a.m. to 1 p.m. Hourly prizes. Admission is \$3 at the door.

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For more information, contact: Shawnee ARA, 502 W. Kenicott, Carbondale, IL 62901; (618) 457-7586. □

The PEORIA AREA ARC is sponsoring Peoria Superfest '86, September 20 and 21, at the Exposition Gardens, W. Northmoor Rd., Peoria, Illinois. The gates open at 6:00 a.m. and the commercial building at 9:00 a.m. Admission is \$3.00 in advance and \$4.00 at the door. Children under 16 are free. Activities include Amateur Radio and computer displays, huge flea market, FCC exams for all classes, Saturday and Sunday. Full camping facilities available on the grounds.

Talk-in: Call W9UVI on 146.16/76.

Information and reservations from: SASE to Superfest '86 P.O. Box 3461, Peoria, IL 61614. □

Michigan

The ADRIAN ARC announces its 14th annual hamfest on Sunday September 21, at Lenawee Fairgrounds, from 8 a.m. to 3 p.m.

Admission is \$2 in advance, \$3 at the gate. Tables are \$6 (full) or \$4 (half). Trunk sales are \$2. Prizes.

Talk-in on 146.310 IN - 146.910 OUT (subject to new frequency change), and 449.675 IN - 444.675 OUT.

For more information or to register, write to Adrian ARC, P.O. Box 26, Adrian, MI 49221. □

New York

HOSARC Hamfest — September 14th (raindate September 28th) at the Hall of Science Bldg. 111th Street and 48th Avenue, Corona, New York, 9 a.m. (Sellers 8 a.m.)

For information and reservations, call John Powers, KA2AHJ, (718) 847-8807 evenings.

On Sunday September 21, 1986, the LI-MARC will sponsor the ARRL Long Island Hamfair at the New York Institute of Technology, Route 25 A/Northern Blvd., Old Westbury, New York.

Outdoor tailgating; no reservations needed. Seller's car space \$5. General admission \$3. Wives, children and other non-licensed guests, free; all hams must buy tickets! Exit 39 North Route 495, north on Glen Cove Road 2 miles to 25A, turn right 1 mile to site. Food and refreshments available. Many awards to attendees. Open 7:30 a.m. for sellers; 9 a.m. for buyers.

Talk-in 146.85.

If further info needed, call Hank Wener, WB2ALW, at night (516) 484-4322. □

North Dakota

The RED RIVER RADIO AMATEURS CLUB invites you to spend the weekend of September 19, 20 and 21 enjoying the Dakota Division Convention, at Holiday Inn, I-29 and 13th Avenue South, Fargo, North Dakota. Registration begins at 4:00 p.m. Friday, September 19; fest ends at 12 noon Sunday.

Guest speakers will be NASA astronaut Dr. Tony England, W0ORE, and ARRL Pres-

ident Larry Price, W4RA. Also featured will be ARRL Forum, technical seminars, section meetings, large flea market and commercial displays, flea market auction and prizes. Shopping for the ladies at West Acres.

VE exam given by Mike Beaton, KD0A, 2267 Flickertail Dr., Fargo, ND 58103. No walk-ins, so apply now. Send completed 610 form and \$4.25 to KD0A.

Admission: \$6.60 in advance; \$7 after September 1. Tables are \$5 each; \$9 for two tables; \$13 for three, and \$15 for four tables. Breakfast buffets \$5.25; Saturday evening banquet \$12.50. Make checks payable to Red River Radio Amateurs.

Mail registrations to: Dr. Ken Covey, W0ZQJ, P.O. Box 675, Moorhead, MN 56560.

Ohio

The CLEVELAND HAMFEST ASSOCIATION will hold its Hamfest Awards Banquet and the Cleveland Hamfest and Computer Show September 20-21. The banquet, consisting of cocktails and buffet dinner, begins at 6 p.m. Saturday, at Holiday Inn (Airport South) in Middleburg Heights, Ohio. The hamfest lasts from 8 a.m. to 4 p.m. Sunday at the Cuyahoga County Fairgrounds, Berea, Ohio.

Speaker programs include ARRL Packet radio, DX, Ohio Area Repeater Council. Outside flea market — \$4 per space, opens at 6 a.m. Overnight parking. If it rains, inside flea market will be provided. Prizes and non-ham ladies' activities. Walk-in ARRLVEC Amateur exams (check money order for \$4.25 to ARRLVEC, original and copy of license, 610 form and two IDs). Free parking. Catered breakfast and lunch.

Admission: \$4 at gate, \$3 in advance; under 12 free. For advance tickets, write to CHA, P.O. Box 93077, Cleveland, OH 44101 (until August 31) or through a participating local Cleveland area club.

Talk-in on 146.52 from 6 a.m. till noon; check-in number used for prizes.

For banquet reservations, write to: Cleveland Hamfest Association, P.O. Box 93077, Cleveland, OH 44101. For inside vendor information, contact Dave Ernest, WD8OYO, at (216) 777-3694. For other information, contact Rick Wells, K8SCI, at (216) 777-8999. □

Pennsylvania

The BUTLER COUNTY ARC announces its annual hamfest, to be held Sunday, September 7, at the Butler Farm Show Grounds at Roe Airport.

Free outdoor flea market. Good food and refreshments. Overnight campers welcome. Admission \$1; children under 12 free.

Mobile check-ins till noon on 147.96.36. Directions on 147.84.24. For more info, contact John Varljen, K3HJH, at (412) 283-9403. □

UNIONTOWN ARC (W3PIE) will hold its 37th Annual Gabfest on the Saturday after Labor Day, September 6, on the club grounds located on the Old Pittsburgh Road just off Rt. 51 and the 119 bypass in Uniontown, Pennsylvania, 50 miles south of Pittsburgh.

Talk-in on 147.645-045 & 144.57-17.

Free parking, free coffee, free swap & shop

set-up with registration. Registration \$3 each or 2 for \$5. Plenty of good food at our refreshment stand.

For more information, contact: UARC Gabfest Committee, c/o John T. Cermak, WB3DOD, 36 Steel St., P.O. Box 433, Republic, PA 15475; (412) 246-2870. □

Tennessee

September 6 and 7 are the dates for Chattanooga's 8th annual hamfest. The Amateur Radio and Computer Convention (an ARRL-sanctioned hamfest) will be held at the new Convention and Trade Center (South Hall).

Highlights include license exams on both days, all dealer and flea market displays indoors, free admission, convenient parking and lodging facilities, plus various forums.

Amateur exams on Saturday will be given by WCARSVEC (\$4.00), and Sunday's will be given by ARRLVEC (\$4.25). All 610 forms, checks or money orders, and license copies should be sent to: Hamfest Chattanooga, P.O. Box 3377, Chattanooga, TN 37404 by September 3, 1986. Walk-ins will be accepted on a space available basis. Please bring positive identification and your original license.

Eight-foot flea market tables are \$6 for one day or \$10 for both days (electrical power is \$10 extra).

Talk-in is on 146.19/79.

For additional information, please write to: Hamfest Chattanooga, P.O. Box 3377, Chattanooga, TN 37404 or call Nita Morgan, N4DON, for dealer exhibitors, at (404) 820-2065 or Barbara Gregory, WA4RMC, for flea market: (615) 892-8889. □

• Pass it on . . . **WORLD RADIO** •

Vancouver, B.C.

Ham happening '86, sponsored by the NANAIMO AMATEUR RADIO ASSOCIATION, will be held September 6-7, at Cavallotti Lodge Hall, East Wellington Road, Nanaimo, British Columbia.

The program starts Saturday evening at 7 p.m. with a potluck dinner (bar included). On Sunday, from 10 a.m. to 3 p.m., will be dealer displays, flea market-swap 'n shop, unre-served auction and seminars, and door prizes. Free unserviced camping area for RV's. Admission is \$4 per family; \$5 at the door.

Talk-in on 145.43 and 146.64.

Tickets and information available from: Muir Communications, Victoria, B.C.; Skywave Communications, Vancouver, B.C.; Bill Stewart, VE7BIO, (604) 758-9752; or Ernie Harding, VE7GDX, (604) 753-5611 office, (604) 758-7813 home.

There will be transportation from the Nanaimo B.C. Ferry Terminal to the Ham Happening site for those amateurs arriving from the mainland as foot passengers. Call ahead from the ferry on "543" or "664" repeaters, and we will meet the ferry and pick you up. □

Wyoming

The 7th Annual "High Plains Ham Roundup", sponsored by UNIVERSITY ARC, will be held at the Yellow Pine Camp-ground, 14 miles southeast of Laramie, Wyoming, off of I-80, on September 6 and 7.

Included will be a potluck meal Saturday noon, swapfest, transmitter hunt, prizes, entertainment and ragchewing. All hams and their families welcome.

For further information, write to: Mark Skelton, N7CTM, 1875 Jackson, Laramie, WY 82070. □

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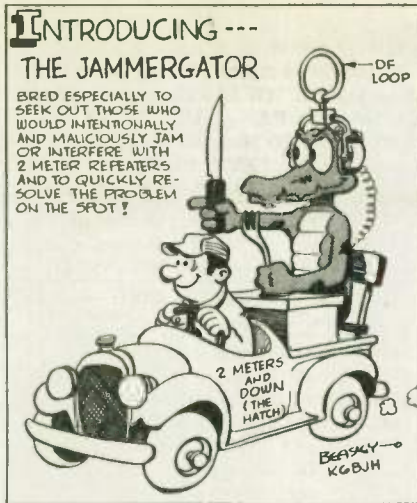
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