

Worldradio

Year 16, Issue 4

October 1986 • \$1

A visit to VE7EXPO

Norm Brooks, K6FO

The Amateurs of the Vancouver, British Columbia area deserve a lot of credit for their superb exhibit at EXPO 86. The display rated a "10", and its location in relation to other parts of the Canada pavilion was outstanding. They had the first display inside a main doorway where the bulk of foot traffic went by.

The VE7EXPO exhibit was put on by the major Amateur Radio clubs and associations in the Vancouver area. When I visited, it was the responsibility of the Vancouver ARC and the Victoria Short Wave Club to man the booth for the week.

When you visit, you'll be given an informative pamphlet listing all the needed information such as repeater calls and frequencies, autopatches, public service telephone numbers and the like. You'll be invited to operate, so be sure to bring your license. You can even work the station with your hand-held radio on 2 meters, and get your QSL card on the spot. Otherwise the QSL card souvenir will be stamped "eyeball QSO."

The Exposition's aesthetics committee required that the Amateur antennas be unobtrusive. As a result, the antennas were inside the white nylon sails, which was no problem, except that they were forced into a corner only a few feet above an extensive metal framework. If you didn't hear VE7EXPO, this may be one of the reasons. Also, by cramming all antennas into one small area, intermods were rampant. I sat down to listen for OSCAR-10, which was within range, but couldn't do so because the HF CW station was on the air.

ICOM is deserving of a pat on the back for providing "one of everything," so that the station could operate on all bands, all modes. Many visiting Amateurs sat down to operate, and no doubt went away with a pleasant familiarity with ICOM equipment.

While we're handing out bouquets, let's not forget the Canadian DOC,

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At the VE7EXPO exhibit at EXPO 86 (left to right), are Stan Yip, VE7GO, and Rod Hourston, VE7FHO, giving directions to a visitor. In the background, at the HF operating position, is Bill Scharffenberg, WA6KXR, of Lodi, California. At right can be seen part of the station's computer monitor.

equivalent to our FCC. They should be complimented for issuing the special event call sign VE7EXPO. This was an excellent way of publicizing the EXPO to the world. Our FCC, in the name of economy, will not issue special event call signs anymore. How short-sighted and stupid!

I had no trouble with customs, in ei-

ther direction, taking my hand-held 2-meter transceiver through. I'm glad I took it. It was pleasant talking to other visitors via the many repeaters in the area.

The Canadians are extremely gracious hosts. Their EXPO 86 is a smash hit and deserves to be seen. Hurry — it closes October 13, 1986. □

Cruising hams help their Elmer

Lee Leonhard, W6NPQ/XE2VJE

Amateur Radio played a key role in getting a stricken sailor from a remote location in the Sea of Cortez to modern medical care.

For three years, Carl Wallace, WD6B/XE2VIY, and his wife Leona, WA6OHB/XE2VIY, have sailed their 45-foot sailboat *Malaga* from one Baja, Mexico location to another, giving ham examinations on behalf of the San Diegos ARC's VEC program. Two or three other exams — also cruising sailors — complete the team, holding tests in La Paz and Puerto Escondido, Baja

California Sur and on the mainland in San Carlos, Sonora.

Recognizing the safety and companionship Amateur Radio provides on long voyages, other cruisers have been taking advantage of this licensing and upgrading program spearheaded by Carl and Leona. Without their selfless efforts, many sailors — busy getting their boats ready for the South Pacific and the Caribbean — would be unable to participate in the various maritime mobile nets around the world.

It was on one of these nets that word (please turn to page 14)



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

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

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

humanitarian uses of Amateur Radio.

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STAFF

Publisher Armond Noble, N6WR
Editor Christine Wilson, KA6TAL
Assistant Editor Lynn Martin
Associate Editor Norm Brooks, K6FO
Consulting Editor Lou Ann Keogh, KB6HP
Advertising Director Helen Noble
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News for DXers

GOOD NEWS! 5B4TI, who is also the former A71AD and A7XD, has made known that the Qatar Telecommunications Authority — which required him to surrender his A71AD logbooks when he departed — has now regained possession of these vital documents. Now back in Cyprus, he has QSLs available for those worked. Send QSLs available for those worked. Send QSLs for A71AD and A7XD to Mike Smedal, 5B4TI, P.O. Box 7127, Nicosia, REPUBLIC OF CYPRUS.

— *Westlink Report*

A friendly reminder

The FCC wants to remind amateurs that transmitting equipment used in other services (except MARS and the like) must be type-accepted. Much 2-meter equipment available today can be made to work on frequencies considerably above and below this amateur band. Amateurs should bear in mind: while it may be a great temptation to do so, the use of gear converted from the Amateur Service to another service is not permitted. — *ARRL Letter*

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SFV ARC exams

The San Fernando Valley (California) ARC VE licensing sessions have been conducted 25 consecutive times, in addition to nine special sessions. Free tests have been given to 590 people — money taken in was through donations. At one session, there were applicants from seven countries and four states.

If you are ready for your new license, or an upgrade, please call (818) 762-5095, 10 a.m. to 6 p.m., or (818) 892-2068, after 6 p.m. — *W6SD Carrier*

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Karen Tersarkisoff, KA6ZDB; Pam Bender, KB6LVI; and Marie Mappus, N6KUS (left to right), at their outdoor Field Day station. (Photos by Doug WA0JRB)



Sarah Davis, N6FAX (left) and Irma Osborne, KF6FX, are kept busy logging contacts.

Field Day — all West Coast, but all different

The weekend of June 28-29, 1986 may have been a leisurely weekend for some folks, but not for serious hams.

All over the world, radio amateurs put up antennas, strung wires and logged contacts, in an effort to test their emergency operation capabilities over a 24-hour period. Some groups approached the event more seriously than others, reflected in the number of QSOs logged, but all had fun that weekend.

Below is a sampling of the Field Day activity that occurred in different areas of the western United States.

(Next month, we'd like to run a sampling of photos and facts about eastern and Midwest U.S. Field Day stations. Please send in your stories before September 17!)

The Malibu (California) Sheriff Disaster Communication Service used solar power for their Field Day station. Made by Arco Solar, the solar panels were furnished to the Malibu Unit by Henry Radio of West Los Angeles.

Amateurs used their privately owned equipment to augment regular sheriff's department disaster communications equipment. (The number of QSOs logged was not provided with this information.)

About 50 members of the Cerritos-based Western Amateur Radio Association (California) participated in Field Day. Irv Lans, KA6SOP, said the WARA has consistently been in one of the top four positions during previous Field Days, and placed first three years ago.

Another member of the club predicted that at least 1,000 contacts would be made this year. (Actual number logged was not available.)

One of Hawaii's newest ham groups, Koolua ARC saved the day for USAF State MARS FD by volunteering to manage operations if MARS would provide logistic support. KARC Directors Joe Keola, KH6BFZ, and Katashi Nose,

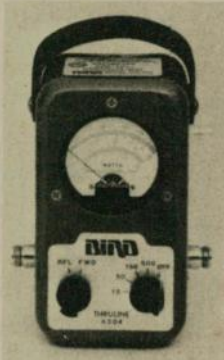
KH6IJ — upon learning that the Air Force had decided not to have a Field Day this year, offered their help. And help they did!

Nose, who writes a weekly ham column for the largest newspaper in Hawaii, gave "plugs" for all clubs and activities to include: "Koolau ARC Field Day will be at Bellows AFS site that Air Force has been using for 16 years. Starting at 8 a.m., June 28, the club and MARS members will work at their hobby of public service..." He also said June had been proclaimed Amateur Radio Month by Hawaii's governor.

KARC President Gary Lawyer, AH6FL, and AF State MARS Director Clyde Preece, KH6NK, were proud and pleased to see about 30 hams (plus many visitors) show up to help make it a real "fun day" FD. Plenty of good Hawaiian food for all was supervised by KARC's Frank Fung, KH6WG.

Call sign used for FD '86 was KH6IJ. This famous call has been used at Bellows since Katashi Nose won the Amateur Radio Operator of the Year Award at the Dayton Hamvention in 1983.

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Mayor Dante Carpenter (sitting) is shown signing the County Proclamation of Big Island ARC (BIARC) Week— June 23-29, 1986. Standing, left to right, are: Corky Kirk, W6ORS, BIARC Treasurer; Army Curtis, AH6P, Pacific Section SM; Kevin Higgins, K1GAO, BIARC Public Information Officer; Kimo Ahia, WH6AXI, BIARC President; and Bob Schneider, AH6J, BIARC Bulletin Editor.

Equipment for the Class 1A Battery Station was a Yaesu 757 transceiver, 3-element beam, related wire antennas with tuner and two banks of solar cells. A simple but effective operation, with only two weeks to put it together for 1,044 points in the contests. Murphy was good to KH6IJ till midnight when "he cut" the 40 80 wire antenna.

A group of YL hams from the Santa Rosa-Sebastopol area of Sonoma County, California, decided to try their skills at an all-YL only operation.

For the past three years, the YLs have joined their husbands for a weekend of camping while the OMs did Field Day. The wives assisted where they could and always had the meals ready when needed. This year was different. The wives handled Field Day while the hus-

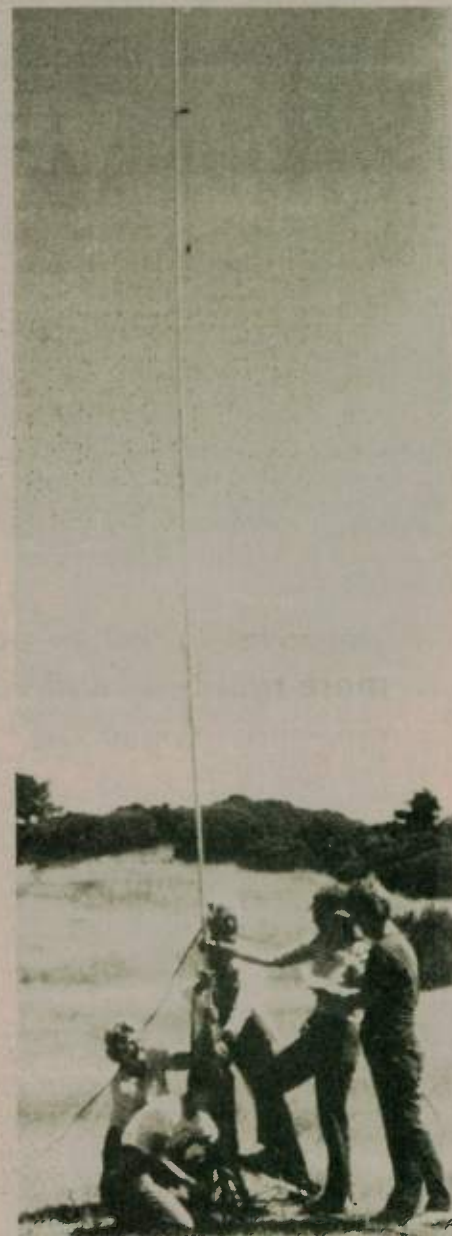
bands did the support duties. Heavy planning began immediately after last year's Field Day and lasted throughout the winter. When spring arrived and the camping season started, the group known as the "Low-Powered Hams" was once again on the road camping and the wives began their Field Day Training.

When Field Day arrived, the site had been selected and the group was ready to go. Up went the vertical, the dipoles and the 2-meter beam. The rig was placed on a table in a shady spot, and the operators eagerly awaited the 11 a.m. start time. The time finally arrived and the contesting and confusion began.

They had absolutely no contesting experience and very little HF operating time. Several had just upgraded prior to the contest. Six YLs earnestly tuned the bands and made as many contacts as they could. The initial few hours were very hectic and very few contacts were made. Procedures were confusing and the equipment unfamiliar. However, they remained in good spirits and all (please turn to page 6)



Katashi Nose, KH6IJ, helped promote Field Day '86 in his ham column.



A very important part of Field Day — putting up the antenna (this one's a Butternut). Left to right: Pam Bender, KB6LVI; Irma Osborne, KF6FX; Sarah Davis, N6FAX; Karen Tersarkisoff, FA6ZDB; and Pam Meek, N6MHU.

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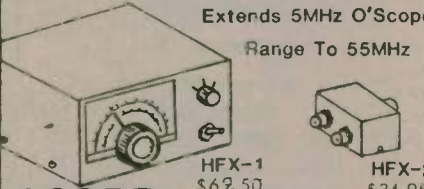
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Clipperton and the tsunami

Bill Pasternak, WA6ITF

A tidal wave warning potentially saved a DXpedition from disaster. FO0XX, came on the air on May 7 at approximately 0225 UTC from Clipperton Island. The crew of five operators, Charles Epps, W6OAT; Robert Vallio, W6RGG; Wayne A. Mills, N7NG; Carol Cook, AI6V and Kip Edwards, W6SZN all got quite wet during the treacherous landing on the island, but all equipment arrived intact. The operation used Yaesu FT-One transceivers and linear amplifiers, and worked "split" on all bands. At 2223 UTC on May 7, only a short time after the operation got underway, a magnitude 7.7 earthquake struck the Aleutian Islands which lie off the coast of Alaska. A tsunami (tidal wave) warning was immediately issued for the U.S. West Coast and Hawaii. Because of their exposed location, the Clipperton operators were potentially in great peril if such a tidal wave hit the island.

Charles Margelli, K7JA, who does not usually operate on 40 meters, went to his garage, found and installed his emergency 40 meter dipole "field day" antenna, installed it in a matter of 15 minutes and proceeded to make contact with the FO0XX group only 2½ hours after the quake occurred. Chip brought

the group the first word of the tsunami warning. The captain of the *Royal Polaris* which was the vessel that brought the expedition to Clipperton, was subsequently unable to contact Marine Authorities using normal high frequency channels due to poor propagation, so FO0XX was asked to relay information received via Amateur Radio regarding the tidal wave warning. Meantime, the operators packed emergency food and water, with plans for evacuation to higher ground, as it exists on Clipperton. K7JA contacted the National Weather Service in Los Angeles and ARES Officials in the Pacific Northwest to relay information on tsunami activities on the Washington state coast. N6GG amongst others is also known to have forwarded information to the group on Clipperton.

Fortunately, the tsunami dissipated quickly, and the tsunami warning was cancelled at 0600 UTC on May 8. Once again the devotion of radio amateurs to their fellow man shone through. This time not only to the general public along the west coast of the United States and the Hawaiian Islands, but to a small band of "our own" on a small rock several hundred miles from nowhere.

(AUTHOR'S NOTE: The activities of K7JA during this pending crisis are to be commended. Chip proves what ham radio is really all about; "people helping people." K7JA, who is the Vice President and Director of the Amateur Products Division of Amateur Products Marketing Director for Yaesu not only sells ham gear; he uses it himself in the truest spirit of the worldwide Amateur service. Thanks for caring! □

Fuji is born

The JAS-1 satellite, now called *Fuji*, has reached its planned circular orbit. The time of "birth" was 21 hours, 47 minutes 7 seconds UTC on August 12.

The following are the *Fuji* operating frequencies:

Mode JA uplink: 145.900 to 146.000 MHz

Mode JA downlink: 435.900 to 435.800 MHz (inverting transponder)

Operating frequencies for Mode JA, the Mode J analog mode for SB and CW, may be determined as follows. The sum of the uplink and the downlink frequencies equals 581.800 MHz exclusive of

Doppler shift. For example, if the uplink is 145.920 MHz, the downlink will be 435.880 MHz. Conversely, if the downlink is to be 435.810 MHz, set your uplink for 145.990 MHz. In both these examples, the sum of the uplink and downlink equals 581.800 MHz.

The beacon is now operational on 435.795 MHz, sending 20 wpm CW telemetry.

Mode JD, the digital Mode J, will be activated in several weeks. The Mode J Analog Transponder is now available for use. Amateurs are requested to use the minimum power necessary. □

—ARRL Letter

Field Day

(continued from page 4)

were enjoying the challenge. By Sunday morning, they had increased their QSO rate from 15 an hour to four or five a minute.

When the event finally ended, six rookies had tasted the thrill of victory and the agony of defeat. The learning experience was wonderful, in spite of the fact that only 144 QSOs had been made during their eight hours of operation.

The YLs ranged in age from 74 to 25. They were: Sarah Davis, N6FAX; Irma Osborne, KF6FX; Marie Mappus, N6KUS; Pam Meek, N6MHU; Pam Bender, KB6LVI; and Karen Tersarkisoff, KA6ZDB. A good time was had by all and already the ladies are asking, "When is the next contest?"

—Compiled from information sent by Malibu Sheriff DCS; Irv Lans, KA6SOP; Rufus McCracken, KH6QL; and Pam Meek, N6MHU □

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

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

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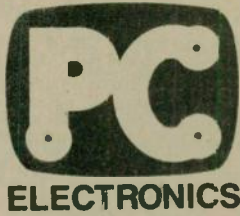
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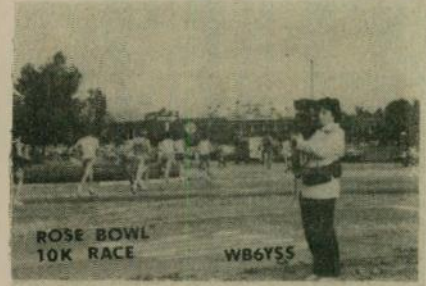
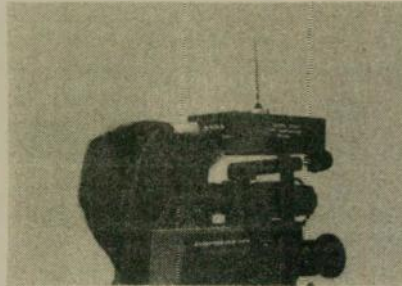
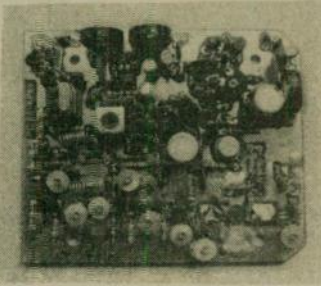
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THE "KREEPIE PEEPIE" ATV TRANSMITTER



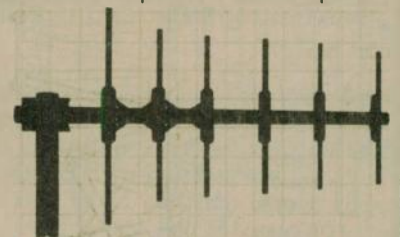
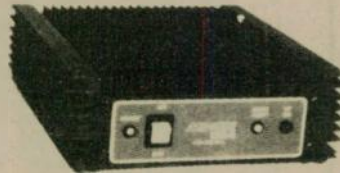
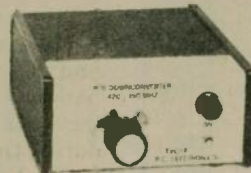
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3. **REMOTE CONTROL OF R/C AIRPLANES or ROBOTS.** Fly with a camera in the nose to control as if you are in the plane. Likewise a robot can now be out of site of the operator.
4. **REPEATER SITE SECURITY OR COMPUTER VIDEO DISPLAY.** Turn on thru your repeater a camera at the site to see the area, weather, read meters, or if a computer is used, show status, play games, etc. by remote control. With all the new technology using TV displays, it is natural for hams to adapt these new products to transmission over the air. What applications come to your mind?

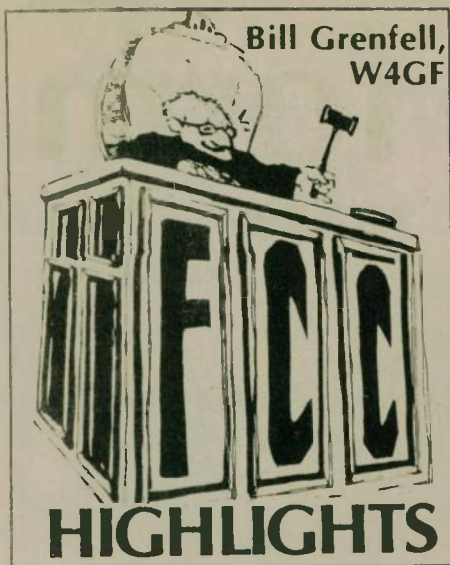
WHAT IS REQUIRED FOR A COMPLETE OPERATING SYSTEM? Either a TVC-2G or TVC-4G downconverter connected to any TV set tuned to channel 3, and coax cable to a good 70cm antenna to receive. Package up the KPA5, add 12 to 14 vdc, antenna, and any home TV camera, VCR, or computer with composite video output. **SIMPLE, EH?**



ACCESSORIES:

- TVC-2G GaAsfet downconv. board wired & tested...\$59 varicap tuned, 420-450 MHz to ch3. Req 12vdc
- TVC-4G (TVC-2G in cabinet with 120vac supply)...\$99
- TVCX-70 crystal controlled GaAsfet downconv.....\$99 specify in freq. & out on ch3 or 45mhz IF. 2 freq..\$114
- Hammond 1590D Use for KPA5. 7.3x4.7x2".....\$17
- 1590C 4.6x3.6x2" aluminum box. Fits TVCX-70..\$11
- 800J 10 pin VHS color camera chassis connector....\$10
- VOR Video (horiz sync) operated relay board.....\$25

- ALINCO ELH-730G 1 in / 20 out all mode amp...\$129
- MIRAGE D24N-ATV 1in / 50 out all mode amp....\$219
- 450 ISOPOLE omni 4dbd vert. gain antenna.....\$65
- KLM 440-6 8dbd, 60 deg. beamwidth antenna.....\$62
- KLM 440-14 11dbd, 48 deg. BW antenna.....\$77
- KLM 440-27 14dbd, 36 deg. BW antenna.....\$111
- SAXTON 8285 100ft 50 ohm coax 3.5db/C loss...\$41
- COLUMBIA 1180C 100ft coax, 2.5 db/C loss.....\$59
- UG21 type N male connectors for larger ID coax.....\$5



On July 2, the ARRL filed a petition requesting the immediate opening of the 18.068 through 18.168 MHz band on the basis that "... these frequencies are apparently no longer in use in this country and should be open to radio amateurs." (ARRL Letter 07/18/86) However, FCC has advised that there are operations remaining in the band which are expected to continue until 1989 (as is permissible under FCC rules), and that ARRL's request can't be granted.

The ARRL quotes a part of FCC's General Docket 86-285 Notice of Proposed Rule Making as proof that fees will not be charged for Amateur licenses: "81. We note here that section 8(d)(1) of the Communications Act, and the Conference Report language, by no means includes all of the services exempt from fees. This explicit statutory language was necessary to exempt specific users in the private radio services that otherwise be subject to charges. By its failure to establish a specific fee, the statutory Schedule of Charges exempts whole categories of radio services, such as Instructional Television Fixed Services and Amateur Radio..." (ARRL 07/15/86)

Regarding the Novice and Extra Class examination question pools, ARRL advises that the new Extra questions will be put into use starting with the October 1 sessions, and that it had filed six pages of suggested changes of the Nov-

ice question pool with FCC by the July 1, 1986 deadline. (ARRL Letter 07/18/86)

Three Amateur operators in the southern New Jersey — Philadelphia, Pennsylvania area have each been fined \$1,000 for unlicensed operation between 26.165 and 26.770 MHz. The charges for violation of the Communications Act were the result of an investigation by FCC's Philadelphia Office. "Notices of Apparent Liability to a Monetary Forfeiture in the amount of \$1,000 each have been issued to the following: Joseph W. Bosak (Advanced), N3DFD; Adrian J. Post (Technician), KA2YIN; and Walter Leddick Sr. (Technician), N3DXP." (QST 08/86, Westlink Report 07/25)

FCC's Public Notice 5533 (07/01/86) concerning reciprocal operating provides that the operator privileges of an alien Amateur operating in the United States under a permit issued by FCC "... are those authorized by the operator's own government, but not to exceed those of the FCC Amateur Extra Class (see Section 97.7)."

An unqualified statement in *HIGHLIGHTS* four months ago unfortunately indicated that such operation in the United States under a U.S. permit would restrict an alien from the European area (Region 1) to the 144-146 MHz segment of our 144-148 MHz band. It should have indicated that the alien would be so restricted only if his country's regulations would not permit its licensees to use the 146-148 MHz

segment of the band when located outside Region 1. In ITU Region 1 (Africa, Europe and Northern Asia), the world regulations provide only for a 144-146 MHz 2-meter Amateur band.

Reconsideration of its dismissed petition to require the labeling of home electronic equipment relative to their susceptibility to RFI, has been requested of FCC by the ARRL. The FCC "... Chief Engineer had stated in his dismissal that the Petition was premature as necessitating mandatory RF rejection standards. The League's Petition for Reconsideration disputes this, stating that the labeling is independent of RF-susceptibility standards, and it would encourage voluntary compliance by manufacturers without adding any additional work burden on the Commission. The labeling requirement would also serve to educate the consumer by suggesting that the consumer should contact the manufacturer for assistance in case of interference." (ARRL Letter 07/07/96)

"An 11-meter trasceiver in La Habra, California, has been shot to death by an armed intruder. According to the *Orange County Register*, Dennis Carrico was talking on his CB set after midnight when he sensed he was no longer alone. Carrico turned and saw a stranger with a gun standing over him. The gunman ordered him to turn off the CB and move away from it. Carrico obeyed, after which the visitor shot it three times and quietly left. Carrico was not harmed, but (please turn to page 10)

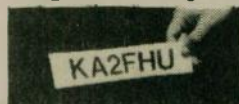
Amateur Radio Call Signs

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 August 1, 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	NU0D	KE0HK	N0HJB	KA0YMF
1	NG1D	KB1ZQ	N1EHO	KA1OUF
2	NT2F	KD2UP	N2GNN	KB2BJU
3	NC3K	KC3YT	N3FBP	KA3PXZ
4	AA4VD	KJ4YE	N4OMW	KB4UGB
5	WO5O	KF5PP	N5JOP	KB5AMH
6	WW6C	KI6IT	N6OBJ	KB6NST
7	NW7B	KE7TD	N7ILX	KA7ZLW
8	NS8X	KE8GR	N8HSC	KB8ADW
9	NM9Z	KD9YV	N9FZL	KA9VXN
N. Mariana Is.	AH0E	AH0AC	KH0AI	WH0AAG
Guam	AH2W	AH2BI	KH2CC	WH2AJZ
Johnston Is.	AH3A	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Palmyra, Jarvis Is.	AH5A			
Hawaii		AH6HF	NH6GU	WH6BKF
Kure Is.			KH7AA	
American Samoa	AH8B	AH8AC	KH8AD	WH8AAW
Wake Wilkes Peale		AH9AC	KH9AC	WH9AAE
Alaska		AL7IE	NL7IE	WL7BKW
Virgin Is.	KP2O	KP2BA	NP2BV	WP2AFA
Puerto Rico	WP4T	KP4KU	NP4YE	WP4FXQ

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FCC Highlights

(continued from page 8)

his \$500 transceiver was destroyed. . .” (ARRL Letter 07/07/86, *Westlink Report* 06/27/86)

On July 5, 1986, FCC adopted a Report and Order which transfers the maintenance of Amateur license examination question pools from the FCC to

the volunteer examination coordinators. (PR Docket 85-196)

At the time this was written, copies of the Order were not available. However, in the August 1985 issue of *QST*, page 52, the proposal was described as follows: “. . . VECs will be required to publish the question pools, which would contain at least 10 times the number of questions actually used on each test. VECs would also be required to publish the formula used to design each test (the

number of questions from each subgroup in the pool that would be on the test).”

The Electronics Communications Privacy Act reported as H.R. 4952 in last month's *HIGHLIGHTS* has now been passed by the House and sent to the U.S. Senate. “There is some interest on the Senate's part in further amending the bill . . . It appears that the bill no longer threatens . . . radio amateurs (even if they are phone patching). . . (ARRL 07/15/86)

The possibility of “a Region II hemispheric-wide Amateur Radio license . . .” (was to) “. . . be discussed at the 17th meeting of the Permanent Executive Committee of the Interamerican Telecommunications Conference.” The Conference was at Mexico City, July 21-25. (*Westlink Report* 07/11/86) It is to be noted that the USA has nearly 50 reciprocal Amateur operating arrangements with countries of South, Central and North America.

END-OF-MONTH LICENSE TOTALS

May	1986	June
39,463	Extra	39,776
97,856	Advanced	97,970
116,460	General	116,606
84,659	Technician	84,985
78,729	Novice	78,942
417,167	Totals	418,279

Amateur “Hi”

G.R. “Scott” Cundiff, N5ASD, of Vivian, Louisiana wins this month's Amateur “Hi” with the following anecdote. He'll be receiving a free year's subscription.

After many hard weeks, even months, several members of our Novice class had learned the theory and sweated out the code to earn our Novice tickets. About everyone decided to stay on and go right on preparing for their Technician ticket.

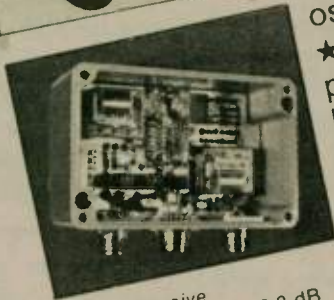
It was fun to go to class each week and find out who had received their call and share “first contact” experiences. However, it became apparent that several of the group were experiencing “key fright” and were not getting on the air at all. Our instructor decided to help out by talking us through a standard type of contact, step by step.

“Now what is the first thing you say after you establish contact?” he asked.

A voice from the back of the room called out “QRS, QRS.” We all agreed.

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SPECIAL EVENTS

Octoberfest

The Mahoning Valley Amateur Radio Association will operate W8QLY on Sunday, September 28, from Boardman Park during the Annual Rotary Octoberfest Celebration. Suggested frequencies are the phone sections of the 40 and 20-meter bands, and 145.01 packet.

For a special QSL certificate, send a standard-size SASE to: MVARA Octoberfest Station, P.O. Box 2850, Youngstown, OH 44511.

GCARA celebrates 50th anniversary

On October 4, the Greater Cincinnati ARA invites all Amateurs to work the club station, W8DZ, and help them celebrate 50 years of service. Frequencies just inside the General phone bands and 45 kHz up on CW will be used. For a facsimile stock certificate of one share of Cincinnati, send QSL, an address label and a 22¢ stamp to: W8GS, 620 Woodsway Dr., Loveland, OH 45140. □

Virginia Beach's 25th

The Virginia Beach ARC invites all hams to help celebrate its 25th anniversary by contacting the club station, WA4TGF, on Saturday or Sunday, October 5 and 6.

Operation will be on the following frequencies (± 5 kHz): CW — 3540, 7040, 14040, 21040 and 28040; SSB — 3890, 7240, 14250, 21340 and 28560.

To receive a special 8" x 10" QSL certificate, send a 9" x 12" envelope and two first class stamps to: R.C. Brown, VBARC, 4821 Rosecroft St., Virginia Beach, VA 23464. □

Historic country fair

Members of the Dalton ARC will operate a special event station on October 11-12 from the Historic Prater's Mill Country Fair. Our station will be set up in a turn-of-the-century cotton gin.

We plan on working on or near 7.250 and 14.250 from 10 a.m. to 3 p.m. EDT each day. QSLs will include info about mill and picture of same. Send SASE to Dalton ARC, P.O. Box 143, Dalton, GA 30722-0143. □

Help a friend become a ham!

Treasure Island

The Garden State ARA (New Jersey) will operate W2GSA from 1600Z, October 4 to 1600Z, October 5, to commemorate Robert Louis Stevenson's stay on Treasure Island.

Suggested frequencies: 3.910, 7.235, 14.235. Certificates via Harry Polhemus, KN2B, 18 Gardners Lane, Manasquan, NJ 08736. □

Alcatraz Island

The Sacramento ARC (California) will operate club station W6AK from 1730Z to 2300Z on Saturday, October 11, from Alcatraz Island in San Francisco Bay.

Frequencies: Phone — 3.950, 7.270, 14.300, 21.400, 146.52; CW — 3.725, 7.125, 14.050, 21.085; Packet Radio, W6AK-5 145.01. Special QSL available for one QSO; SWLs welcome. Send SASE and QSO info to Sacramento ARC, P.O. Box 161903, Sacramento, CA 95816-1903. □

Lexington Barbecue

The Healing Springs Mountain VHF Society, Inc. will operate WD4BBQ for the 3rd Annual Lexington Barbecue Festival on Saturday, October 25, from 1300Z to 2100Z, on 40, 20 and 15 meters. Phone — 25 kHz up from edge of General Class band; Novice — 7125 kHz as time permits. Also, area 2-meter repeaters.

Special Bar-B-QSL sent to those who send SASEs. Mail to: Healing Springs Mountain VHF Society, Inc., P.O. Box 41, Lexington, NC 27293-0041. □

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Jamboree On The Air

The 29th Scout Jamboree On The Air (JOTA), sponsored by the World Bureau of the World Organization of the Scout Movement (Boy Scouts of America), will be held October 18-19. Boy Scouts and Girl Scouts of all ages, Scouters, former members, Amateur Radio operators -- anyone interested in doing a good turn for Scouting and Amateur Radio is invited to join in.

Operating time is from 0001 local time, Saturday, to 2400 local time, Sunday, although some activity flops over from Friday to Monday to take advantage of DX time differences.

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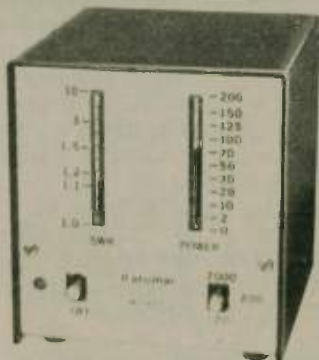


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Procedure: Invite Scouts/Scout units to your shack. If you do not know any, contact your local Scout council service center for the name of the unit leader in your area. Or you or your radio club may volunteer to participate in a district or council camporee that weekend. Telephone books list council service centers as Boy Scouts of America. Call "CQ JAMBOREE" or respond to such calls. Observe all FCC regulations. Consider a Foxhunt for more fun. Call your Scout council service center if you can help.

Reports: No reports in the form of logs are necessary. This is not a contest. Exchanges should be relaxed and relate to Scouting and Amateur Radio as much as possible. Brief reports, however, are

appreciated, giving Scout unit number, ham calls used and heard/worked, numbers of participants, interesting incidents and exchanges, etc. Photos with captions especially welcome for the BSA report to the World Bureau. Send them to: JOTA Coordinator, International Division, BSA, 1325 Walnut Hill Lane, Irving, TX 75038-3096.

Certificates: Postcard-size certificates are free and available to anyone participating in any way. They may be ordered beforehand for presentation during JOTA, or they may be awarded at Scout or ARC meetings later. Send requests to: JOTA Certificates (see address above) with SASE large enough to hold the cards ordered; affix postage at 22¢ per first 10 cards and 17¢ for each 10 cards thereafter.

Pocket patches: Temporary insignia to wear on the Scout uniform or on jackets are available at \$1.50 each from JOTA Patches (see address above). Separate orders for certificates and patches will get them to you faster. □



Internal view of the mobile communications facility shows (left to right): Mike Pollack, Dick Mills in the operating position, Bob Raynor, and special guest Roland Hiscock, ZS6BFS.

High Desert 5

Paul Turkheimer,
WA6NKL/AFA6YJ

On April 17, 18 and 19, 1986, members of the Los Angeles Air Force Station MARS Base Support Team fielded their emergency preparedness equipment into the upper Mojave Desert site of the abandoned 90-year-old King Solomon Mine in the almost ghost town of Johannesburg, California. As in four past des-

ert operations, the team again demonstrated its ability to establish an HF communication center in a remote area.

In addition to checking into various USAF MARS Nets, the occasion was also used to establish a special communications link with this Mojave Desert town's namesake, Johannesburg, South Africa, which was celebrating its centennial anniversary. For this occasion, a special visitor — Roland Hiscock, ZS6BFS — joined the group, making the trip half-way around the world for just this occasion.

Although poor propagation conditions prevailed, communication was established with 2S6JCF, the official centennial station and a brief over-the-air ceremony permitted greetings and good wishes to be exchanged. Two additional Johannesburg stations, both located in West Germany, were operating. How- (please turn to page 14)


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Cruising

(continued from page 1)

came, recently, that Carl Wallace had suffered a stroke in a remote anchorage in Baja. The date was May 28 — a Wednesday. Sonrisa Net controller Lee Leonhard, W6NPQ/XE2VJE, aboard the *Mar y Vent*, was in the middle of the roll call when Leona Wallace broke in to report she thought Carl was suffering a mild stroke. Leona said Carl was having trouble speaking and he seemed disoriented.

The net went to immediate emergency status and control operator Lee began looking for a high speed boat to make the 35-nautical-mile trip from Puerto Escondido, near Loreto, to San Juanico Cove where the Wallaces' boat was anchored. The Sonrisa Net, on 3963 kHz, is a daily net listened to by amateur-equipped boats and unlicensed or underlicensed shortwave listeners who pick up weather and other information valuable to their cruise in Mexican waters.

It was one of these so-called "silent majority" listeners who heard the distress call and sprang into action. Dr. Jack Johnson, a neurosurgeon from Arizona, was on vacation, part of a group trailer boaters from the Tucson Sailing Club.

Dr. Johnson was only 100 feet from the Wallaces' boat. He dinged over to *Malaga* and offered to help treat Carl on the spot. In that same group of Tucson sailors was a registered nurse who also offered her assistance. While this was going on, the Sonrisa Net hams — many of them owing their licenses to the man suffering the stroke — were organizing a rescue party.

Clay and Joanna Darrow — Joanna is N6EKQ — offered their powerful runabout to transport Carl and Leona to a medical clinic in nearby Loreto. Lee and

George Taylor, KA6WUY/XE2IOA, would ride along to take charge of, and deliver, *Malaga* from the chancy anchorage at San Juanico to safe harbor in Puerto Escondido.

Barbara Glenn, KB6HQU/XE2HPS, from the vessel *California Dreamer*, drove to Loreto to alert the Red Cross clinic to Carl's problem and his arrival by high-speed boat. Meanwhile, Brent Bogdanski, KB6DYB/XE2VJD, southern control for the Baja/California Net on 7238.5 kHz, took over control of the emergency and coordinated a phone patch to the Long Beach Memorial Hospital in California, where an emergency room physician talked directly with Dr. Johnson on board *Malaga*. The idea was to lower Carl's sky-high blood pressure and minimize the damage from the stroke.

When the runabout reached the scene in San Juanico Cove, Carl was transferred from his sailboat to the high-speed craft, and he and Leona were then rushed to Loreto. An hour later, Bill Riffe, XE2HOH, met the boat and drove the Wallaces to the door of the clinic. Mexican doctors administered medication to further lower Carl's blood pressure, and arrangements were made to fly him to San Diego's Scripps Institute Hospital by commercial jet the next day. Thurman Smithy, K6QX, met Carl and Leona when they stepped off the plane in Tijuana and transported them across the border to Scripps.

Amateur Radio was the vehicle Baja sailors used to keep tabs on Carl's condition. Doctors in San Diego say the speed with which Carl Wallace was treated probably kept a minor stroke from becoming a major trauma. The medics say he should make a complete recovery and should even be able to pound the brass again.

With tears in his eyes and a voice choked with emotion, Carl was on the net about a week after his dramatic rescue in Baja. He thanked all the amateurs and others who participated in his emergency. Needless to say, he wasn't the only one with tears in his eyes that day. □

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High Desert 5

(continued from page 12)

ever, these were not heard in California.

The fully radio-equipped Airstream trailer, belonging to Barry, NØKV/AFB6OC, and Patricia Mitchell, N4EPY, was the centerpiece of the station. The trailer now has a complete amateur frequency coverage capability, ranging from 160 through 10 meters and VHF from 6 to 450 MHz, including AM-SAT, RTTY and packet radio. For emergency situations, other services radio systems can be accessible from this mobile station.

Other participants were Bob Raynor, W6LUY (AFA6SV); Howard Berk, KA6DNA (AFA6BX); Dick Mills, WA6LML (AFA6PF), MARS Support Team Manager; Mike Pollack, KK6L (AFB6LC), Region 6 MARS Training Manager; and Paul Turkheimer, WA6NKL (AFA6YJ), U.S. Project Manager.

Hans Van De Groenendaal, ZS6AKV, was the overall project organizer, located at Johannesburg, South Africa. □



Shown posing below the tribander are (left to right): Bob Raynor, Howard Berk, Paul Turkheimer, Roland Hiscock, Barry Mitchell, Mike Pollack and Dick Mills. (Photo by Pat Mitchell)

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Missouri tornadoes

Hank Downey, K5QNE

The Missouri bootheel's disastrous tornadoes in May proved again that one does not have to be in the midst of an emergency in order to be of service. Hundreds of miles from the destruction, the Hattiesburg (Mississippi) Amateur Radio Club found itself in the thick of the action.

Here's how it happened, and how one newly-licensed ham found himself undergoing a baptism by fire.

In the early hours of May 16, shortly after word of the deadly storms began to spread, the HARC was asked by the American Red Cross to handle two health and welfare messages into Sikeston, Missouri. Normal communications in and out of that area had been disrupted because one tornado had dropped a major telephone microwave tower. This traffic was cleared in a matter of minutes through K0DQV in St. Louis.

Later in the morning, when additional health and welfare inquiries were received by the Red Cross, the HARC was asked to activate the club station. Chris Baskind, KA5YFE, a relatively new ham only recently upgraded to General Class, volunteered for the task. Little did he know that he would spend the rest of the day and much of the evening passing traffic in and out of the Missouri boot-heel.

Chris quickly located Laverne Wilson, NQ0B on 40 meters who was operating from one of the hardest-hit areas in southeast Missouri. Although he had no commercial power and was working virtually alone, Laverne handled hundreds of health and welfare messages from throughout the country.

As the day wore on, it became obvious that Laverne would not be able to con-

tinue at the grueling pace, and he asked the HARC station to assume control of the rapidly-growing ad hoc traffic net. Over the next five hours, Chris, still at the helm of W5CJR, handled more than 150 messages into and out of Missouri, allowing Laverne a periodic break and permitting him to maintain a 2 meter link into nearby storm areas. By 10 p.m., other Missouri Amateurs had mobilized and established a net on 75 meters and, with propagation rapidly declining, the 40 meter net was closed. This emergency effort stretched the

Hattiesburg club's capabilities, in that many of our members were providing communications for the State Special Olympics competition at the University of Southern Mississippi. However, Chris and relief operator Larry Morgan, AG5Z, proved that every Amateur can provide a vitally needed service, even hundreds of miles from the scene.

Above and beyond the obvious public service performed, the club received considerable favorable publicity, including a very informative news item that evening on WDAM television in Hattiesburg.

A hearty tip of the HARC hat to Chris and Larry for a job well done! □

Ft. Worth storm

Ken Winters, N5AUX

On Saturday, May 24th, a violent storm struck Fort Worth, Texas leaving a path of destruction almost 30 miles wide. And once again, in less than two months, members of the Fort Worth-Tarrant County Radio Amateur Civil Emergency Service (RACES) had their communications skills put to the test assisting police, fire, and medical personnel.

Back in March, you may recall from the article by Tom Anderson, KA5OOC in the June issue of Worldradio, leaking gas collecting inside a building in downtown Fort Worth exploded with such force that windows were blown out in office buildings as far as seven blocks away from the blast and 28 persons were injured.

The May 24th storm injured about as many persons, and two drowned when their car was trapped in high water near the downtown area. Most of the injuries were related to the collapse of the roof of the Don Carter Bowling Lanes at Beach Street and Interstate 30 just east of downtown. Alan Moller of the National Weather Service was on the scene minutes after the collapse and reported via Bill Harris, W5TVN, that it appeared that the roof caved in under the weight of heavy rainfall and hail which accumulated on the roof in a matter of minutes.

A bowling tournament was in progress at the time and many inside had no warning of the approaching storm,

which picked up both speed and intensity as it crossed over Tarrant County.

At Carswell Air Force Base on the west side of the city, an airshow was in progress as the storm approached from the northwest. Carswell radar tracked the storm as it neared the base and officials thought the storm showed signs of slowing down about the time it was some 17 miles out.


However, the entire storm began moving faster as it neared the county line and began building back to the south at the same time. Warm moist air from the Gulf of Mexico began feeding the storm from the southeast and with renewed strength and energy the storm unleashed its fury on Fort Worth for over an hour.

Rainfall measured an average of 3-4 inches in less than 15 minutes, causing severe flooding in all low-lying areas across the entire county. Hail ranging in size from peas to golf balls shredded trees of half their foliage and crashed through exposed windows. Wind gauges recorded sustained speeds of 40-50 mph, and gusts over 85 mph were responsible for additional damage to trees, homes, and antenna towers. At least two ham antenna systems were destroyed during the storm, and others sustained major structural damage.

Although there were two reports of tornados, the SKYWARN Amateur Radio Net operating on 146.94 MHz had trained observers covering the entire county and each of these reports was quickly dispelled.


Actually, the situation was extremely dangerous and this system could have easily produced a tornado or two. However, as the storm moved southeasterly and picked up speed, it began forcing the warm inflow air up and over its own outflow and we were spared the classic thunderstorm model development leading to tornadic conditions. SKYWARN spotters were in constant contact with the rain-free base of the storm's southwest quadrant, the area most likely to spawn the deadly twister.

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Throughout the afternoon, the National Weather Service office in Fort Worth was manned by ham radio operators, including Lanny Priddy, K5LP, and Claude Whitley, WB5FLQ, to keep the NWS advised of the actual conditions outside while the NWS, in turn, kept the SKYWARN net up to date on the overall size and movement of the most intense cells within the storm system. Two of the NWS officials in the Fort Worth office are hams, Dave Martin, WA5KCP, and Brian Peters are usually too busy, however to operate the radio and do their jobs too. Even one of our local "TV weathermen," James Spann, is a ham (WO4W).

Both the Fort Worth and Dallas RACES groups maintain a high level of interest and training among their members. In fact, within the last year, both cities have added a bonus for the storm spotters. TV Channel 5 in Fort Worth and Channel 4 in Dallas operate their own weather radars. At this time, both of these commercial stations have installed Amateur television equipment capable of relaying their radar pictures over ham radio ATV frequencies. Thus, any fixed or mobile operator with ATV receive capability can monitor either Tarrant or Dallas County radar images directly, greatly enhancing their effectiveness.

These TV stations have realized how important ham radio is during any major emergency and have contributed to the public awareness of the value of Amateur Radio in the metroplex.

During the May 24th storm, an additional problem was encountered. Just about the time the storm was doing its worst, the computer-controlled radio dispatch system for the Fort Worth Fire Department went down and many of the 32 fire stations around the city were out of touch with the dispatch office. The fire chief asked Jim-Bob Scott, K5WQH, the RACES coordinator for communications assistance and within 10 minutes, 15 of the city's 32 substations had Amateur Radio operators to provide the critical communications at this very crucial time. During the following two hours, additional hams were stationed at other sites and many even rode with fire trucks and fire department officials to ensure constant radio contact with the city and the dispatcher.

Prior to this "real" emergency, by the way, there was a moment during the SKYWARN net when ... well, we thought the fire dispatch office itself might be on fire! Carl Zettner, W5HFG casually remarked to net control that the office was filling with SMOKE! Ken Winters, N5AUX: "Let me get this straight HFG ... you're telling us the FIRE DEPARTMENT IS ON FIRE, IS THAT CORRECT, OVER". HFG: "Well ... maybe ... they're trying to

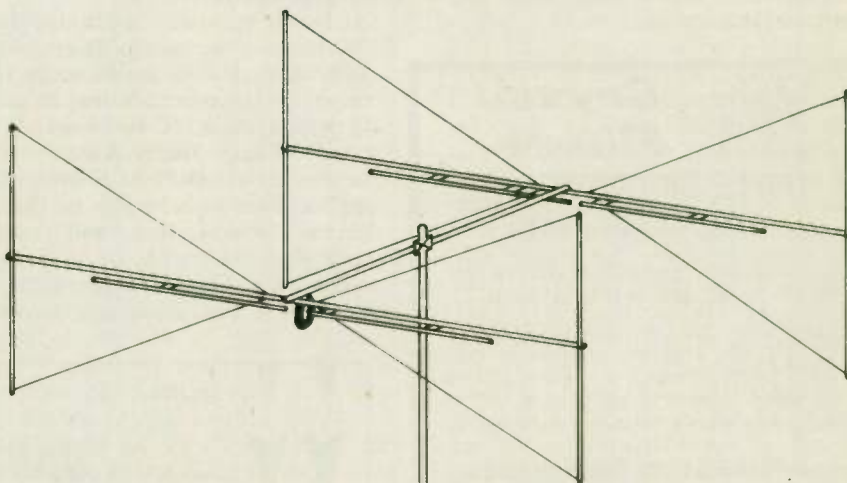
find out where the smoke is coming from now..."; N5AUX: "Interesting ... uh ... do you want us to call the fire department? ..."; HFG: "Well, the dispatch office is directly above fire station No. 2... I suppose if we need to we could just run downstairs and get them..."; N5AUX: "Well... okay... You already know the Emergency Operations Center is flooded... I guess if we can have floodwater in the EOC we can have a fire in the fire department..."

As it turned out, the smoke was coming from a fluorescent light fixture with a bad ballast transformer. And the Fort Worth EOC, being located beneath one

of the city's streets, has flooded before but it never gets very deep, so that wasn't too serious either.

I would like to acknowledge everyone who participated during this emergency, but there were over 70 operators actually checked in on 146.94 and there were others operating on two other nets on 220 and another 2-meter frequency ... and there were over 200 others who stood by their radios without transmitting, ready to respond if needed. And that is just for Tarrant County. Dallas also brought up their own RACES net on 146.88 MHz and I'm sure other cities

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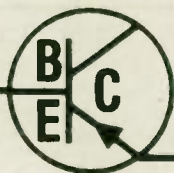


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around the metroplex opened their EOC's as well.

There is one individual, however, who deserves at least a comment; Dennis O'Brien, N6BDX, was out in the storm like so many others doing his "job" making sure we didn't miss anything like a funnel . . . He and the others were taking a beating from the hail, being lashed by high winds and trying to avoid high water . . . Well, we had just about concluded that the storm was clearing the county when the problem with the fire department came up.

Dennis surmised how busy I was and knowing where I lived, stopped by to assist with net control duties. I never noticed he was soaking wet and barefooted when he first arrived.

That's what I like about the ham radio operators throughout the Forth Worth/Dallas area. They don't have to be asked . . . they just know what needs to be done and they do it. □

Donations needed

City vs. PRB-1

The city of Lakeside Park (Kentucky) has decided to challenge the constitutionality of PRB-1 in that city's attempt to keep Amateur Radio operator John Thernes, WM4T, from putting up a tower and Amateur antenna system.

This information comes to us by way of Thernes, who explained that on July 22, "The city filed a cross-claim to our complaint, and in that cross-claim they raise the question and state that 'PRB-1 is unconstitutional — both on its face and as applied by the FCC — inasmuch as it is so vague and ambiguous that it does not give a reasonable person fair notice as to which sphere of regulation the FCC intends to preempt, and to which sphere of regulation the FCC has not preempted.'"

"In our opinion," continued Thernes, "we do not see any problem with this statement, but it is an issue that be raised by the court and we are prepared to defend [PRB-1] if we have to."

WM4T explained that since last May, he and his attorney have been attempting to reach an amicable settlement to his case based upon its being remanded back to the district court by the appeals court. The latter had ordered the city of Lakeside Park to oblige Thernes' need

for an antenna and tower for his federally licensed Amateur Radio activities.

On May 12, Thernes and his lawyer attempted once again to reach an out-of-court settlement with the city, but Lakeside Park did not reply with anything in the way of a compromise that Thernes considered reasonable. Among the suggestions made by Lakeside Park were for WM4T to either mount his antenna on his roof without a tower or to install what amounted to a remotely located "community antenna system." Both of these options were turned down by John Thernes who then decided to continue his litigation against the city.

On May 30, he was ready to file before the presiding justice, but at that time, Lakeside Park asked for an extension. After waiting an additional 30 days, Thernes' attorney filed his briefs. The city responded on July 22 with its claim that PRB-1 was not constitutional. In its filing, Lakeside Park asks for Thernes' complaint to be dismissed and that he be held liable for the city's attorney fees.

WM4T would like to personally thank each Amateur who has written him letters of support or provided contributions for his cause. Donations can still be sent to the Northern Kentucky Tower Fund, P.O. Box 17721, Lakeside Park, KY 41017.

—Westlink Report □



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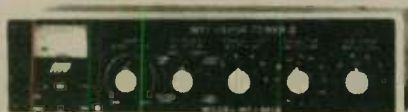
Lighted Cross-needle Meter reads SWR, forward and reflected power all in one glance. Has 300 and 3,000 watt ranges. Meter light requires 12 VDC.

6 position antenna switch (2 coax lines, through tuner or direct, random/balanced line or dummy load). SO-239 connectors, ceramic feed-throughs, binding post grounds.

Deluxe aluminum low-profile cabinet with sub-chassis for RFI protection, black finish, black front panel with raised letters, tilt bail.

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A new cross-needle SWR/Wattmeter gives you SWR, forward and reflected power—all at a single glance. SWR is automatically computed with no controls to set. Has 30 and 300 watt scale on easy-to-read 2 color lighted meter (needs 12 V).

A handsome new black brushed aluminum cabinet matches all the new rigs. Its compact size (10 x 3 x 7 inches) takes only a little room.

You can run full transceiver power output—up to 300 watts RF output—and match coax, balanced lines or random wires from 1.8 thru 30 MHz. Use it to tune out SWR on dipoles, vees, long wires, verticals, whips, beams and quads.

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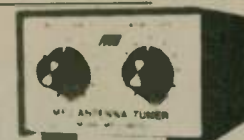
MFJ-901B **\$59.95**



MFJ's smallest 200 watt Versa Tuner matches coax, random wires and balanced lines continuously from 1.8 thru 30 MHz. Works with all solid state and tube rigs. Very popular for use between transceiver and final amplifier for proper matching. Efficient airwound inductor gives more watts out. 4:1 balun for balanced lines. 5 x 2 x 6 inches. Rugged black all aluminum cabinet.

MFJ's Random Wire TUNER

MFJ-1607D **\$39.95**



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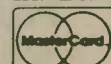
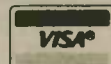
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Code matters

Part I

Loraine McCarthy, N6CIO

As Code Programs Manager for Radio School, Inc., over the last five years I have worked with a few thousand students on their code and have discovered that most students have the same concerns in their code practice. Nearly everyone makes the same mistakes. I have identified these problem areas, and will begin to discuss them this month in the first of a series of seven articles.

One key to success on the code is the attitude the student has toward the learning and practicing process. While you may think you will never use the code after the desired license is obtained, it is currently a requirement with which you must deal. Therefore, the more positive your attitude, usually the easier the process. I have had occasion to visit many exam locations and have seen the discouraging effects that not obtaining a passing score on the code test causes.

Notice that I did not mention a "failing" score. Each time a code test is taken, the student can learn from that experience if s/he evaluates what skills need to be improved. If examinations

are given frequently in your area, it may not be as discouraging for you as for the student who must drive 100 miles and can test only every three months.

Only the student who does not receive a passing score and *who gives up*, has failed the exam and will not receive the license. So if you're thinking about not going back to try again, let's change that failure into a success by revisiting the exam site!

About code

When I talk to students about the code, they do not have goals. It is OK to reevaluate your goals as you assess your progress, but like anything else, a plan of action is needed. The first part of setting a goal is to find out who the examiners are in your area and when they test. Next you must determine the current speed you can copy well and how far you want to go.

Perhaps you're at 7 wpm, and want to go to 14 or 15 wpm to give yourself a little speed padding for the exam. Write this down. You will want to record your daily practice. Simply write down the date and times and speed in words per minute you worked on that day. For example:

5/29/86 8-8:20 a.m. 4:30-5 p.m. 8-9 wpm
5/30/86 7:30-8 a.m. 6-6:30 p.m. 9 wpm

By the end of each week, you will be

able to determine if you're practicing enough to complete your speed building by your goal date. Are you practicing by your goal date? This is very important. You can also decide whether you are practicing at the right time of day. Make decisions at the end of each week, and identify areas causing you problems. Think of your code exam as if you were planning for a vacation. When you take a vacation you decide where and when you're going, how much you're going to spend on the trip, and how you will budget to reach that goal. Now make the same decisions on the code. You'll get there quicker if you have a plan of action.

Always be sure you check your work. Use a colored pen or pencil. Keep a notebook and save each day's copy so you can see your progress. Most of us have bad days and temporary setbacks, but that will not deter you from reaching your goal.

Finding problems

Let's now begin to look at some of the reasons that students do not obtain passing scores, other than simply not being at the required speed. Often the main problem area is the inability to read one's copy when the test is finished. I do not mean handwriting, but rather the ability to find the answers in what is often pretty good copy. This can be a result of spacing between letters and words, or an occasional missing letter or a punctuation mark. Many students tend to look at their overall copy after a five minute sample exam and exclaim "there's nothing here." Usually this is not the case.

We will discuss this more later when I cover sentence techniques; however, remember when reviewing your copy, always work from the beginning of the copy to the end. Don't jump around looking for answers. If an answer is in your copy it will still be there when you get to that sentence.

Review each sentence. Determine what the topic of the sentence is first. Look for key words such as "receiver", "temperature", "occupation", and "class of license". After you have determined what the sentence is about, find your answer. Remember to read the entire sentence. If you have just pulled something out of the middle such as "trap vertical" for an antenna, more careful review of the sentence might reveal that the complete answer was "5-band trap vertical".

Going through the paragraph that way helps to maintain continuity in your thought process. Most test QSOs, like those QSOs you would hear over the air, usually consist of sections. I identify these as follows: 1. Identification (calls, names, RST, and location); 2. Equipment (rig, antenna, and power); 3. Personal (age and class of license); 4.

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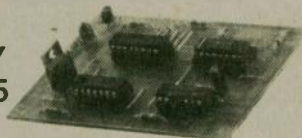
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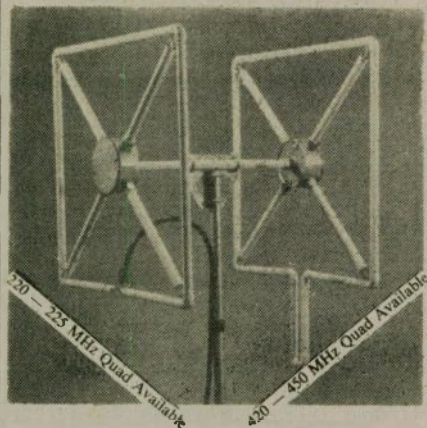


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Occupation (may include where the operator works); and 5. Sign off (why the operator must QRT).

Punctuation is important! Stop and think about it. Punctuation allows you to tell where each sentence begins and ends. Commas assist you in looking at phrases instead of an entire sentence at once. Also, when you're copying during the test, it is important to realize that just because you may have not done well on one sentence due to nervousness, you can still pass the exam. Think of each punctuation mark as a fresh start!

Next most common on the list of reasons for not obtaining a passing score are spelling and transfer errors. If you miss a letter or a word that is part of an answer, be careful. It can be frustrating to know that the operator's occupation is an engineer, but you didn't copy every letter and you don't remember how to spell the word. Sound words out and do the best you can. Often in situations like this, I find students simply haven't broken the word into syllables and written it down as they would say it.

Transfer errors are a little different. This is when you have an answer correct in your copy but write it down in the answer blank incorrectly. This can be as simple as writing the receiving operator's name where the sender's name should be written. You might leave a model number off when transferring the type of rig if a type and model number are both given. I have seen students write the rig in the antenna blank, or if they copy "advanced" for the class of license, write it down as "advance" without the "D". Always remember to recheck your work after you have completed the answer blank. I have students underline in their copy where they found the answers so we can review any areas that need improvement.

Anticipating is another problem area. We think we know what is coming, so the mind tunes out the code and the hand keeps writing. Most students tell me they have difficulty with this.

Each time you are getting ready to practice the code, tell yourself a simple phrase: "I am going to copy the code letter by letter and if I miss a letter, I will take the next letter I hear and keep writing." This will help you focus. Some of us tend to wait for the next word we recognize and therefore end up with larger gaps on the paper than necessary. Remember that letters add up to words and words to sentences. If the letters are

there, it will be easy to find the words.

If you review all of these areas carefully and have done your work thoroughly, you may still be nervous on test day, but you will have a better idea what to do when the code test stops playing. If you are the type that gets really nervous and have lost enough copy not to obtain a passing score, then you will need to repeat the test. Just remember not to let it become *too* important. Most of our nervousness tends to come from thinking about how "hard it will be" or "what if I fail."

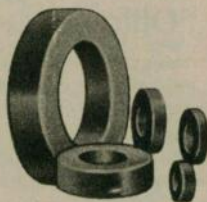
Being well prepared in as many ways as possible will counteract our tendency to be nervous. Usually I tell students not to discuss the exam with others just prior to the test. If you have the test jitters, there is nothing worse than standing next to someone who is explaining how they have failed the test eight times so far. Concentrate on reviewing your preparation and how best to benefit from the experience in the event you need to repeat the test.

In the months to come, we will discuss many more general ideas about the preparation for the code test and taking the actual exam.

If you would like additional practice in these areas, we have three tapes available with concentrated practice in letters and numbers. The *Calls and Numbers* tape is 12-15 wpm and we have a *Random* tape from 13-15 wpm and one from 20-22 wpm. These tapes are a good workout and will strengthen your ability to copy the code at the General and Extra levels. I will also include a written transcript which you may copy so that each time you write a section, you can circle and identify problem areas. These 90-minute cassettes are available through me at \$9.95 each plus 75¢ for postage and handling.

If you would like a package of 10 helpful handouts on the code, send \$3 to cover printing, postage and handling. To order any of the above items, you may write to me direct: Loraine McCarthy, N6CIO, 315½ Ruby, Balboa Island, CA 92662.

(Continued next month) □



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FCC clarifies 902-928 MHz limitations

The Commission has clarified certain frequency privileges and power limitations on the use of the 902-928 MHz frequency band by Amateur operators.

The action partially granted a petition for reconsideration filed by David B. Popkin, W2CC.

Specifically, the FCC amended Section 97.67 (i) of the rules. While no Amateur station transmissions are permitted on 902-928 MHz within 150 miles of the White Sands Missile Range, reduced power transmissions (at 50 watts peak envelope output power) are permitted between 150 and 200 miles from the boundaries of White Sands Missile Range.

The FCC also amended Sections 97.7 (g)(8) and (9) to clarify that the secondary status of Amateur Radio does not bear any relation to certain geographic areas of prohibited operation on the 902-928 MHz band. Additionally, the FCC clarified that pulse emissions by Amateur stations are permitted in the 902-928 MHz band.

These rules become effective 0001 UTC October 4, 1986. October QST's "Happenings" column will carry the specific rule changes.

— ARRL Letter □

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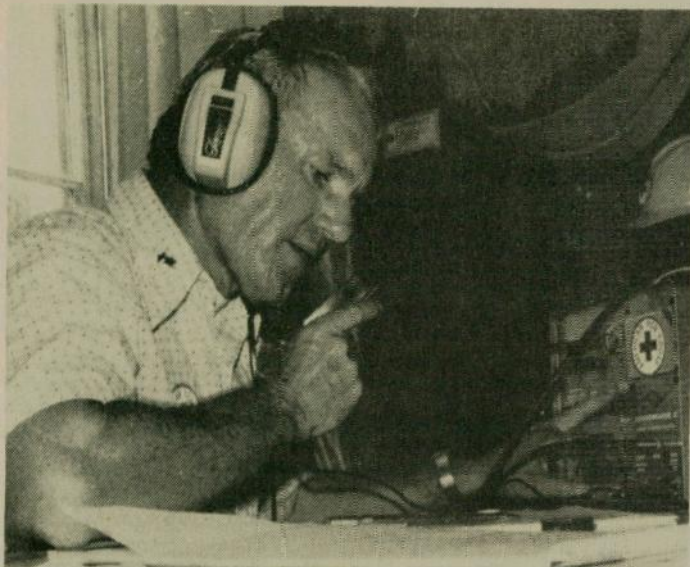
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We've come a long way! This photograph is presented so that old-timers will have their memories jogged as to what it was really like in the "good old days," and, so that newcomers will have an appreciation for today's gear. The rig is a Gonset Communicator 2-meter transceiver which was using power consuming amplitude modulation. The rig put out no more power than today's hand-held and was about the size of 10 hand-helds. Operator in the picture is Kay Galbreath, WB6POQ. The occasion was Amateur Radio helping the Red Cross when 30,000 people were evacuated due to five hours of bombs exploding in a railroad yard near Roseville, California. Date: April 28, 1973.



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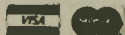
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As a service to our readers, Worldradio presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is two months in advance. For example, if your VE group is scheduling an 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
California			
Sept 28	Santa Cruz	W6NLG (408) 255-9000	
Oct 4	San Diego	(619) 465-EXAM	pre-reg by 9/24
Oct 4	Van Nuys	(818) 762-5095	
Oct 4	Bishop	(818) 762-5095	
Oct 4	Burbank	(818) 842-1863	w/i OK
Oct 11	San Marcos	(619) 465-EXAM	pre-reg by 10/1
Oct 11	Los Altos Hills	W6NLG (408) 255-9000	w/i only
Oct 18	Chula Vista	(619) 465-EXAM	pre-reg by 10/8
Oct 19	Monterey	WE6R (408) 649-8766	
Oct 25	El Cajon & Escondido	(619) 465-EXAM	pre-reg by 10/15
Nov 1	San Diego	(619) 465-EXAM	pre-reg by 10/22
Nov 2	Chico	KE6EP (916) 893-5208	7-day pre-reg
Colorado			
Oct 10	Lakewood	W0IJR (303) 366-9689	w/i OK
Oct 11	Denver	W0IJR (303) 366-9689	w/i OK
Florida			
Oct 9	Jacksonville	W4PTT (904) 781-0972	w/i
Oct 11	Miami	WN4L (305) 247-2944 after 6	w/i
Oct 18	Melbourne	WB9IVR (305) 724-6183	w/i OK
Illinois			
Oct 19	Danville	KC9V (317) 793-3573	
Indiana			
Oct 4	Speedway	KA9H (317) 241-1272	in advance
Oct 4	Muncie	W9JUU (317) 288-0481	
Oct 4	Plymouth	KB9V (219) 784-8540	w/i OK
Oct 18	Marion	N9DKB (317) 662-8621	30-day pre-reg
Oct 18	New Albany	Fred Klink (812) 948-8436	
Oct 25	Shelbyville	KI9R (812) 372-5006	15-day pre-reg
Oct 25	Lake County	WB9JKO	30-day pre-reg
Oct 31	Mishawaka	Jerry Rohlender (219) 255-3089	
Nov 1	New Castle	W9JUU (317) 288-0481	
Massachusetts			
Oct 7	Acton	W1QLT (617) 263-8742	pre-reg by 9/30
Oct 17	Holyoke	KO1R (203) 623-4850	w/i
Sept 17	Cambridge	WA2EYC (617) 646-1641	2-day pre-reg (w/i OK)
Missouri			
Sept 25	Joplin	NE0F (417) 624-5231	w/i
Oct 26	Grandview	N0EWP (816) 987-3936	
Ohio			
Sept 27	Ravenna	KJ30/8 (216) 274-8240	w/i
Sept 27	Barberton	KA8MPH (216) 882-6387	w/i
Oct 4	Mentor	KO8O (216) 951-7985	w/i
Oct 11	Maumee/Toledo	KU8B (419) 729-5245	w/i
Oct 25	Akron	W8HL (216) 923-8961	w/i
Oct 26	Marion	KF8M (614) 387-2684	w/i
Oct 26	Elyria	A18M (216) 324-4574	w/i
Oregon			
Oct 23	North Bend	WA7AHI (503) 756-6846	30-day pre-reg
Nov 1	Portland	Randy Cobb (503) 649-5066	30-day pre-reg (w/i OK)
Tennessee			
Oct 19	Chattanooga	N4BMR (615) 886-2093	in advance
Wisconsin			
Oct 11	Pence	KT9I (715) 561-2802	in advance
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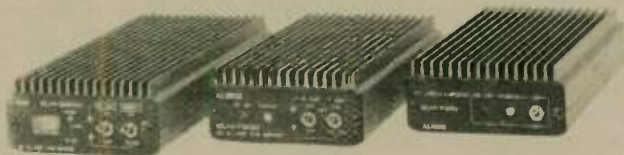
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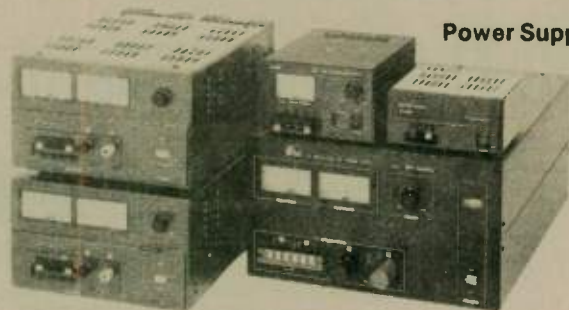
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Rose Ellen Bills, N2RE

Rose Ellen Bills, N2RE, former YLRL president, became a Silent Key on June 18, 1986, in Philadelphia, Pennsylvania.

She had had flu-like symptoms in April and went to a DuPont clinic, which sent her to a hospital in Delaware for tests and then to the University of Pennsylvania Hospital in Philadelphia for more tests and an operation to remove a tumor from her heart. Until the biopsy surgery on June 13, she was walking around the halls and kidding with the nurses. She had major surgery on June 17.

Rose's call was familiar to many Amateurs all over the country, as she was very active in several ham-related groups, including ARRL, YLRL, Association of Wilmington Amateur Radio Education, Buckeye Belles, Gloucester County ARC, OOTC, SOWP (Honorary Member) and YLISSB.

In 1968, as Salem County Civil Defense radio officer, Rose received recognition of outstanding service to the Division of Civil Defense and Disaster Control at the annual RACES symposium in Freehold, New Jersey.

Several years (and awards) later, in 1976, she became receiving treasurer for YLRL. By 1985, she had worked her way up to her second term as president. Rose was the only YLRL member to have held all offices. (See *Worldradio*, December 1983, page 2, and February 1980, page 55.)

N2RE's interest in Amateur Radio started in the '50s, while working at RCA in Cherry Hill, New Jersey. She "tackled the hobby with full force and got out of it all it had to offer. She was the first YL in her district to become Extra Class."

After marrying Willis G. Bills, W2CDZ, in 1962, and moving to Pennsville, New Jersey, she began working for

DuPont. In the following years, she became active in the Toastmistress Club, where she learned to prepare and deliver talks on women in Amateur Radio. She was asked to speak at several national and regional Amateur Radio conventions. (Both she and her husband were active in Amateur Radio affairs.)

Rose Ellen's family wishes to express its gratitude to all her ham friends who sent words of sympathy and encouragement and who shared some of their memories of her. Signed — two brothers, three sisters, 14 nieces and nephews, several grandnieces and nephews, and two cousins.

—Information submitted by Florence Lewis Godfrey, N2RE's sister. □

'Bill' McKeever, W6HSW

William McKeever, W6HSW, of Klamath Falls, Oregon, became a Silent Key on July 3, 1986, at the age of 71.

A native of Brownwood, Texas, McKeever became active in the Klamath Basin Amateur Radio Association, serving as president three times. He was also the coordinator of Amateur Radio

Services for the Klamath area.

A retired plant operating engineer, McKeever also enjoyed fishing, logged 300 hours as a private pilot, was a past president of the Banning Airport Commission and a former captain of the Civil Air Patrol. — Submitted by Tom Hamilton, W6EAW □

New editor for RTTY Journal

All RTTY'ers at one time or another have enjoyed reading the *RTTY Journal* which was first edited in 1953 by Merrill Swan, W6AEE. In 1967 it was taken over by "Dusty" Dunn, W8CQ, who successfully published it for 10 years. Dusty turned it over to Don Crumpton, W6KCW in 1977 and when Don joined the Silent Keys, his XYL "Dee" bravely stepped in and took over the *Journal* after that.

Dee was not a ham, but she soon got her ticket and has carried on until now when Dale Sinner, W6IWO, of Fountain Valley, California has assumed editorship. Dale already has been able to ob-

tain a writer on the Packet mode, and while Packet is all the rage at the moment, hardly think it will ever replace RTTY in popularity.

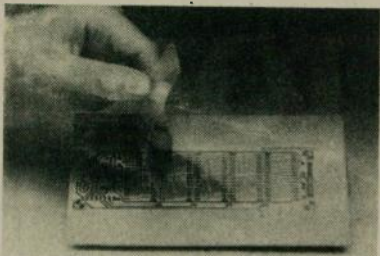
So send in your letters, news, requests to Dale the new editor of *RTTY Journal* and wish him the best.

— CRRL News □

Great 2M idea

Frank Mosser, W6AVD, had a great idea for informing out-of-state visitors about 2-meter repeaters. He suggested that local "2-meter gangs" leave sheets showing open repeaters and miles covered at their local welcome stations. Thanks for sharing with us, Frank! □

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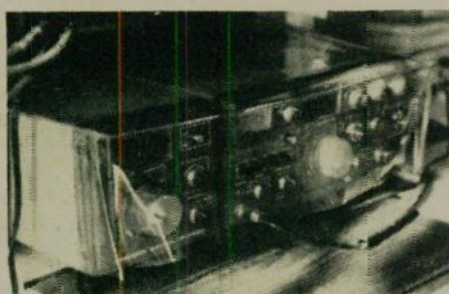


Philippines info requested

I'd like to hear from Amateurs who've operated in the Philippines with a reciprocal license, as I'll be going there for an extended stay early next year.

SHELBY HAUKOS, KB0JW
1239 N. Baird Ave.
Fergus Falls, MN 56537

□



A custom-made poly rig cover

Homemade dust cover

I just wanted to show off the custom-made dust cover for my TS-820S and its VFO. My wife's (NP4MC) mother, Anne Bencks of Cape Elizabeth, Maine, made it from clear poly on her trusty sewing machine, and it was a Christmas gift to me.

The back is open to permit cooling and facilitate covering and removal. The transparency is esthetically pleasing as it shows off the rig, and also lets the rig see out (hi hi) when it's not being used. It is a very thoughtful and functional gift.

HASAN MALIK, KP4IT
Culebra Island, Puerto Rico

□

Things aren't as they used to be

Recently I arrived in Seattle on a flight from Hong Kong and was being met by Walt Miller, K7ZQ, we had arranged to meet on 146.52 once the flight landed and I was in the terminal.

When I got into the terminal I pulled out my TH-21AT out of my coat pocket and established contact with Walt; he was waiting on the "other side" of the Customs area. This let him know that I had, in fact, arrived.

I gave Walt a progress report as I cleared Immigration and headed down

to the Customs area. Once I gathered all my baggage (420 lbs.), I got in line to get it cleared. Then the problems started.

There was a Customs officer roaming through the incoming passengers; I wanted to ask him a question as to how I should declare my baggage. The Customs Inspector spotted my hand-held, came over and grabbed it, and told me to get out of line. He then started to question me: who was I talking to, who did I work for, etc. He took my passport and HT and disappeared for five minutes. I thought they might be looking for Walt and take his HT also, but then the inspector returned and gave me my passport back and told me I could get my HT back once I cleared Customs. He also apologized and said he was sorry for being so "terse", but his first reaction on seeing my HT was to draw his pistol on me as they were very nervous about terrorists — thus his reaction. I told him that I understood, but this was the first

time I had received this type of treatment.

I had my HT returned once I cleared Customs, Walt told me that he knew something had happened when I went QRT all of a sudden.

I have carried ham gear all over the world, including driving in transit through Eastern Europe (HA, YO, LZ, OK). I have used an HT inside airports in DU, 9M, YB, VS6, and all over Western Europe, the United States and Canada, Australia and New Zealand. I was once questioned in Zurich by security, but showed my Swiss License, and last year at Frankfurt I was told to put the HT in my checked luggage as I was on a flight to the Middle East.

Times have changed all over the world and just because you are legal "license wise" doesn't make it "safe" to operate everywhere. **BEWARE.**

JOHN VAN LEAR, VE7IR/VS6IR
Melbourne, Florida

□

K6EA reminisces

Having written columns such as *NOV-ICE*, *HANDI-HAMS* and *EX-CHANGE*, some older readers may wonder if K6EA and W0MFW are still around. We came back from wintering near the Mexican border to find disease and storms had taken down our antenna trees, but not the one I tumbled from in 1982. We still have a mess and tangled wire to patch up before getting back on the traffic nets.

April 9th marked 70 years since my first license, 9EA. Back then, one merely applied. Operating spark gap from around 1910, it took almost five years for word about licenses to reach a kid in a tiny northern Minnesota sawmill village.

When WWI involved the United States, we had to take down all antennas and even put receivers out of com-

mission. I joined the U.S. Army Signal Corps and found most of the duty was marching and stringing telephone wires for field communication. However, the end of the war found me teaching Continental code, in preparation for the use of "wireless."

After WWI, I attended the old Los Angeles Hill Street Radio School and acquired a commercial license from the same inspector (then at San Francisco) who signed my Amateur license. After sailing on "Ships of the Redwood Coast," I returned to school for a law degree. I found it easier than engineering. Then followed practice with my father, with a radio station in the basement of the law office.

Years followed with the Minnesota Attorney General, as an assistant for the State Conservation Department. At

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such time, when about the state on business, a number of Amateurs kept in touch via the CCC camps that employed Amateurs as CW operators. During the late '20s and early '30s, the FCC gave many of us a special call for portable-mobile use. My regular call then was W9F1UZ W9ITJ.

It was while I was in private practice (now as W0EA) that the calls came for service after Pearl Harbor was struck. After a short time at government-operated schools, I was back at sea aboard U.S. military troop transports. Gladys went back to nursing.

After the wars I continued in the Merchant Marine, Gladys gave up her work at a Los Angeles sanitarium, and we set up a station at Long Beach to keep in contact on CW while I was at sea. I bought the old tape gear from a San Francisco commercial station and we had regular skeds until I "swallowed the

anchor." Having had my ears pounded so long by signals and static, I can still receive code, but find it hard to read lips on SSB. I've kept my First Class Telegraph license, also Radiophone.

Other things, such as flying, were very interesting, but radio was always My First Love. Some years ago I received a 50-year ARRL pin from President Vic Clark. Our family, including our U.S. Navy career son, KB6BMB, are members. Starting with the Veterans Wireless Operators that used to meet with De Forest in the Hollywood Italian Kitchen, I gradually joined most of the Amateur and commercial groups, such as SOWP, OOTC and QCWA. Gladys joined the QCWA too.

I joined the Ozone Club and at times try to check into the various social nets of each. I hope by checking into the various organization nets with CW, they understand my problem. It might be

helpful if they could operate both modes at times, especially when conditions are not good.

In November, Gladys and I celebrate our 58th anniversary. I'll be 88 and looking forward to receiving your radio-grams off MSN/Minnesota State Net. We join in fraternal 73-

**ARMOND & GLADYS
BRATTLAND, K6EA/W0MFW
Bemidji, Minnesota**

Write to museum

We have been trying to get an Amateur Radio station set up at the Museum of Science and Industry in Tampa, Florida, across from U.S.E. for the last year and a half.

Ed Artest, AD2K, An electronic technician at the museum, and myself have been working on this project to the utmost. Everytime we figure we are making headway, we are told some other project has been moved ahead of the Amateur Radio station (Example: the big pinball machine).

I called ARRL today to find out how many other museums in the USA have Amateur Radio stations in use. The answer is 15.

The museum officials tell us money isn't the problem, and that they have assigned space for us. The problem, they say, is priorities.

Well, it is time for me to say, HELP... HELP... HELP. Please help us by writing: Dr. Charles Smith, Museum of Science and Industry Director, 4801 E. Fowler Ave., Tampa, FL 33617.

Show your support for the Amateur Radio station so we can get moved up in priorities and get his program on the right track.

**CLARK J. EVANS SR., WA4DLL
Tampa Florida**

New book by VK9NL

Heard Island Odyssey, a book by Kristi Jenkins Smith, VK9NL, is now available in the United States. The fascinating story of the 1983 DXpedition to Heard Island led by Jim Smith, VK9NS, is priced at \$12.25 postpaid from Ron Pretkin, AB8K, at 6741 Oak Field Drive, Dayton, OH 45415. Ohio residents should add 6% sales tax.

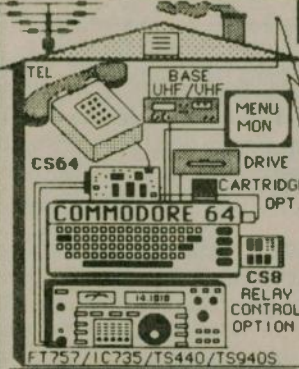
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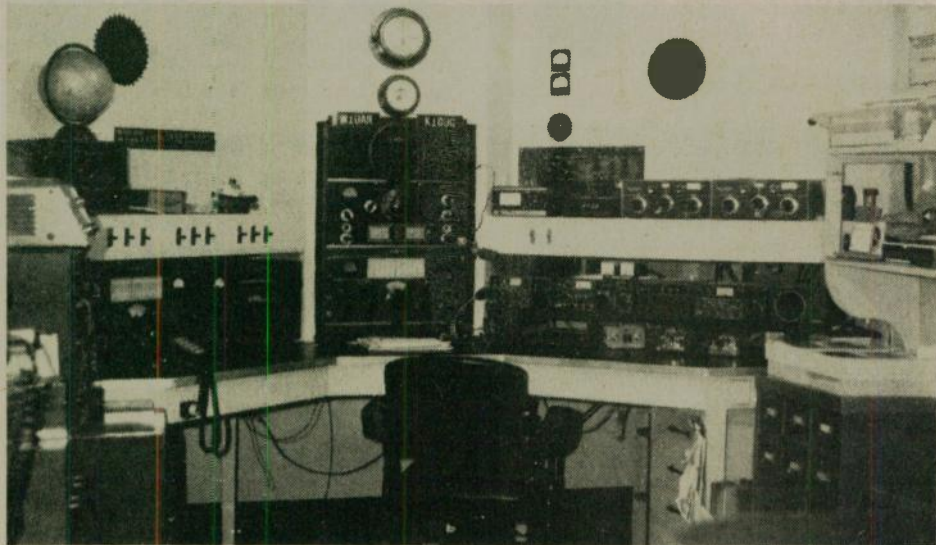


W1UAR

**STATION
APPEARANCE**

G. Burton ("Burt") Davy, W1UAR, of East Braintree, Massachusetts, sent this picture for Station Appearance. He shares operation of the station with Richard Jolls, K1GUG, who also helped design the station. Davy's description of his station follows.

"The layout and motif were derived from a marine shipboard radio room offering advantages for servicing as well as operating. Room dimensions are 16' x 12', completely RF-shielded and acousti-



cally insulated.

"A semicircular bench is built 4 feet from the room's outer wall. From the rear of this bench is a partition extending to the ceiling, thus providing full height walk and work space behind the operating bench. Access is from below the bench. The arrangement permits concealment of power supplies, relays, cables, transmission and power lines, with only control knobs, meters, and

speakers visible at panel.

"A similar configuration was used aboard the writer's yacht — the *Short Wave* — operating both coastal and offshore. Being a pioneer in the Maritime Mobile ARC, it elicited a source of worldwide discussion.

"Perhaps it will antedate the writer to say that marine operating was an early challenge, first licensed as 1BBT, later W1SD. Now returning to ham radio activities 20 odd years later, it required much updating. Here much credit is due to the innovative technique of K1GUG, a professional broadcast engineer and station designer, who shares the operation of the station today.

"Photo identification: at left, Collins still used for CW; center, HRO and Collins used principally to monitor marine activities; at right, full ICOM line covering all frequencies. Am now preparing for satellite operation. Antenna systems provide operation on all bands."

W1UAR will receive a free year's subscription to Worldradio. □

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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



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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AWARDS

Victor C. Clark Youth Incentive Program

At the request of the family of Vic Clark, W4KFC, the ARRL Foundation has established the Victor C. Clark Youth Incentive Program with the objective of providing support for the development of Amateur Radio among high school-age youth.

Funded by an endowment, the program will make mini-grants to promote this objective. This will not be an award or scholarship, but rather a source of support for efforts (no doubt mostly local) to bring young people into Amateur Radio and enrich the Amateur Radio experience of Amateurs under the age of 18.

Groups which may qualify for mini-grants will include — but not be limited to — high school radio clubs, youth groups, and general interest radio clubs which sponsor subgroups for young people or otherwise make a special effort to get them involved in club activities.

Mini-grants — probably in amounts not exceeding \$500 per grant — will be made for such projects as securing antennas for club stations, purchasing training material, supporting local service projects which bring favorable public exposure, and similar activities, preferably by matching funds raised locally. Applications should be sent to: ARRL Foundation, 225 Main St., Newington, CT 06111. □

New awards brochure

Do you know what VUCC is? How about DXCC, RCC or OTC? These are awards issued by the ARRL. Whether your operating interests include rag-chewing or chasing rare DX, the ARRL has an award for you.

Recently, HQ has published a new brochure for distribution at hamfests/conventions, detailing the various awards and how to apply for them. The brochure answers many questions, especially from newer amateurs, about our awards program. Individual copies of the brochure are also available from HQ for an SASE.

— ARRL Letter □

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Dayton scholarship winners

Four young Amateur Radio operators headed off to school this fall with a big assist from the Dayton Amateur Radio Association in Dayton, Ohio.

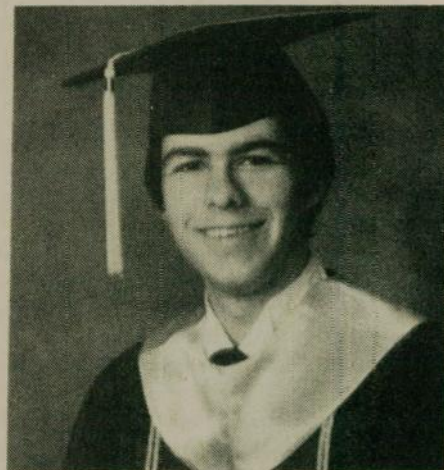
The winners, two boys and two girls, are: Tracy La Fleur, N5FKG, Morgan City, Louisiana; Angela Fox, KA6JPD, Vallejo, California; Brian Bourque, KA1IPP, Fairfield, Maine; Christine Hammer, WD8PWV, Bellbrook, Ohio.

DARA president, Ray Smith, KR8B,

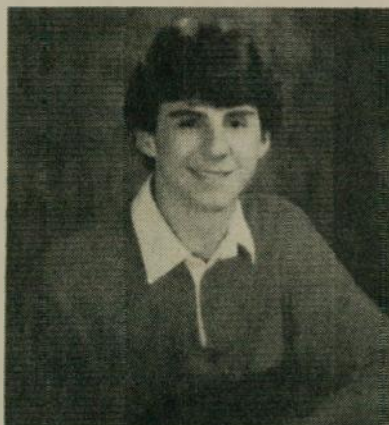
advises: the program is open to any licensed Amateur Radio operator graduating from high school in the year the award is given. The program is not limited to those working toward baccalaureate degrees as students planning to attend a technical institution will also be considered. □



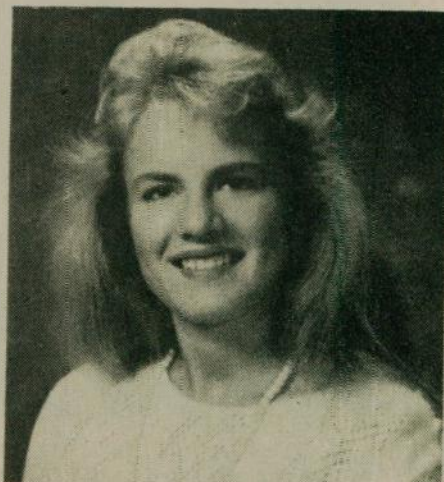
Angela Fox, KA6JPD




Tracy La Fleur, N5FKG



Brian Bourque, KA1IPP



Christine Hammer, WD8PWV



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LARA receives award

The Ladies Amateur Radio Association was nominated by the Fullerton, California-based St. Jude Hospital Rehab Administration to the California Association of Rehab Facilities Hall of Fame. The award was presented last spring.

For two years, the LARA has supported computer activities in rehab radio. In addition, LARA members have stayed in touch with a long-term patient in the true spirit of rehabilitation and Amateur Radio. The Amateur Radio group is the only 1986 nomination. Tnx April Moell, WA6OPS.

— Westlink Report □

Or This Inexpensive It Really Shouldn't Be This Easy

Remember just a few years ago, how it took a roomful of equipment just to work RTTY. And if you wanted more than one mode it took a dedicated computer system costing thousands of dollars. The new AEA Pakratts are proving it doesn't take lots of equipment or money to enjoy working all bands in five different modes.

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The idea behind the Pakratt is very simple. One controller that does Morse, Baudot, ASCII, AMTOR, and Packet, and works both HF and VHF bands. Of course the decoding, protocol, and signal processing software must be included in the unit, and connection to the computer and transceiver have to be easy. The unit also has to be small and require only 12 volts, so it will work both in the shack and on the road.

Second, Computer Compatible

It doesn't matter what kind of computer you have, we have a Pakratt for you. The PK-64 works with the popular Commodore 64 or 128, and the PK-232 works with any other computer or terminal that has an RS-232 serial port. The PK-64 doesn't require any additional programs. Simply connect to the computer and transceiver and you're on the air. The PK-232 needs a terminal or modem program for your computer. The one you're using with your telephone modem will work just fine.

Fourth, AEA Quality and Price

Not many manufacturers like to discuss quality and price at the same time. AEA thinks you want high quality and low price in any product you buy, so that's what you get with the Pakratts. Ask any friend who owns AEA gear about our quality. The people who buy our products are our best salespeople. As for price, the PK-64 costs \$219.95, or \$319.95 with the HF option. The PK-64A, an enhanced software unit with a longer flexible computer cable, costs \$269.95 or \$369.95 with the HF option. The PK-232 costs \$319.95 with the HF modem included. All prices are Amateur Net and available from your favorite amateur radio dealer. For more information contact your local dealer or AEA.

Prices and specifications subject to change without notice or obligation.

PAKRATT™ Model PK-64



PAKRATT™ Model PK-232

Third, Performance and Features

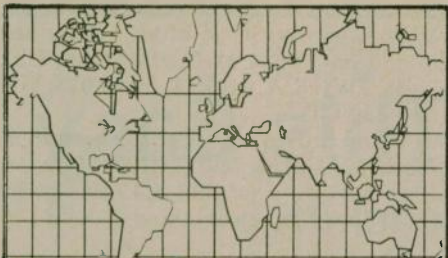
The real measure of any data controller is what kind of on-air performance it gives. While the PK-64 and PK-232 use different types of modems, both give excellent performance on VHF. The optional HF modem of the PK-64 uses independent four-pole Chebyshev filters for both Mark and Space tones, and A.M. detection. The HF option can be factory or field installed.

The PK-232 uses an eight-pole bandpass filter followed by a limiter discriminator with automatic threshold correction. The internal modem automatically selects the filter parameters, CW Fc = 800 Hz, BW = 200 Hz; HF Fc = 2210 Hz, BW = 450 Hz; VHF Fc = 1700 Hz, BW = 2600 Hz.

The PK-64 uses on screen indicators to show status, mode, and DCD (Data Carrier Detect) while the PK-232 uses front panel indicators. Both units use discriminator style tuning for HF operation. And that's just the tip of the iceberg. Features like multiple connects on packet, hardware HDLC, CW speed tracking, and other standard AEA software features are included in both the PK-64 and PK-232.

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DX WORLD

John F.W. Minke III, N6JM

6230 Rio Bonito Drive Carmichael, CA 95608

Activities Calendar

- 20-21 September EDR 28th Scandinavian Activity Contest (CW)
- 20-21 September CRRL Can-Am Contest (SSB)
- 27-28 September EDR 28th Scandinavian Activity Contest (SSB)
- 27-28 September CRRL Can-Am Contest (CW)
- 27-28 September NCCC 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)
- 19 October RSGB 21 MHz Contest (CW)
- 25-26 October CQ World Wide DX Contest (SSB)

W-100-N

The following DXers have been awarded Worldradio's Worked 100 Nations during the month of August:

- 280. W6UVW Harold M. Rowlette
- 281. KA2NRR Martin Smith

Christmas Island (VK9X)

QRZ DX reports that Ron Wright, ZL1AMO, is considering a DXpedition to Christmas Island in October. As for details this is all we have. Keep your ears open!

China (BY)

Also reported in QRZ DX is that another station has shown from this one. Several reports have been received of a BY6LC working 40-meter CW from 1200 UTC. There seem to be two operators, a YL and an OM, and the YL prefers to work the Japanese stations. Take a listen on the low end of the band (below 7.010 MHz) from 1200 UTC.

Also active is BY4RB, who has been reported around 14.034 MHz around 1300 UTC working into the 5th call area. This station has also been on SSB near 14.172 MHz.

Also on 20 meters SSB, BY1QH has been reported near 14.226 MHz from 1300 UTC. Keeping him company is BY1PK on 14.198 MHz at 2215 UTC, and BY4AOM on 14.239 MHz at 0815 UTC.

Marshall Islands (KX6)

During a week or so in August, Isao Nakashima, JH1RNZ, was to have been active as KX6ND or KX6RN. This was to have been an all-band affair, and if you worked him you may send your QSL requests via Toshikazu Kusano, JA1ELY, Box 8, Kamata, Tokyo, JAPAN.

Also busy from the Marshalls is KX6DS, who has been found on 7.005 MHz around 0845 UTC and 14.201 MHz at 0300 UTC. Also on 20 meters, KX6AZ was reported working into Alaska on 14.220 MHz at 0700 UTC.

Wake Island (KH9)

Bob NH6FU/KH9, has been active recently from Wake Island, and has been on both modes. Check 7.087 MHz around 1130 UTC for a 40-meter SSB contact, or way up on the high end of 20 meters SSB near 14.309 MHz after 0400



Local northern California DXer, Dick Randall, K6ARE (left), visited with Peter Lumb, G3IRM, at Cambridge, England, last March. During their visit, most of the discussion was that of telegraph keys — both of them are avid collectors. (Photo by K6ARE)

UTC. Most of the rarer DX stations are usually found in the American Extra and Advanced bands, so this should be a treat for those of you who hold only a General Class. He does get into the Advanced bands too.

Mali (TZ0)

Josef; I5YZB, has been in Mali signing TZ0RD on 40 and 20 meters. His operation was to have been concluded on August 9.

Oman (A4)

QRZ DX reports that the Royal Omani Amateur Radio Society had a special event station signing A4XOS in August to celebrate the 17th Arabic Scouts Camp, located at Salalah. An award is available to any Amateur who worked this station on at least two bands or modes. Include a certified log extract with a fee of 10 IRCs and mail to: The Awards Manager, ROARS, P.O. Box 981, Muscat, SULTANATE of OMAN.

There was a questionable call, A4XKB, reported on 20 meters near 14.185 MHz at 0330 UTC around the 25th of July. Also, JR1CHX is reported to be active with the call A4XZM. He may be the first Japanese to be issued an A4 call.

Heard Island (VK0)

Via QRZ DX, Jim Smith, VK9NS, claims that the Australian government plans to begin making monthly trips to Heard Island next January. He hopes to be able to go along on one of the trips and activate the island once again.

Kiribati (T3)

This Pacific island nation gained independence a few years back from the British island groups Gilbert and Ocean Islands, British Phoenix Islands and the Line Islands, and for DXCC purposes there was no change in status as they were redesignated West Kiribati, Central Kiribati and East Kiribati. Thus, for DXCC countries one can get a maximum

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of three out of this new nation; for the W-100-N it will count only as one.

West Kiribati is represented by T30AC, who opens up on Saturdays on 14.025 MHz at 0001 UTC according to *The Long Island DX Bulletin*. Willy later joins a net on 14.309 MHz around 0230 UTC. Also on this frequency, T30BE and T30BY have made their appearance.

Over at East Kiribati, T32AU has been reported around 14.172 MHz from 0115 UTC with T32AN higher on the band at 14.217 MHz at 1945 UTC.

Nothing has been reported from Central Kiribati at this time (T31).

Fernando de Noronha (PY0F)

Ron Leite, PY1BVY, was active from this one during July, mostly on 20 meters CW, signing PY0FE.

Tadzhik (UJ)

A few stations have been reported as active from Tadzhik, one of the 15 republics that make up the Soviet Union. All were reported on 20 meters.

On SSB, UJ8XC and UJ9XWB were reported working the Midwest on 14.210 MHz around 0130 UTC, with UJ8XD on 14.203 MHz at 0245 UTC. A station in Alaska reported UJ8JB on 14.194 MHz at 1830 UTC.

On CW, only one station was reported,



South Seas island paradise? Not really! This is one of the views at Clipperton Island taken during the 1985 DXpedition to fire up FO0XX to hand out many a new one to the deservng DX fraternity. (Photo courtesy of Franz Langner, DJ9ZB)

that being UJ8BQ on 14.026 MHz around 0200 UTC.

Papua New Guinea (P29)

Twenty meters SSB is the most popular place to find this one. Near 14.202 MHz, P29RB has been worked on the East Coast after 1300 UTC. On 14.244 MHz at 0545 UTC, P29DP has been worked; he later appeared on 14.216 MHz at 1100 UTC.

Svalbard (JW)

Several calls have reported from this

Norwegian Arctic territory. On CW, JW0A — who is on often — has been found on 14.014 MHz after 0200 UTC, with JW1CCA worked on 14.028 MHz at 0430 UTC.

Up on SSB, JW6WDA has been found between 14.160 and 14.197 MHz any time between 1845 and 2245 UTC, while JW2FFA has been sighted around 1700 UTC on 14.205 MHz.

Very active is JW8FG, who is on after 0300 UTC and as late as 0830 UTC between 14.186 and 14.217 MHz. And on Bear Island, JW7FD is busy from 1200 UTC. Look for him between 14.170 and 14.268 MHz; he expects to be on the island until December 1.

IOTA

The interest in the IOTA program (Islands-on-the-Air) seems to be gaining. Nets have been established such as on 7.095 MHz at 0700 UTC and 14.260 MHz at 1300 UTC, and no doubt there (please turn to page 34)

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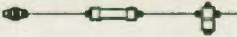
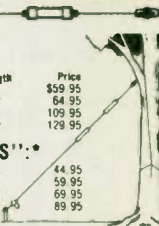


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D-56	10/15/20/40/80	6	82'	109.95
D-66	10/15/20/40/80/160	6	163'	129.95

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VS-52	10/15/20/40/80	2	49'	59.95
VS-53	10/15/20/40/80	3	42'	69.95
VS-64	10/15/20/40/80/160	4	73'	89.95

* Can be used without radials
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D-40	40	66'	22.95	
D-80	80/75	130'	25.95	
D-160	160	260'	34.95	


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

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Type	Length	With antenna purchase	Separately	
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RG-58	90'	12.00	16.95	

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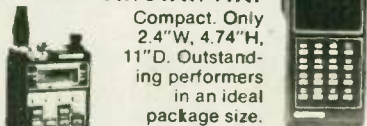
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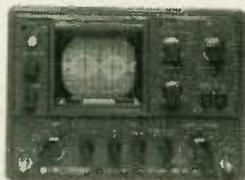
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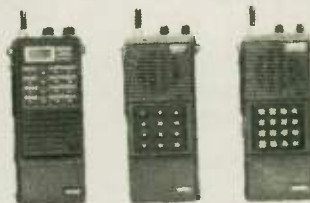
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DX World

(continued from page 31)

will be additional nets to favour other parts of the world rather than just Europe.

- AF-19 Lampedusa Island
- AS-29 Stolbovoy Island
- EU-03 Pico Island
- EU-06 Aran Island
- EU-16 Brac Island
- EU-20 Gotland Island
- EU-27 Bear Island
- EU-28 Isle of Elba
- EU-32 Oleron Island
- EU-34 Kihnu Island
- EU-46 Vannoy Island
- EU-52 Zante Island
- EU-54 Favignani Island
- EU-64 Noirmouter Island
- EU-70 Porquerolles Island
- EU-89 Flores Island
- EU-95 Pomegues Island
- EU-97 Kuorsalo Island
- EU103 Saltee Island
- EU104 Sanguinaires Island
- EU105 Batz Island
- NA-09 Cornwallis Island
- NA-55 Mount Desert Island
- NA-57 Uitila Island
- OC-29 Majuro Island
- OC-50 Tubuai Island
- OC-83 Mauke Island
- SA-12 Margarita Island

VR6NP and VR6HIJL were recently active from Henderson Island and an IOTA reference number is expected to

Clubs

The Northern Illinois DX Association recently elected their new officers for the year with Steve Lamb, W9NUF, as president. In addition, Frank Gassmere, K9BWQ, Bob Farkaly, K9RHY, and Larry Greenberg, WA9MAG, have been elected vice president, secretary and treasurer, respectively.

Out west, the Northern California DX Club elected their new leaders for the coming season. This includes Lou Beaudet, K6TMB, as president; Ted Agren, KA6W, as vice president; Ron Pantan, W6VG, as secretary; and "Knock" Knochenhauer, K6ITL, as treasurer. Hal Godfrey, N6AN, and Bill Fontes, W6TEX, have also been elected to serve as directors.

Heard It But Don't Believe It Dept.

The following item appeared in the

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The following is a list of islands that count toward the program and come from *DX News Sheet*, published by RSGB (sponsor of the awards program). Frequencies and time are in MHz and UTC.

I4ALU/IG9	DXpedition	
UZ0QXG	14.070	1530
CU6ARA	DXpedition	
EJ2VLP/p	28.498	1915
YU2GF/p	14.026	2315
SM1ALH	14.031	0730
JW8FG	14.196	0900
IK4GNH/IA5	DXpedition	
F6AUS/p	14.187	1630
UR1RWH	Active	
LA5QFA	New station	
SV8ZS	14.140	1845
I4ALU/IF9	14.270	1300
F6HMV/p	7.096	0745
F5TV/p	7.090	1115
CU8ARA	14.193	2100
FF6KED/POM	Active	
OH5TS	14.170	1930
EJ5EP	14.020	1930
TK0KP/SAN	Active	
	DXpedition	
VE8GD	14.013	2300
W1QBF/p	14.045	2145
HR2HH/HR6	14.230	2345
KX6ND	DXpedition	
FO8JR	14.025	
ZK1XP	14.023	0630
YV7QP	7.006	2315

be assigned to that island. For DXCC purposes, Henderson Island counts the same as Pitcairn Island.

newsletter of the Northern Arizona DX Association.

"Heard a TA calling a quick CQ... and a W8 told him the frequency was in use, old man! The W8 was in QSO with a W5 in Dallas. Guess he was well within his rights, but bet he isn't a DX chaser!"



Here stands one-half of the Amateur Radio population of the Republic of Cape Verde. Julio Vera-Cruz, D44BC (ex-CR4BC), took time out for his picture at the annual International DX Convention in Visalia last April. The other half of the population is Angelo Mendes, D44BS, who is on an extended visit in the United States. So, you might say that Julio is the Amateur population for this one. (Photo by N6JM)

Antique QSL Department

The following QSL cards are from the collection of Ashod Hovse, W6EBM. They go back a few years, as the case of the one from 2AW of New Zealand. Roy Clarke was the operator of this station, who Ashod worked on April 7, 1928. Ashod was signing with the old unofficial prefix in those days - NU6EBM. The QSL card was mailed from New Zealand on July 16, 1928. We do not know the whereabouts of Roy, who began operations in 1924, as the present ZL2AW call is not assigned to him.

A few years later, Ashod worked F8FR of Mulhouse, France. The contact (please turn to page 36)

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ANT FACTS

With this issue we are starting a regular column of hints on assembling, installing and using your ham antennas. We hope that you will find "ANTFACTS" informative and enjoyable.

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DX World

(continued from page 34)

85 Apu Crescent Lyall Bay Wellington
NEW ZEALAND
 Radio NUB6EBM
 QSL O
2AW
 RECEIVER
 TRANSMITTER
 2AW COMMENCED JANUARY 1924
 REMARKS: Sure glad to work on a guy I was told not to.
 73 Fm. ROY CLARKE

18, RUE REICHENSTEIN
 MULHOUSE, FRANCE
 RADIO W6EBM
F8FR
 REMARKS: W 413 TO 950.0M
 HFS TO CUARD.

AU RADIO W6EBM
 Vos sigs graphes wkd ici le 17 June 1983 20 TMG
 QRK R7 QSB 84QRH 0 QRM QRN QSS
 > Miller
 Meany
 120 w
f8PZ
 Observations: 400 for 410 was sigs 4.8
 PSE QSL direct via REF. B.P. 11, Boulogne-Billancourt (5e arr.)
 QRA: C. ROUYER, 52, Rue Saint Laurent,
 PONT-A-MOUSSON (M. & M) - France

QSL information

Dick Tesar, WA4WIP, questions our route for KW0A that was listed in the July column. Dick is glad he doesn't need KW0A as this call is listed as having a Polish QSL Manager. This was a typographical error, Dick. The station should have been JW0A, not KW0A. The rest of the information is correct. And no, it is not a Polish joke!

QSL routes

A71AU	-DJ9ZB	T42HS	-CO2HS
AH9AC	-W1JSD	T47AM	-CO7AM
BV2DA	-DL7FT	TE4T	-T14BGA
C30AAU	-F5HX	TT8AQ	-F6GXB
C30BBP	-PA3BMJ	TV6JUN	-F5AM
C30BBV	-DK7WD	UJ8JB/UC	-UJ8JB
C30DAJ	-ON4TJ	UM8MWA/UBQ	-UM8MY
CN8EA	-N4DRC	UV100	-UA9LBR
DJ1MEL	-KC9DX	UZ2FWA	-KA6V
EJ2AB	-ON5KL	V2ACW	-WB4OSN
EJ2EP	-ON5KL	VE2GTQ	-W9OAM
FM5WD	-W3HNK	VP2MU	-W2BIE
FM5WU	-F6FNU		
FQ8MIR	-N5RM	VP9B0	(see Note 1)
FQ8ASJ	-N5DD	VQ9ZZ	-N1AFC
FQ8MIR	-N5RM	VR6HJL	-N4GNR
GB0SWR/MM	-G4AAL	VS6DT	-G4AAL
HA5KDB	-HA7SU	W2JGR/VP2M	-VS6ER
HA5KDK	-HA7SU	Y86GST	-W2BIE
HA5KDX	-HA7SU	Y8BJY	-Y23KE
:HB0DJ1WA	-DJ0LC	Y27AA	-NF5J
HG3CWC	-HA3RB	ZK1KK	-YUTMAB
HG5A	-HA7SU	ZK1XV	-WB2CVL
HG40A	-HA7SU	ZP5JCY	-VK2BCH
HL9CW	-WA2UUH	3D6AN	-LU8DPM
HZ1HZ	-N7RO	4A1HC/2	-WK4Y
J28EM	-F8RV	4N2AA	-See Note 2
JY9CL	-G3MUL	4N0IARU	-YU2ADE
JY9RL	-WA6POZ	4U1ITU	-YU4FRS
K1BAZ/DV1	-K1BAZ	4S7RO	-See Note 3
K2MFY/VP2M	-K2MFY	4X5J	-DJ92B
K2OVS/VP2M	-K2OVS	5B4MF	-4X6TT
K4YT/DU1	-KE3A	5N9GM	-IK8DYD
KC4AAC	-W6MAB	5W1FR	-18XIU
KD2SX/	-KD2SX	5Z4E	-WB5VZL
VP2M	-WB2RNT	7J1ACH	-JH6FMU
KP2AH	-WA2YMX	7J3AAB	-NG7X
LG6IG	-LA2ZN	7J3AAD	-JM3LYS
LY4L	-UA3LM	8Q7MA	-NF5V
N7ET/DU7	-N7ET	9L1JW	-OH2BH
OH0MA	-OH0NA	9M2FK	-DJ0GN
P29SN	-ZL2BOF	9Q5HT	-YU1HA
R2PZ	-UR1BZZ		-ON5HT

W6EBM, NE8Z, W9LNQ, KL7UR and DJ9ZB. In addition to the above Amateurs, the following groups have also contributed: Carolina DX Association (W4WMQ), Kansas City DX Club (AB0X), DX Incorporated (WA9BXB), Montgomery ARC, (W3CKU), Northern Arizona DX Association (KD7XO), Northern Illinois DX Association (W9NUF), Western Washington DX Club (K7ZR), Southern California DX Club (NK6A), Northern California DX Club (WA6O), Alaska DX Association (KL7Y) and the Vienna International ARC (OE3ZOC).

Most importantly, we would like to credit the following DX news bulletins: *QRZ DX* (W5KNE), *DX News Sheet* (G4DXO), *The Long Island DX Bulletin* (WZ1YX), *Long Skip* (VE3IPR) and *The DX Bulletin* (VP2ML). 73 de John N6JM.

Propagation

Maximum Usable Frequency from Burbank, CA (courtesy of W6LS)

The numbers listed in each column are the Maximum Usable Frequency (in megahertz) for contacting five major areas of the world (Nairobi, Tokyo, Melbourne, Frankfurt, Rio de Janeiro) for low fire angle antennas.

You can get a free complete set of these predictions for low angle antennas, Maximum Usable Frequency (MUF) and Frequency of Optimum Transmission (FOT). Requests should be sent to Bill Welsh, W6LS, 2814 Empire, Burbank, CA 91504. Each request should be accompanied by an SASE (54¢) envelope at least 9" x 11 1/2".

NOVEMBER 1986

UTC	AFR1	ASIA	OCEA	EURO	SO AM
0100	13.1	18.3	24.6	9.2	13.7
0200	10.7	14.1	19.0	9.0	11.7
0300	9.3	11.6	14.2	8.6	11.3
0400	9.1	11.1	11.7	6.8	11.8
0500	9.6	11.2	11.0	6.0	12.6
0600	10.2	11.1	11.1	7.3	13.4
0700	10.4	11.0	11.4	10.2	14.4
0800	10.3	11.5	11.4	10.8	13.3
0900	10.1	10.0	11.2	11.0	14.0
1000	9.6	10.4	11.8	10.8	13.8
1100	9.2	11.5	12.9	10.2	11.5
1200	9.6	11.3	12.8	10.2	11.1
1300	11.5	10.5	11.4	10.9	14.0
1400	14.4	10.0	11.4	13.5	18.7
1500	17.1	12.2	15.2	17.0	22.7
1600	19.1	13.1	15.3	15.3	24.5
1700	20.5	12.3	13.7	13.0	24.9
1800	21.9	11.6	14.1	11.2	24.9
1900	22.9	12.6	16.5	10.2	25.2
2000	23.4	14.7	19.4	9.4	25.6
2100	23.0	18.0	21.1	8.6	25.7
2200	21.5	21.5	21.7	8.9	24.5
2300	19.1	23.0	22.5	9.3	21.6
2400	16.1	22.6	24.0	9.2	17.4

was made on 20 meters and most likely it was a phone contact on June 5, 1931. The card had red call letters and a blue border with gray printing.

Two weeks later, F8PZ at Pont-a-Mousson was also worked on the same band. This was a blue card with blue printing - the stock of lighter blue, of course. Neither of the above two French Amateurs now hold these calls.

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Notes

- This route applies for the period of July 10 through 15, 1986, only.
- Contacts made with 4A1HC/2 during the period May 23 through 25, 1986, should be confirmed by AA5B only - not XE1HC.
- Contacts made with 4U1TU On April 25, 1986, go to 11BPU; contacts made on June 23, 1986, go to DL4NAC.

The following Amateurs contributed to this month's column: W1APU, K1CLN, K2MFY, WA4WIP, K6ARE,

Let Worldradio know what you do in Amateur Radio; many others will be interested in your experiences.

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

Profile of 10-10's president

Born in California in 1910, 10-10's president, Howard Bowman, W6QIR, 10-10 #4509, joined 10-10 in 1972. Almost all of Howard's working career was spent with the Los Angeles city schools, where for the last 16 years prior to his retirement in 1972, he was Director of Measurements and Evaluation. Since his retirement, Howard has spent most of his free time actively supporting 10-10 activities.

He first began serving 10-10 as the Roster Manager in 1977 through 1980 after which he was elected president, and served in this capacity in 1980, 1981 and 1982. He then served on the Board of Directors in 1983 and 1984. He again was elected president in 1985. Officers of 10-10 now serve two-year terms.

With 10-10 business taking from eight to 10 hours a week, operating the radio suffers to some degree, but he still checks into the local chapter nets and the daily 10-10 Net (1800Z daily except Sunday) on a regular basis in addition to conducting the 10-10 Business Meeting Net on Thursday evenings. Howard says this all adds up to about 10 hours a week in operating time — mostly on 10 meters, his favorite band.

The station at W6QIR consists of a Kenwood TS-940S, a 3-element mono-bander and a vertical on 10 along with 40- and 80-meter dipoles. In addition to 10-10 business and on-the-air time, Howard still finds time to spend building equipment and gadgetry for the ham shack. Howard was first licensed in 1938.

As far as Howard's 10-10 on-the-air activity is concerned, he has received his 3500 bar, 10-10 Worked All States Award and 10-10 Worked All Continents Award. He also holds ARRL's WAS with 10-meter SSB endorsement and IARU's Worked All Continents Award with 10-meter SSB endorsement. Howard can usually be found in the 10-10 contests giving out his 4509 10-10 number when he and XYL Edith are at home and not traveling. During their recent trip "down under" to Australia and New Zealand, they visited with a num-



Howard Bowman, W6QIR, 10-10 #4509, president of 10-10 International Net, Inc.

ber of our "down under" 10-10 members.

It is people like Howard, and all the other volunteers, who dedicate so much of their free time that makes 10-10 the great organization that it is. Without them, there would be no 10-10 organization.

CATT 3rd Annual 10-10 QSO Party

The Cincinnati Area Ten Tuners will sponsor their 3rd Annual 10-10 QSO Party beginning at 0000Z October 18 through 2400Z October 19. The party is open to all Amateurs, but only 10-10 members are eligible for awards. A great way for non-members to use 10-10 numbers collected to qualify for membership (only 10 contacts with 10-10 members required) or for 10-10 members to add

numbers to their lists for bars and other awards.

As this party (notice the CATT does not call it a contest) is "just for fun," simple rules apply. Contacts must be made between 28.3 MHz and 29.4 MHz; include exchange; call sign, name, QTH, 10-10 number and CATT (if any). SSB, AM and FM modes are acceptable. Logs must be in UTC (Zulu Time) and dupe sheets are *not* required. One point for contact without 10-10 number, 2 points for contact with 10-10 member and 3 points for contact with CATT number and 10-10 number.

First place certificates to all U.S. call areas, KL, KH, all VE Districts, South America, Central America, Caribbean (including Bermuda), Europe, Africa, Asia, Australia, New Zealand and the South Pacific. Logs must be post-marked no later than November 22, 1986 and mailed to David Ertel, KJ8V, 605 Crestview Drive, Lebanon, OH 45036.

If you want additional information, a business-size SASE to me at the address below will get you the complete information on this fun party. Let's hope for some good openings for the CATT Party weekend.

The 1986 Closed Contest

Each year, 10-10 sponsors a Closed Contest just for 10-10 members. Here is a chance for you to meet the officers, Regional Call Area Managers, and all other appointed "Net Officials." On Saturday, October 4, 1986, from 0001Z to 2359Z you try to contact as many officers and members as you can. All contacts must take place between 28.3 MHz and 26.8

CaGen Software
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Carey — W4HIR
Gene — N4BRA

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 callsign. 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 callsign 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

PLEASE INCLUDE YOUR CALL SIGN WITH ALL ORDERS. VA residents add 4% sales tax. No postage & handling charges to U.S. & Canada (overseas — \$4.00 for Airmail). Ham clubs — 10% discount on orders of 5 or more programs (mix or match). For more detailed information regarding our programs, please send SASE.

MHz and between 28.8 MHz and 29.0 MHz.

Scoring: Net Officers are worth 5 points each, other Net Officials are worth 4 points each, Chapter Heads are worth 3 points each, Certificate Managers are worth 2 points each and members at large are worth 1 point each.

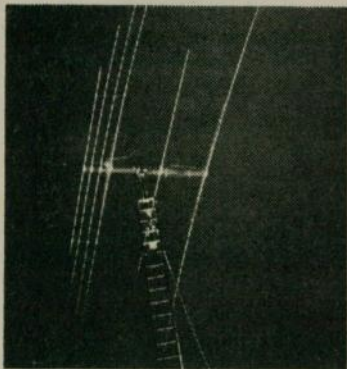
Log: Date, time, name, QTH, 10-10

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number, position held — if any. Submit logs with your tally sheet by November 11, 1986 to: Chapter Coordinator, Connie Hauck, K6EXQ, 794 W. 23rd Street, Upland, CA 91786. The tally sheet should include your total number of contacts and claimed score.

Awards: Certificates to the highest scoring official and non-official in each U.S. and Canadian call district and each DX country.

This contest is meant to be short and fun and give everyone an opportunity to meet the various officials of the 10-10 International Net. Remember, only contacts with other 10-10 members count in this contest. Let's have a great turnout for this once-a-year event.

Feedback

Another month of many requests for 10-10 information from prospective members, Bill Grim, W0MFK, writes that reading about 10-10 in a sample copy of *Worldradio* got his "juices going again." He wanted to renew his dues for his 10-10 #1970, but he could not remember who to send his dues to. If you have this problem, drop me a QSL card with a #10 SASE and I will forward the necessary info. If you have changed your call, be sure to list all of your old calls, so the computer can search out your number if it was issued under a previous call sign. My address is 18130 Bromley Street, Tarzana, CA 91356-1701.

John Hanes, KD9UN, writes to tell me that after receiving his application,

he made his 10-10 contacts and sent off for his 10-10 number, but he forgot to tell me his number. Welcome, John, to 10-10. Other applications went to Angel, N6MUA; George Mansfield, W0EDN; Coy Weaver, WA4GMX; Newell Jones, KD0IK; Ralph Martin, W5SOL; Swan Norborg, W0VGR; Neil Rasmussen, KB0QS; and Bill Umberger, K4CKV, of Lexington, Kentucky, writes to say he "just discovered 10 meters (been a ham 31 years). Seems everyone has a 10-10 number but me."

Well, Bill, not everyone has a 10-10 number as you found out, but hope you have yours by the time you read this. Of the many, many applications I have sent out in the past year and a half of writing this column, very few of you have dropped me a QSL to let me know if you ever got your number. How about it?

Briefly

If you are interested in a packet of information of 10-10 and an application, drop me an SASE (#10 size) to the address above. Also available for 56¢ in postage stamps is a sample copy of the latest issue of the 10-10 quarterly 32-page *10-10 International News*, the official publication of 10-10.

If you are a current 10-10 member, check your dues renewal date. Keep your dues current. Annual dues of \$4 per year (U.S., \$5 foreign) is the best buy in town! Your dues keeps 10-10 current, and remember — band conditions are getting better. Best 73 es cu next month. □

OSCAR-10 is revived

Vern Riportella, WA2LQQ
Bill Pasternak, WA6ITF

The AMSAT/OSCAR-10 satellite has returned from the brink of oblivion. A two-month effort to save the ailing satellite culminated on July 15 when the transponder was returned to service.

Hope was dimming that anything could be salvaged, but in one of the most dramatic turnarounds in the history of the Amateur Radio space program, command engineers were able to ascertain which areas of the spacecraft's house-keeping computer memory had been damaged and then rewrote software to work around the affected areas.

The on-board computer's memory had been damaged by the cumulative effects of three years in orbit, which include twice daily passage through the Van Allen radiation belt. The extraordinary work by engineers in West Germany, New Zealand, the United States and elsewhere means that more productive use can yet be made of OSCAR-10. It also means that AMSAT special experi-

ments — including Project Link-up and Gateway operations — will be back on line shortly.

Everyone involved in Amateur Radio unmanned space operations is well aware that this recovery success is nothing but a stop-gap measure. More debilitating damage to the computer system on OSCAR-10 is inevitable. What is hoped is that AMSAT will be able to stretch OSCAR-10's life until next year when a replacement satellite is scheduled to be launched. That satellite, now being developed, is known as Phase 3C.

— *Westlink Report* □

ARRL job opening

HQ is looking to fill a vacancy in the Assistant DXCC Manager position. Applicants must have a General Class (or higher) Amateur license and a high degree of accuracy and neatness in record keeping. Interest in DXing and DX call signs helpful.

Duties include processing DXCC applications, handling routine correspondence and telephone inquiries. Salary range \$11,622-\$15,652. Contact Don Search, W3AZD, at HQ for further information. □

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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



Yaesu FT-980



Alinco
ALM-203T



Alinco
ALR-206T



Yaesu FT-757GX



ICOM-751

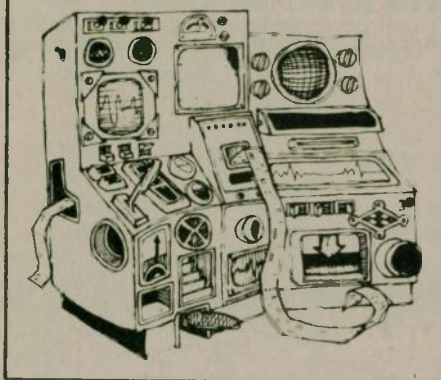


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Computers and Hams

Julian Macassey,
N6ARE



Picking a computer

The question most commonly asked by someone getting interested in computers is: "What computer should I buy?" This is about as difficult to answer as: "What sort of woman should I marry?" The only answer for this question is another question. What do you want to do? You have to decide what capabilities you require and pick the woman or machine that has the capabilities. Joan Collins may be fun at a cocktail party but is hardly likely to take kindly to milking the cows at the crack of dawn.

Three things make a good computer. The central processing unit, the operating system and the software. This most of us can agree with. No one can agree about what makes a good woman so we will leave it alone. In order for a computer to do what you want to do, it has to have the above three attributes. If one is missing it is useless.

The important thing to a user is the software. Most of us consider a computer to be a box that does stuff. Buying the latest whizz-bang machine intending to do the office accounts to later find that there is no decent accounting software is the road to unemployment.

So what do you want to do with a computer? There is now a good list of strange things to do with a computer besides payroll and mailing lists. For most of you, the interests would be as follows: ham programs, drafting and graphics, word processing (typing using a computer), RTTY and packet, accounting and business. Of course, price is a consideration. But these days a very powerful computer can cost less than an IBM Selectric typewriter. Some computers cost much less than an HF transceiver.

Most of the time, it is cheaper to buy a new computer than a used one. The reason for this is quite hilarious. Someone buys a new computer, tries it for a couple of hours and puts it in the closet with the ski gear. A couple of years

later, being short of cash or closet space, it is time to sell. So here we have a "nearly new" computer that cost \$1,000. Why not sell it for \$750? So into the small ads goes an ad selling a used computer for \$250 more than you can now buy a new one. Yes, in two years or less, the price of that computer has halved. Some sellers of used computers understand what they are really worth.

Before you rush out to buy a used machine, check the price of a new one. Also check that the model being sold is not an earlier model with less memory or features than the current model. If it is a lesser machine than the current standard model, the price should reflect it.

Ham programs probably have the most interest to readers of this magazine. Cost is probably also a factor. By coincidence, the cheapest computer has the most ham software. The computer is the Commodore C-64. The C-64 is not the greatest machine in the world or the easiest to use. But don't laugh at it. You would have to steal a computer to get a better deal.

The British telescope in Australia that cost \$15 million is controlled by a C-64. Many machine shops here in the United States are using C-64 computers to control machinery worth hundreds of thousands of dollars. If it can run million dollar equipment, it should be quali-

fied to work in the shack.

A new C-64 should cost below \$150 and a used one in good condition should cost below \$100. There is a new version of the C-64 out. The new version of the C-64 will cost more. There is also the Commodore C-128 which is an upgrade of the C-64. It will run C-64 software plus many other programs, including CP/M. A C-128 should cost less than \$300. As a display unit, the family TV can be used.

For ease of operation, at least one disk drive is needed. Disk drives cost about \$150 each. With a bit of careful shopping, a real computer can be yours for less than the price of a new color TV.

For business use, accounts, writing, mailing lists, etc., the machine of choice at the moment is an MS DOS machine such as the IBM PC or its clones. Also, one of the many CP/M machines still around such as the Kaypro are excellent value for money. With careful shopping, a first class system can be put together for under \$1,000. These machines handle text and numbers and have tons of software available. The big plus with CP/M and MS DOS machines is that the monitor, also called the VDU (Video Display Unit), is 80 columns wide. This means the screen will hold text or numbers 80 characters wide. Helpful for doing accounts and essential for writing text. Most text written on a standard sheet of paper is 64 characters wide.

A short digression on printers. The most useful accessory for a computer is a printer. To look at a program listing, a printer is essential. To get a copy of an interesting document, you need a printer. If you have something great on the screen, it is easier to make a "hard" copy than tell people to gather round the screen. Forget the "paperless" office. Anything worth having on a computer screen, is worth more on a piece of paper. Printers can be found for around \$100. Some of the cheap portable typewriters sold today between \$100 and \$200 have an RS-232 port so they can be used as a computer printer.

Some people swear by the Apple II machines. It is perhaps one of the most widely used machines. With the addition of a plug-in cord, it can become a CP/M machine and run most of the CP/M software available in that mode. There are tons of accessories for the Apple II series and thousands of programs. Apple owners tend to become fanatics. Watch for that manic gleam in the eye when talking to an Apple owner.

For the complete neophyte or someone who is interested in the graphic capabilities of a computer, the machine to get is the Apple Macintosh. This machine can be used by anyone. People who have never used a computer find the Macintosh a pleasure to use. It is like no other computer available.

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T.L. Jones, KB8OA
Author



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I guess the column for this month is what you might term "tidbits of information." John Larson, president of the Anoka County Radio Club, has graciously written a response to how the club felt about the Field Day experience. He refers to last month's column in which I spoke of the club's effort on behalf of Field Day. Also, here are a few short thoughts to tantalize the think-tanks of readers with useless but great information.

I have just read a proof copy of Maureen's column on Field Day. I would like to extend my thanks to Maureen for helping us out this year at Field Day. Our game plan was to spend a good deal more time on CW, and she is an excellent operator. We had the biggest turn-out ever, and in fact had people waiting in line to operate at 3:00 in the morning!

As Maureen points out in her column, the

Computers and Hams

(continued from page 40)

available for the Macintosh. If you are interested in technical drawings, artwork and fancy typesetting, as well as text and math, then the Macintosh requires careful consideration. It doesn't look like a real computer; it doesn't work like a regular computer. This is a different and exciting machine to use. A complete neophyte can do something useful on a MAC in minutes.

The Commodore Amiga and Atari ST are similar to the Macintosh in many respects. At the moment, their main problem is lack of software. They have some moronic games and not much else. The Amiga has some awe-inspiring demo discs showing what the graphics and sound can do. If the software people would get some decent software out, I could highly recommend these machines.

So what is the computer of choice? Despite all the information given above, there is one major deciding factor. If you

main purpose of Field Day is the emergency communications exercise. The Anoka County Radio Club and Emergency Services, Inc. has by policy always encouraged anyone with an interest in Amateur Radio to become a member. We are indeed fortunate to have in our membership, Keith Graham, KØHJC, the manager of HANDI-HAMS.

Keith, through his interest in HANDI-HAMS, has done a great deal toward bringing handicapped Amateur Radio operators into the club. Though the club has not made a special effort to be accessible to the handicapped, we are fortunate to have a meeting facility that is very accessible. We have and we do make a special effort to see that everyone who happens by is made to feel a part of the organization. When we go to Field Day we are all handicapped to a degree and, unfortunately, the previously handicapped feel the additional inconvenience even more. The men and women, handicapped and able, that participated in this year's Field Day are to be commended for their teamwork and tenacity to reach a common goal: a better score than last year. I will continue to encourage membership in our club from all avenues of life, and I'm looking forward to an even bigger and better Field Day next year. 73's.

John Larson, K6DMO, President
Anoka County Radio Club and Emergency Services, Inc.

Can TVI be beneficial? I would usually say no, but recently I inquired of a new HANDI-HAM student how he got involved in Amateur Radio. This was his reply: "I had these sounds and noises interfering with my TV set and telephone. I just figured it was the police or the gas company — you know, they do that once in a while.

"I was talking to a friend and mentioned it and he said, well, maybe it is a ham. I asked what's a ham? He said, I

are going to get your first computer, get the same one that a friend has. He will have had all the problems you are going to have and will know the answers. In your area there will be "User Group," which is a club of owners of your computer. There will have know-how and access to every possible piece of hardware and software. Join the group; you will get your money's worth at the first meeting.

This is not a review of the only machines available, or the only machines worth having. It is a personal opinion based on personal experience. Computers are like radios. There is no best radio for every need. Price, features, size, ease of use and personal bias all play a part.

Learning how to get the best from any computer will take about 1,000 hours — a long time if you intend to do it in one sitting. This is one year at 10 hours per week. Probably less time than you spent studying for a ham license. Just getting to the point where the computer will play to your requirements will probably take 10 hours, two evenings. □

think it's like CB but fancier. I looked around the neighborhood and found out who the ham was and sure enough, he was causing the problem. But it didn't matter. He brought this little hand-held radio over and good grief, you could get all over the country with that thing. I was really impressed. Anyway, that's how I heard of ham radio and I can hardly wait until I have my ticket."

And lastly, we all live with abbreviations. There is CW (continuous wave), RTTY (radioteletype), SSB (single sideband), and so many others. It has become common practice for different groups to become known by their abbreviations such as NAACP, NFL, FCC and so on.

One day we were having a discussion about some of the many organizational names for groups serving various handicapped populations. There is, for example, UCP (United Cerebral Palsy), NFB (National Federation of the Blind), ACB (American Council of the Blind), and a new non-official group coined by KØHJC — The Society for the Preservation of Able-bodied Mentors (SPAM). This so-called organization was founded by KØHJC after the damaged bypass capacitor in my power supply zapped him while he was fixing the rig. □

Operating tips

Ken Archbold, W6TMA

In many DX countries, the ham doesn't have his or her own gear, but has access to club stations. Usually when working from such, the ham will use the expression "OP" instead of "NAME" when giving the ham's last name. This is prevalent in SFSR, for example. Some U.S. hams tend to use "OP" rather than "NAME" even though they are operating their own station. There is no rule on this and it may be insignificant, but nonetheless exists: i.e., the DX station assumes you're at a club station.

— Gabilan ARC, CA □

START COPYING CW THE EASY WAY!

- Start copying words instead of letters!••
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- Gain on-the-air confidence quickly!••

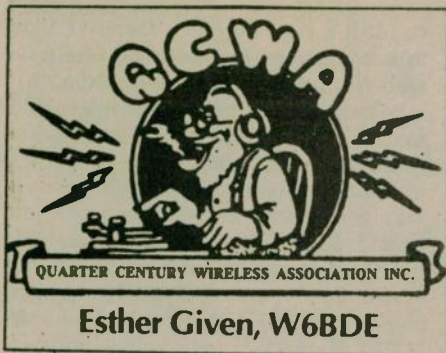
THE QSO-TRAINER™ Code Course - For the ham who already knows the code. If you have been a ham for a while, tried the "traditional" random-letter approach to code practice, and still don't have the on-the-air confidence you'd like — this course may be exactly what you need.

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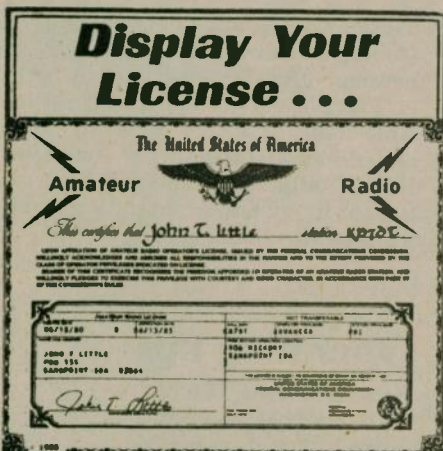
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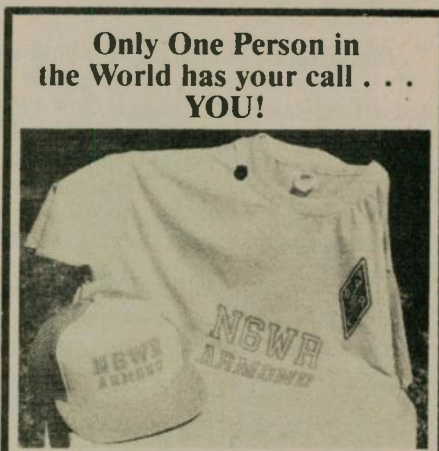
John T. Little - KB7DT
P.O. Box 151
Sandpoint, Idaho 83864

prospective members.

When one has been a ham for 25 or more years, there is bound to be a feeling of devotion to the Amateur Radio Service and its many benefits or the individual would not have remained in its ranks.

QCWA's major reason for existence is to unite those who have made the many facets of Amateur Radio a big part of their lives. Folks who have communicated across the airways a quarter century and shared the same kinds of experiences and interests take pride in their accomplishments because they gave of themselves. Their reward is the satisfaction of being heralded as contributors to and participants in their chosen hobby for a lifetime of enjoyment.

QCWA offers many benefits including opportunities to communicate through QCWA — sponsored events, net contacts and chapter activities where everyone enjoys a chance to share expertise and treasured experiences. Important to all is being part of an organization



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whose input from its membership is recognized as a powerful force in the Amateur Radio community and its governing agency.

Membership application forms are available from QCWA Headquarters, 1409 Cooper Drive, Irving, TX 75061 or the secretary of a local QCWA chapter.

QCWA election returns were released August 1st for five directors chosen by the membership from a field of 10 candidates. Four incumbents were reelected: Wade Holland, W4AZT; Esther Given, W6BDE; Hugh Winter, W5HD; and Lew McCoy, W1ICP. New director on the Board is Fred Hammond, VE3HC.

The Board is made up of the association's four officers and 10 directors at large. Election of four officers and five directors is held in uneven-numbered years, while the balance of five directors are selected in even-numbered years. The term of office runs for two years, commencing on September 1st following election.

Logs of the participants in QCWA's Spring QSO Party have been processed and the results published. In the CW portion held February 8-9, 1986, 158 logs were submitted representing 71 QCWA chapters and 16 participants who are not chapter members. Top U.S. honors were attained by Don McClenon, N4IN; Gerard Bouvier, K1IU; Leland Smith, W4YE; Jim Rives, W5JC; and Arthur DeVinney, W2RRY. European winner was Hans Liebig, DL6NB. The phone sector on March 8-9 had 140 logs submitted with the top five U.S. winners being John Zwaska, W4WKQ; Don McClenon, N4IN; Herb Glead, W6FQ; Bill Branch, K9CLO; and George Apfel, W2GHV. European high scorer was Kurt Bindschedler, HB9MX.

Scores are based on use of two multipliers — one for number of QCWA members contacted and the second for each different QCWA chapter designated in the exchange of information. N4IN, CW winner, scored 29,240 with 344 QSOs working members of 85 different chapters. W4WKQ's phone score of 39,235 represented 413 QSOs with members of 95 chapters. Logs were processed by members of Twin State Chapter 146. □

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ALABAMA

Birmingham Amateur Radio Club, Inc. (BARC)
Meets at the American Red Cross Building
2225 3rd Ave. North in downtown Birmingham, Alabama
1st and 3rd Thursdays/monthly at 7:30 p.m.
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

CALIFORNIA

Amador County Amateur Radio Club
P.O. Box 1094, Pine Grove, CA 95665, Pioneer Elementary
School, Pioneer, CA • 1st Thurs/monthly 7:30 p.m.
WA6WYI Rptr. — 146.835, 146.235.
Net Tues. 7:30 p.m.

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

Contra Costa Communications Club WD6EZR
P.O. Box 661, San Pablo, CA 94806
Meets 2nd Sunday at 9:00 a.m.
Hickory Post Restaurant/Lucky Lanes
For info call Carl KA6OLK (415) 237-2621

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. W6TDR/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. W6UW
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 95804.
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- Tues. 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.

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

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-

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.

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

Sarasota Amateur Radio Ass'n, Inc.
Meets: 3rd Tues./monthly — 8 p.m. on the 6th floor (board
room) of the County Admin. Bldg. corner of 301 & Ringling
Blvd. Club Rptr. W4IE, freq. 146.91/31, open to all. Phone
patch *Up #Down. Welcome

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG
P.O. Box 911, Dover, NH 03820
(603) 742-0130
2nd Sunday/monthly — 7:00 p.m.
Dover Dist. Court. Talk-in 147.57

ILLINOIS

Boilingbrook 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 48706
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

KENTUCKY

Kentuckiana Radio Club
Bill Richmond, WD4CPQ, 637-8443
Louisville Red Cross Bldg.
Louisville, KY
Meets: 4th Saturday/monthly — 7:30 p.m.

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

Communications Club of New Rochelle, NY, Inc.
Harrison Street Firehouse
Bill McCarren, K2LV
(914) 738-0768
Meets: 1st Monday/monthly — 8 p.m.

Hall of Science Amateur Radio Club, Inc.
P.O. Box 141, Jamaica, NY 11415 — HOSARC — 2nd Tuesday/
monthly — Hall of Science Building, 47-01 111 St., Flushing
Meadow Park at 7:30 p.m. The tristates' only 3-band linked
rptr. system 144.300 S/223.600 — /445.225 —

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Meets 3rd Friday/monthly — 8:00 p.m.
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Club Repeater — KA2PBT/R — 440.825/445.825

Westchester Amateur Radio Assoc. (WARA)
Scarsdale Village Hall
Scarsdale, New York
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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)
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Concord, NC 28025
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Raleigh Amateur Radio Society, Inc. (RARS)
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Meets: 1st Wed./monthly, 7:30 p.m. • First Presb. Church
Club net daily, 8 p.m. on RARS 04/64, W4DW
Annual Hamfest, 2nd Sunday in April

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County Justice Center, Jefferson, OH
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County Repeater — 146.715

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Ervin Remaley, KA8CAS, Secretary
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Community Rm., City Building, Clyde, OH
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For information (804) 497-1235

WASHINGTON

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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

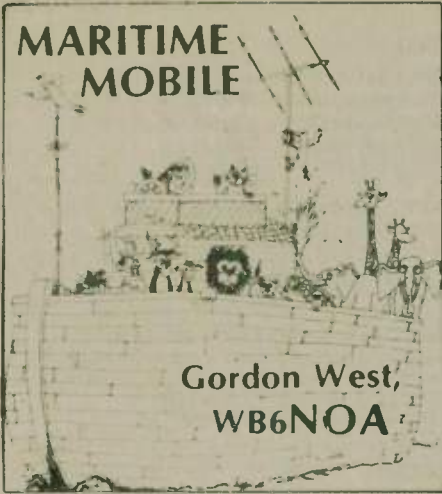
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Jackson County Amateur Radio Club, Inc.
D. Geneal Bailey, NK8P, Sec.-Treas.
113 Winters Dr., Ripley, WV 25271
First National Bank of Ripley
Meets: 1st Thursday/monthly - 7:30 p.m.

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

Mexican licenses and Novice voice privileges

Mariners with any type of Amateur Radio license may now receive General Class-type operating privileges when operating in Mexico with a Mexican call sign. There is also an imminent proposal that will soon become law that would allow Novice Class operators voice privileges on one HF band, and voice privileges on two VHF bands. It sounds too good to be true, but here's all the information.

Voice class privileges for Novice operators has been proposed by the ARRL. The FCC has assigned PR Docket No. 86-161 to this proposal. The comment period expired July 15, and we can expect the FCC to issue its decree that supports the proposal around November or December.

It is expected that Novice Class operators will receive data and digital operating privileges on the 10-meter band from 28.1 to 28.3 MHz. Single sideband voice privileges will be allowed from 28.3 to 28.5 MHz. The 10-meter band provides exciting skywave communications regularly during the summer months, and some very long distance communications in the fall. As the number of sunspots increase over an 11-year cycle, 10 meters will get even more exciting in the next five years.

This proposal would allow Novices to operate digital and voice communications with a regular transceiver with up to 200 watts output. This is an ideal power setting for maritime mobile operation.

The Novice proposal also covers voice privileges for Novices on the entire 220 MHz repeater band. 220 MHz has the same type of range as the popular 2-meter repeater band. On 220 MHz, Novice operators would be allowed all forms of digital and voice communications as well as FM repeater communications.

There is still some concern that the 20 MHz band might not be the best band for new Novices, but nonetheless, part of the proposal.

The Novices would also receive voice privileges on the 1250 MHz band. Base, mobile, and soon hand-held equipment is available from ICOM, Inc., for this UHF band. It is expected that repeater communications would also be allowed for Novices on this band using voice.

The Novice Enhancement Program is being developed to make Novice frequencies more appealing to the newcomer. Let's face it, most Novices don't use their code privileges, and the FCC and the ARRL are concerned about how to get more Novices onto the airwaves, and how to encourage them to upgrade. The proposal has been met with good acceptance among the Amateur Radio community. I'm also happy to say that over 75 percent of the old-time hams that are members of QCWA have also supported the proposal in total or in part.

The new frequencies would be available to new Novices as well as grandfathered for existing Novices.

It's also important to note that Technician Class operators also share all Novice privileges — that means Technician Class Amateur Radio operators would also gain 10 meters for digital and voice communications. This would give Technician Class operators a real incentive to upgrade to General Class by giving them a taste of 10-meter high frequency skywave operation.

Novice voice privileges will also attract more kids, more mariners, and more shortwave listeners into Amateur Radio. It presently takes only a single General Class ham 18 years of age or older to give the Novice Class test. This means mariners throughout the world could test fellow mariners for Novice

Class privileges which will soon encompass voice privileges.

For more information about the Novice Enhancement, contact the ARRL, 225 Main Street, Newington, CT 06111, or tune in their daily information bulletins on high frequency and very high frequency.

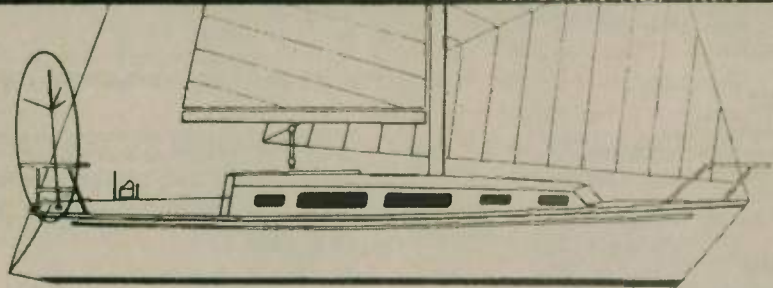
Mexican licenses

For years we have been trying to develop a reciprocal operating agreement between the United States and Mexico. It's usually been a no-go situation unless you are a permanent resident of Mexico and finally find the right person who can persuade the Mexican Telecommunications Union to give you a Mexican call sign. Mariners cruising within jurisdictional waters of Mexico are forbidden to use their transceivers because no Mexican reciprocal license agreement exists. Without a Mexican call sign, American mariners are not allowed to use their ham radio sets on their boats when within any Mexican port, on Mexican soil, or within Mexican jurisdictional waters. No one seems to know how far off Mexican authority goes, but generally 12 to 20 miles is considered their territory.

It was last year's earthquake in Mexico City that may have called attention to the Mexican Telecommunications officials that an agreement between Mexico and America would be desirable in light of the tremendous assistance Americans gave Mexico for earthquake communications. Although this new agreement cannot be classified as a reciprocal operating agreement as recognized by the ARRL or other countries throughout the world, we do have a plan that would allow for American mariners,

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tourists and RV'ers to receive call signs when traveling in Mexico.

Before I tell you how to do it, this new agreement somewhat backfired and has opened up some controversial operating by Novice Class operators who have gone to Mexico and have received General Class operating privileges with a Mexican call sign. That's right — the same type of license is given to any grade of American Amateur Radio operator permit. What you end up with are voice class operating privileges throughout all the ham radio bands with power output up to 250 watts!

You first need a Mexican tourist card that indicates the length of your stay in Mexico. A visa will also work, specifying how long it is valid for.

You need to take your tourist card or visa permit to the nearest "Delegacion Regional de Concesiones y Permisos de Telecomunicaciones" with a Spanish written request for a Mexican license, and a completely filled-out Form HD-2 tax receipt for \$10,000 Mexican pesos paid by you at the nearest "Oficina de

Hacienda y Credito Publico". You also need to take your valid Amateur Radio license — any class will do.

You must also appear in person yourself — you cannot delegate the authority to another person or a Mexican to do the work for you.

Believe it or not, they somehow assign call letters on the spot, and you are allowed to go on the air within about an hour once you find the right person, the right building and the right office. Your call letters will begin with XE, an appropriate number, and then the appropriate three letters. This special call sign that is assigned only to you is good for the length of your stay, and can only be used when within the jurisdictional waters or boundaries of Mexico. You cannot, may not and will not use their sign when cruising out on the high seas, taking advantage of the American General Class Amateur Radio privileges with only a Novice Class license.

Unfortunately, we are bound to see a lot of Americanos getting together with

a ham buddy who has a General Class license or higher, taking the Novice test, receiving Novice call letters, and then running down to Mexico for Mexican call letters. Then with the Mexican call letters, this Novice Class American can now get on voice maritime frequencies and pass traffic back to the United States.

This is just like the old days where American mariners and tourists could go to several countries in South America and buy a call sign, and then use it for voice traffic back home. In my book, that doesn't make it; and any American getting the Novice just to obtain a Mexican call sign to use voice privileges is simply taking the chicken way out. If you're going to be cruising extensively, knuckle down and get your General Class American call sign and do it right!

Many U.S.-based maritime net control operators are indeed acknowledging the Mexican call sign requesting phone patch traffic, but most net control operators will also ask the American what grade of American license he holds. It's then up to the net control operator as well as the U.S.-based phone patch station as to whether or not they want to handle traffic for a Novice American using General Class frequencies with a Mexican all-class license.

One final note — the FCC is also accepting comments regarding lowering the General code speed from 13 wpm to 10 wpm. The FCC is also considering breaking up the test question pool and requiring fewer questions to be memorized for the Technician Class test, and some additional theory questions to be asked on the General Class test in addition to the 13 wpm code test. We'll give you more news as the Commission makes its decisions at the end of this year.

So for now, good operating, and get that General Class license if you plan to do any serious operating abroad. If you only have a Novice or Tech license, and obtain the Mexican license and plan to operate on General Class frequencies, set a good example and be an active participant in the net, not just a maritime mobile operator who only comes on the net when you may need to pass several phone calls up north.

Maritime mobile nets are not just for phone calls — these net control operators aren't simply a free phone booth. There's plenty of interaction that you can do when participating in a net besides just making phone calls on your behalf, so stay active on the net, pass along weather information when needed (and that's completely legal from a recent FCC decision), and don't abuse our new privileges with Mexico. □

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Bob's Corner

Bob Decesari, WA9GDZ/6

and receiver development work at high UHF frequencies, I required a reasonably high level source of UHF signals. A quick look around the lab only revealed 2-meter equipment and a variety of signal generators for the HF spectrum. Nothing was available to produce about a half watt of power between 400 MHz and 1200 MHz. Another quick look through some catalogs revealed beautiful signal generators with beautiful prices as well. At about that time, I decided to try to use the available resources of my lab and ham shack to see if I could come up with a UHF source for under the catalog price of \$1,000!

The resources in the shack included a

1000 MHz frequency counter, a UHF television receiver and a junk box chock full of goodies from past projects. My intent was to come up with a simple UHF power oscillator using whatever I had available in the shack and using my frequency counter and television receiver for monitoring the signal.

Instead of jumping right into the design and possibly re-inventing the wheel, I decided to conduct a search through my technical library to see what might already exist. The search was quite fruitful as I came up with two sources of simple power oscillators.

The first book of interest was obtained from a local RCA distributor and

Simple UHF signal sources for the experimenter

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is entitled *RCA RF Power Transistor Manual*. I found two simple circuits based around a 2N3866 power transistor which is readily available for about \$1. Figures 1 and 2 illustrate the circuits in all of their simplicity.

The other book of interest was the 1985 *ARRL Handbook*, where a simple UHF parallel line oscillator was used in a UHF dipper circuit. The circuit of Figure 3 is an offshoot of this design and will be more fully described later.

The circuit of Figure 1 illustrates a single transistor oscillator in a grounded base configuration. Feedback for oscillation is achieved primarily by device collector-emitter capacitance and secondarily by parts placement. The frequency of oscillation is determined primarily by capacitor C_1 and whatever inductance there is in the emitter lead. That is, one way to lower the operating frequency would be to increase the length of the emitter lead, thus increasing its overall inductance. L_2 in the RCA manual was originally a 2.3-inch microstrip line for 500 MHz.

Since I built the oscillator on regular perforated board, I substituted a length of stiff copper wire and bent it in the shape of a U in order to mechanically bring it back to the circuit ground. Unfortunately, I don't have design equations that would determine the length of the wire for whatever frequency you set the oscillator up for. However, linear scaling would indicate that a 4.6-inch of line would work at about 250 MHz and conversely, a 1.15-inch length would work at 1000 MHz.

There are other factors, however, in your actual construction that would change these dimensions, so the best approach would be to use these numbers as starting points and experiment by cutting and trying! As far as the output tap goes, I simply tapped the output about one-third of the way from the ground end of L_2 .

The circuit of Figure 2 is similar ex-

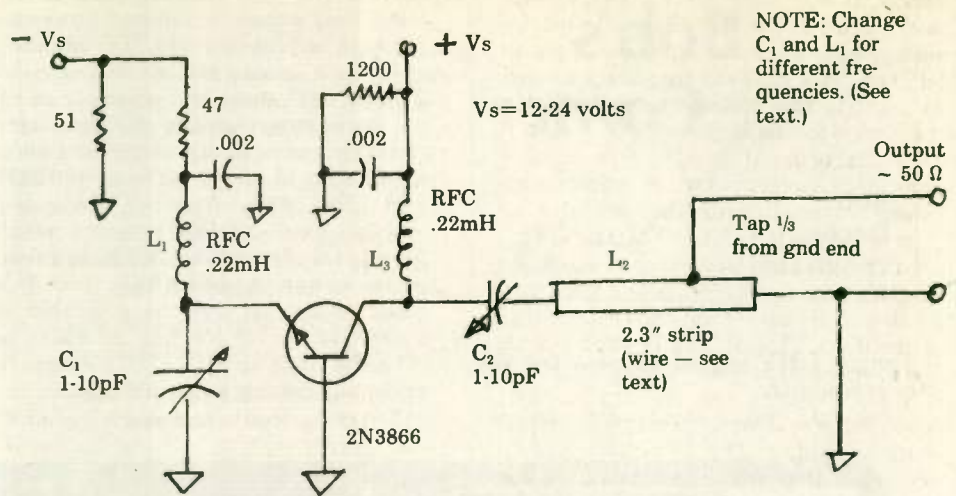


Figure 1 — 1/2 watt 500 MHz signal source

cept that the device is used in a ground collector configuration. Note that no inductors are used in the frequency portions of the circuit. In effect, the emitter and base lead inductances are tuned by C_1 and C_2 .

Hi-Q air dielectric trim caps should be used for this circuit (as well as the first circuit). Capacitor C_3 is used to match impedance of the output load. With the values shown in the schematic, the oscillator should work in the 700 to 1000 MHz range. When working properly, either circuit should deliver about 1/2 watt of power to a 50-ohm load.

As I mentioned earlier, both of these circuits were built on regular perforated board. If a piece of circuit board material is available, it should be used as a groundplane. Keep everything as short as possible. Make point-to-point connections by using the circuit board clad as a ground and soldering the grounded side of the various components to it. The remaining side of these components should be connected directly to the next component via the shortest route (i.e., point to point).

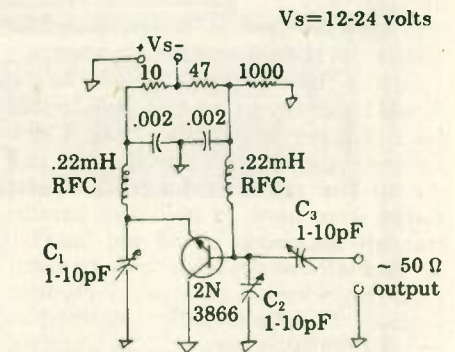


Figure 2 — 1000 MHz signal source

If this procedure is not followed, there will be excessive inductance and capacitance buildup in the interconnect and the highest possible frequency will not be achieved. Also, although the schematic calls for specific values for the RF chokes, I simply wound 10 turns of fine enameled wire on a 1/4-inch dowel for the chokes and they seemed to work well.

The circuit of Figure 3 uses a microwave transistor available from Radio Shack, the MRF-901. As I mentioned

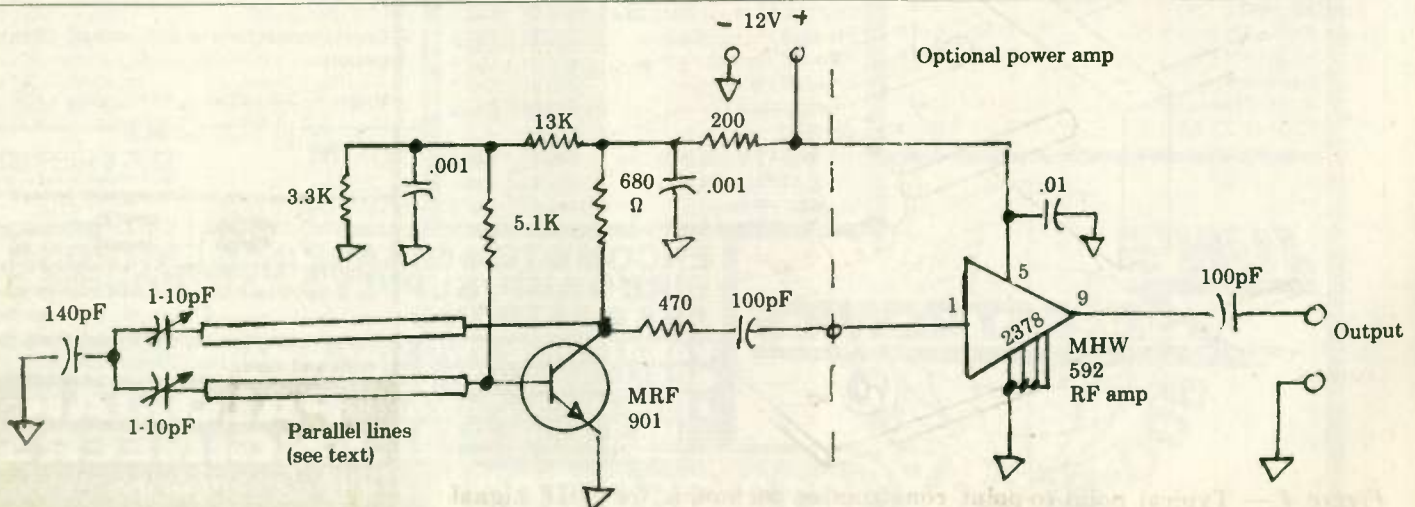


Figure 3 — UHF signal source

earlier, it was used in the "slipper dipper" circuit of the Handbook. As can be seen from the schematic, a pair of parallel lines determine the frequency as well as provide the necessary feedback for the device to oscillate.

In the original design, the parallel lines were constructed of telescoping tubing, thus allowing the oscillator to tune between 400 and 500 MHz. Since I didn't need to get that fancy, I fixed the length of the parallel lines and used two small air dielectric trim caps at one end of the lines. This obviously does not allow as great a variance of frequency, but it was adequate for my application. Also, in the schematic I included a small power amplifier. This is not absolutely necessary if power is not required for your application. However, since the device was sitting in the junk box and since I really wanted about 1 watt of power for my testing, I used it and included it in the schematic.

Again, the construction technique should be similar to the first two circuits described. For the parallel lines, I simply used coat hangers straightened and cut to the required length! Plastic blocks were used to hold the parallel lines off the circuit board and parallel. My oscillator worked fine down to about 210 MHz, where it became reluctant to oscillate. It definitely liked running at higher frequencies better! The length of the parallel lines for a specific frequency is governed by the following equation:

$$L = \frac{11,803}{4 \times f \text{ MHz}}$$

This assumes that the spacing between the lines is kept at $\frac{3}{8}$ inch and that the line has a diameter between $\frac{1}{8}$ and $\frac{1}{4}$ inch.

Now that the oscillators are built, how can we tell if they are working and at what frequency they are working at?

Obviously, if one has a frequency counter that will work at the frequency of interest, it becomes a piece of cake to determine the answers to these two questions. An alternate way to determine frequencies between 470 MHz and 890 MHz is to use a UHF television. Channel 14 starts at 470 MHz and Channel 83 at 884 MHz. By using the equation presented in the ARRL Handbook, the lower edge of each UHF channel frequency can be determined by:

$$f = 6C + 386 \text{ where } f \text{ is the frequency in MHz and } C \text{ is the channel number.}$$

Furthermore, the picture carrier is 1.25 MHz up from the lower edge and the sound carrier 5.75 MHz up. Hence, if we tune the television until we detect the oscillator's carrier, the television picture will become blanked and we are able to determine the approximate frequency of the oscillator by using the formula given plus the picture carrier offset. Not as good as a frequency counter, but better than not knowing where it is at all! Obviously, if you can't find the oscillator's carrier with the TV set, it's either not working or not on the right frequency!

A word about the use of these oscillators. Their overall stability is not adequate by today's standards to use for communications. They are adequate only as a signal source for antenna or receiver testing. Also remember, if you do connect them to an antenna, make sure you are in one of the Amateur bands (assuming you are properly licensed!). A half-watt of power at these frequencies is more than enough to cause interference to aircraft and other public service or military comm links. Therefore, unless you like explaining to the FCC why you were causing interference, make sure you know what you are doing! □

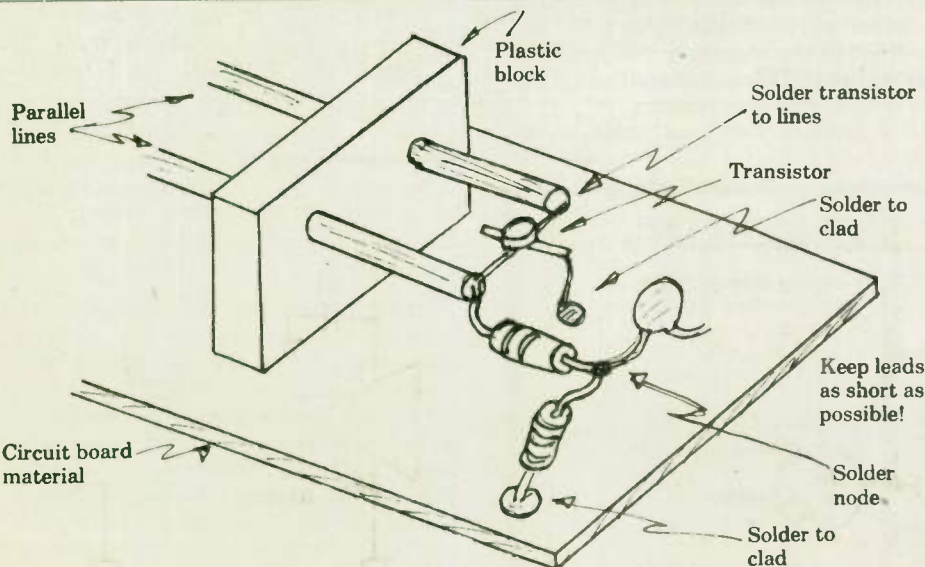


Figure 4 — Typical point-to-point construction technique for UHF signal sources

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There oughta be a law!

Franklin Gainer, KB4KAW, had good reason to be hot and bothered recently when he told me how some self-styled traffic handlers accepted his traffic, and then neither relayed it nor sent him a service message saying why they couldn't handle it. "There ought to be a rule that would suspend their licenses for 30 to 90 days!" was his reaction. I don't know how prevalent the problem is; traffic I originate seems to go through the system quite well. The main problem I encounter is garbled messages.

But it can be frustrating if you offer to send a message for a friend, and put it into the system, and learn a week later that the message wasn't delivered, and nobody knows what happened to it. It certainly doesn't look good for Amateur Radio when that happens.

What to do about it? Franklin's suggestion sounds attractive — take the licenses away from the bums. The only problem is that only the FCC can do that, and the FCC has too much else to do already. In fact, there are people in the FCC who would favor a much simpler solution, forbid Amateurs to handle third-party traffic, and I'm afraid that if the FCC were to do anything, it would do that.

The general principle that applies to any problem in Amateur Radio is that we should handle it ourselves, and go to the FCC only as a last resort. So what can we do?

The first thing is to assess the prob-

lem. Too often, eager beavers set to work devising solutions to problems before they fully understand what the problem really is, and may well end up with a solution to a problem that does not exist. Just how widespread is it that Amateurs accept traffic and let it die on the hook?

If the practice is common enough to warrant action, there are two possible courses to follow: prevention and correction.

It's better to prevent trouble than it is to correct it after it develops. It may not be possible to prevent all loss of traffic, but there are steps that can be taken to minimize it. Perhaps most important is to be sure the message has a correct, complete and intelligible address, including a phone number, if possible. It is quite likely that in many cases, messages die in the system because someone won't take the trouble to figure out addresses that are not immediately obvious in meaning.

Second, try to make the texts appear worth handling. It is true that no communication system has any business deciding what traffic is important and what is not; it simply passes it on as received, as long as it's not illegal. Its importance to the operators handling it doesn't matter. What matters is its importance to the originator and the addressee. All the same, we must recognize that not all Amateurs realize this, and so we should write our texts, or suggest that third parties write their texts with these facts in mind.

Third, in a similar vein, we should bear in mind the sensibilities of the delivering operator. Don't say something the delivering operator would feel stupid delivering. I might add in passing that it's usually a mistake to feel stupid, that silly messages often carry meanings that can't be communicated as well in any other way, and that if you enter into the spirit of the messages you may find it great fun and make yourself and Amateur Radio some new friends.

In a more serious vein, however, we

should avoid messages that could cause trouble, such as insults, threats, slander, sarcasm. Whether to send bad news — such as death, injury, illness — via Amateur Radio depends on circumstances that might be known only to the originator, and the Amateur who puts the message into the system must evaluate the possible impact of the message on the recipient. MARS has a standard policy that death messages should not be delivered by affiliate (Amateur) stations.

The fourth means of prevention is to make a wise choice of route for the traffic. It's usually best to give traffic to an Amateur who handles traffic regularly — one who knows who can relay it best, what frequencies and times, and maintains regular schedules so that the traffic won't lie around the shack for several days. Such people make traffic handling their principal (sometimes their only) Amateur Radio activity, get their enjoyment out of providing a reliable service, as the late Ben White, W4PL, put it, "any place any time any amount." Once one of these people get the traffic, it will usually be forwarded to its destination by the best route available.

Usually, National Traffic System routes are reliable, but with so many stations involved — and over such a widespread geographic area — you will find some routes are better than others. And sometimes the routing plan introduces delays that can be avoided by using non-NTS routes.

Now for the cure, if there is any, other than to preach sermons to encourage reliability. If we were a commercial operation, we could fire the lids among us. If we were a government-licensed common carrier, we could prosecute operators who don't do their duty. But in a volunteer operation like ours, there isn't much we can do. Amateurs are under no obligation to handle traffic except in an emergency. Some action could be taken against someone who refused to handle an emergency message, or whose negligence or incompetence resulted in injury, or loss of life or property; but otherwise, if an Amateur gives receipt for a message and then throws it into the wastebasket, there's not much we can do about it.

In a volunteer operation like ours, we need all the help we can get, and we don't want to discourage anyone who wants to help, so we would hesitate to set up any kind of policing organization to insure delivery of traffic. Some may object that we have no need for lids who reform them than to fire them. We just might be able to make them responsible traffic handlers.

If we decide to do something, how would we find out where the missing traffic was stopped? The answer is by

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tracing it. It can be done in either of two ways.

The originating station can send a message to the first station that received the traffic asking for two things: 1) a message to the originator identifying the next station that handled the traffic, 2) a message to the next station asking that operator to do the same. The other way is for the originating station to send a message to the first station that handled the traffic, asking who handled it next. Upon receipt of a reply, the originating station then sends a message asking the same thing from the second station, and so on until the point of loss is reached.

The first method is quicker, the second is more likely to be successful. And when you find out who is to blame? A few words telling how disappointed the sender and addressee were when the message was not delivered just might help that operator realize our responsibility. I'd be against any form of blacklisting, however.

CW forevermore

It's beginning to be a monthly department in this column, but every month something new comes to show that CW may live to bury those who write its obituary. The July-August issue of *The Networks*, a traffic handlers' bulletin published by Jim Hatherley, WAITBY, reprints an article from the October 1985 issue of *The American Marine Engineer*, entitled "Radiotelegraphy king of the air waves on the high seas," which is here condensed.

When ships began to sail out of sight of land, they also sailed out of contact with the rest of the human race, except for an occasional chance meeting with another ship. In 1895, Marconi's invention of the wireless changed all that. The world's navies and merchant marines were quick to take advantage of radio to allow worldwide communication at almost any time. The emphasis was on routine traffic, however, on making operations more efficient and less costly, not on safety.

Some years were to pass before radio telegraphy began to be recognized as an important aid to safety at sea. One of the first spectacular events occurred in 1909, when two ships, the *Republic* and the *Volturno*, collided off the east coast of the United States. The steamship *Baltic* received the distress message and rushed to the scene of the collision. All 1,700 people on board the two ships were saved, and what could have been a major disaster was averted.

Today, the Safety of Life at Sea Convention requires radiotelegraph equipment on all deep-draft merchant vessels engaged in foreign commerce, but despite its proven safety record, some countries would like to see it phased out.

The Radio Officers' Union is working

to promote the use of radio telegraphy, and to insure that new equipment is proven to be completely effective and reliable before it is allowed to replace existing equipment.

Much of the new equipment heralded as the distress system of the 1990s is actually not reliable enough for seamen to depend on it for their lives, even if it may be suitable for general business communications.

For example, ship satellite antennas often fail to remain pointed to ("locked on") the satellite when the sea is rough, and failure of the ship's air conditioning system often knocks satellite equipment

out of operation when radio room temperatures soar. Radio officers say it's a "fair-weather friend."

The radio officers willingly accept the new equipment, but insist on a lengthy trial period before it is substituted for existing radiotelegraph equipment.

And don't think the radio officers are just thinking of their jobs. Modern ships have so much other electronic gear on board that the radio officer, now often called the radio-electronics officer, will have plenty to do even if there is no need to stand watch on 500 kHz.

So, folks, CW still has plenty of life left in it. □

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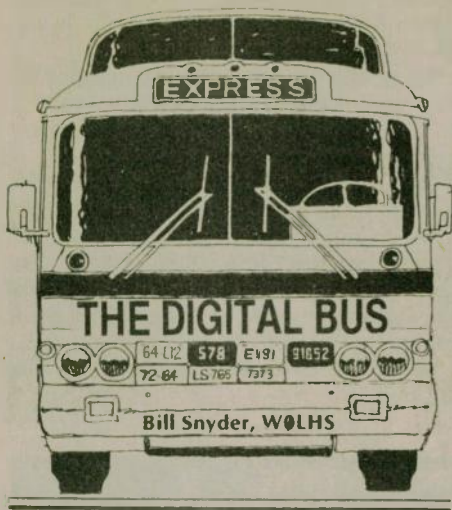
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Beep

Every hobby has its leaders, its lovable people and its characters. It's the people who make any hobby fun and exciting, and this is particularly true of Amateur Radio. In 53 years of active hamming, I've crossed dits and dahs, bytes and bauds with many wonderful people, but none can compare to the late Boyd Phelps W0BP, of the Twin Cities of Minnesota. He was something to write home about.

Yes, "Beep", as he was affectionately known, was not only a character, he was a legend in his own time! His initials spelled "Beep" and his radio call sign spelled "Beep". Do we need more? Well, there's a lot more!

In his lifetime he held many calls: 9ZT, 9ALL, 1HX, 1HXAQ, 2EB, W2BP, W9BP, WBP and XE0BP. Beep was well-known for his devotion to Amateur Radio, his keen sense of humor, and his avid convention-going activities. Wherever he went and whatever he did would command instant attention. If Beep appeared at a hamfest the word would spread like wildfire: "Beep is here!" That's the kind of man he was. I personally held him in awe, and I think he has some magic spell over me and all the other hams of his time.

Beep was an added attraction at any dinner or hamfest. Just the rumor that he might appear at any radio gathering would increase the attendance figures dramatically. I suspect many rumors were started to do just that. "We hope to have Beep there," prefaced many a regional ham get-together. And it worked.

Who was this character, and what caused all the commotion when he appeared on the scene? Well, I really only knew Beep by QSO and a few brief personal encounters at hamfests. So, to set the legend straight, I must rely on others to fill me in on this personality who did so much for Amateur Radio, and in

particular, Amateur Radio teletype (RTTY).

Bruce Meyer, W0HZR, gave me these clues: Beep like mixed drinks — nine parts of bourbon and one part of water. When he worked as a store clerk in Lew Bonn's radio supply house in Minneapolis/St. Paul, and the cash register ran out of pennies, Beep would give out grid caps for change.

One Christmas Eve he rang up \$1 million on the cash register. When the boss asked what was going on, Beep replied simply that he had just sold the store!

Beep was one of the Godfathers of RTTY. He was the first one in the world to work all 48 states on the green keys and prove it. He was awarded WAS certificate number one by the ARRL (I furnished Beep with the then hard-to-get North Dakota RTTY contact, for I was the only ND operator on that mode).

Bruce also tells of his visit to the BP shack a few months after Boyd had acquired his first Model 28 machine. The floor was littered with miles of TTY paper. Beep was rummaging through the paper on the floor looking for a lost \$8,000 check. It seems the company that had issued the check to Boyd, a royalty payment for one of Beep's inventions, was bugging him to cash it. Money was never that important to Beep.

Beep ran a small company called Phelps Laboratories in St. Paul, Minnesota. It specialized in making precision frequency measurements for radio stations in the upper Midwest area. Every broadcast station was required to have its carrier frequency periodically measured by an outside agency to insure the station was within the plus or minus 20-cycle tolerance allowed by the FCC. This was usually done after sign-off in the middle of the night. One former chief engineer of a daytime-only station recalls

having the measurement scheduled in the midst of a blizzard and he was unable to reach the transmitter site and put the rig on the air . . . but the report card arrived a few days later, saying the station was only off two cycles. Beep had done it during the day.

Bob Stanek, W0HAH, lived only 15 blocks from Beep, and he classes Phelps as the most "unforgettable character" he ever met. Bob spent many hours with Beep at his QTH, particularly when W0BP called the "RTTY Net" to order on Sunday afternoon (with a repeat on Tuesday evening.) The net started with "Bully Tins" as Beep called them, and was transmitted on various frequencies, among them 7140, 21090, and 51000 kHz.

"It was a sight to behold," said Stanek. "He ran as many as five 1kW rigs on five bands simultaneously!" Beep's kilowatts were all home-brewed contraptions using commercial broadcast station components. One such transmitter used a 5kW final tube which had been designed to be cooled by circulating water. Beep, lacking the specialized equipment to cool the jug by water, air-cooled the big tube by ducting air from a blower through a Model T Ford car inner tube. Everyone said it worked fine at only a kilowatt input.

"Beep had a curious sense of humor," continued Stanek, "and it was reflected over all his shack. I recall all of his kilowatts were powered from one big pole-pig power transformer, the kind electric companies hand on a light pole outside your house. This power supply was controlled by a gigantic powerstat which had an actual automobile steering wheel fastened to the control snail. The hand-lettered name-plate on the massive auto-former read: 'VOLUME CONTROL'."

"Beep used 1/4-inch copper tubing for his antenna feedlines. On one of these open feeders he suspended a small 20 watt tube by its plate cap. It was an 807, a very popular low-power transmitting tube of the period. Attached to the unlit tube was a little sign that read: '807 IN THE FINAL!'"

"And there is more," Stanek smiled, "On the frequency standard he used to check the accuracy of broadcast stations, he had painted a little red spot right in the middle of the panel. By pressing on the red spot you could warp the front panel enough to change the frequency a bit, so Beep put a little sign on the panel which read: 'PRESS HERE TO INCREASE FREQUENCY.'"

Bob concludes his description of W0BP's shack: ". . . with all those kilowatts humming and occasionally zapping away, I thought I was in Frankenstein's laboratory!"

Phil Dejarlais, W0JHS, is another old-timer who remembers, with a smile, the wonderful world of Beep. Phil adds this comment to the 807 story: "Up on the

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Eddie (DU1UJ) and Lynn (DU1AUJ) Manalo

ceiling where the feeders came in, Beep had a Victor mouse trap clipped on the terminal with a sign reading: TVI TRAP."

Phil continues: "One day the old 30" x 3 1/2" inner tube rotted away, fell down, and the 5kW tube went west, so Beep replaced it with an 833."

In 1953 Beep was instrumental in founding the Twin Cities-based Radio Teletype Society, commonly referred to as the RATS. He was the first "Quick Brown Fox" of the club which met in his home. I often wonder if Beep invented the unique title for the office of president, for 'Quick Brown Fox' smacks of Beep's sense of humor.

(More about this wonderful character, who once was on the ARRL staff, in future columns. If you have a Beep story, please share it with us.)

STEAM RTTY

You often see me use STEAM RTTY when I refer to old-fashioned Baudot RTTY. Tom Geiger, W2KVA/6 (with a call sign like that, I wonder if Tom is an electric power engineer?), writes that in 29 years of hamming he has never heard the term except in this column. Well, Tom, as I said in my letter to you, I'm a steam railway fan and so is Minoru Tsuda, JA1DSI. Somehow we got to using the term STEAM RTTY to denote old-fashioned RTTY when we were discussing AMTOR and Packet along with Baudot digital stuff. Minoru was my first-ever AMTOR contact, and also my first Japanese QSO on packet, so I give him the credit for the term.

Along the same line, when I finish a contact I like to sign with "DIT DIT", like we do on CW. With Minoru we close with "TOOT TOOT"; that's a railroad whistle-signal adapted for steam RTTY use.

DX Notes

Ted Moscoso, HC5KA, will be active during the first week of September from HC8, the Galapagos. Ted has been there before so if you need that one, look for

him on steam RTTY. QSL manager is Roy Gould, KT1N. Roy is also the DX editor for the *RTTY Journal*, so share your DX stories with him.

The recent 3C0A DXpedition to Palagu Island brought out the worst in our fraternity. The DX station worked the RTTY hog piles, and they were just that, by transceiving. That was the first mistake. He should have worked split frequency. Then some of the pile-up types spent more time calling than listening.

I heard 3C0A come back to one California station, give him a report and standby for him while the California guy kept calling the DX station. Some of the contacts took as long as five minutes to complete mainly because of the confusion with people running RY's, sending the 3C0's call five and six times, and signing a line or two of their own call letters. When I commented to another California station that the long callers were ruining the chances of getting the new country, he replied: "Long calls are the only way anyone is hooking up with him."

When I got the rare one it was by sending my call letters only twice. Of course, I had to wait till the end of Donald's transmission to be sure I was the one he came back to because the believers in long calls were blanking out

the far station for most of his transmission. *Short calls on steam RTTY do work* and split is the only way to go for the DX operator!

Many people ask me who is leading the DX-RTTY derby here in the United States. To the best of my knowledge, John Possehl, W3KV, is the top-gun. John has 229 worked and 226 confirmed. John is a former Dx editor of the *RTTY Journal* and is still active in the hunt.

DX QSL Stuff

Every now and then a DXing ham receives a QSL card that is really classy. Well, recently I had the privilege of working Lynn Manalo, DU1AUJ, in Quezon City, Philippines. Her original card was printed by computer graphics and she enclosed a nice picture of both herself and the OM, Eddie, DU1UJ.

Lynn is a newcomer to Amateur Radio, although Eddie has been operating for 10 years. He runs a BBS on packet and AMTOR. Lynn is the only YL on AMTOR in the Philippines. She worked on 20 meters about 1300Z.

I have been trying to get a card out of VU2VIM without success. He has been my only Indian contact to date. I am not alone in not being able to get him to send a QSL. I know he does QSL, at least to Asian countries, because some (please turn to page 63)

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Aerials

Bruce A. Ray

Transmission lines

Although part of the antenna system, transmission lines get very little attention in the literature. They are important since they carry power between the transmitter or receiver, and the antenna. We are interested in several characteristics, but the efficiency and power handling are the most important.

Specs

During World War II, the United States Army developed the MIL-17 standard for coaxial lines. This is still in use, but the latest edition is MIL-C-17-F which became effective in 1983. One of its specs was to do away with the odd impedances, such as 53.5 ohms or 51.5 ohms. We now have 50.0-ohm nominal impedance cables. The MIL-specs were used to define the mechanical and electrical requirements for military type coaxial cables.

For both 50 and 75-ohm cables, the most important changes were the addition of swept frequency measurements of both the attenuation and structural return loss requirements (VSWR). Prior to 1983 there was no VSWR requirement, and attenuation was given at two or three discrete frequencies.

Of course, not all coax is manufactured to MIL specs. However, some manufacturers such as TIMES and BELDEN make both commercial and MIL-spec cables. While the MIL-spec cable meets tighter specs, it is more expensive and in some applications may not be necessary for Amateur use.

Dimensional stability specs now under MIL-17-F specify maximum shrinkback allowance for the dielectric core and the jacket. Ever notice the inner connector pin pulled back sometimes out of the connector in the old RG-17 cable? That cable had a very poor history, with major problems in the braided shield and porous type I PVC jacket.

Cable manufacturing between WWII and 1953 allowed the use of some type I PVC (polyvinylchloride) for the black outer jackets. The black was supposed to prevent ultraviolet ray deterioration. But the plastic itself had problems. The new specs under MIL-C-17-F replaced it

Safe power rating in kW

Type	O.D.	7 MHz	30 MHz	144 MHz	440 MHz
RG214	0.425	3.0kW	1.4kW	0.60kW	0.30kW
RG218	0.87	8.0	4.0	1.8	0.8
RG/58	0.195	0.68	0.36	0.16	0.08
RG/59	0.242	0.7	0.36	0.16	0.08
LDF-2	0.375	3.8	2.1	0.90	0.51
LDF-4	0.50	7.0	3.4	1.50	0.83

Attenuation

	7 MHz	30 MHz	144 MHz	440 MHz
RG/214	.55dB	1.2dB	2.4dB	4.6dB
RG/218	.20	.44	1.3	2.3
RG/58	1.3	2.80	6.5	12.1
LDF-2	.28	.57	1.3	2.3
LDF-4	.18	.38	.88	1.6

Table I

Twin lead

	7 MHz	30 MHz	144 MHz	440 MHz
TV 300-ohm twin-lead	.17/1.2	.4 / .5	1.0/ .2	1.8/ .2
TV 300-ohm tubular	.1 / .9	.35/ .7	1.6/ .5	4.2/ .5
TV 450-ohm twin-lead	.05/2.0	.18/1.5	.8/1.1	2.1/1.0

Loss dB/Power kW

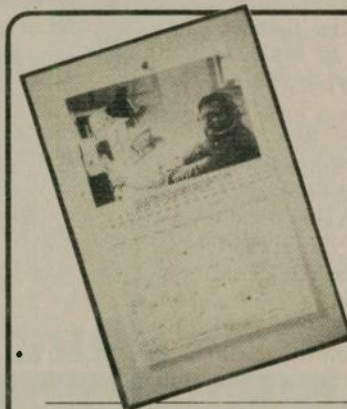
Table II

with a type IJa PVC jacket which is non-contaminating to the copper braid over the dielectric.

The plasticizers in type I PVC penetrated not only the copper braid, causing IR losses, but got into the polyethylene dielectric core, causing its dielectric characteristics to change. This increased the attenuation and the loss. If you have ever cut up the end of WWII RG-8 cable for a connector and felt the powder-like white material that used to be good polyethylene . . . you know what

I mean . . . if you are still using that old stuff because your antenna has a good VSWR, beware! Such is due to the high loss of that old pre-1953 cable. Get rid of it and buy some new coax!

One of the newer and recommended for Amateur use 50-ohm cable is type RG-214. In the MIL version now, this cable is continuously swept from 50 MHz to 11 GHz for a maximum VSWR of 1.15 to 1. The commercial version is not swept by most manufacturers of this cable, but some maximum values



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are called out in their literature. Most unswept versions are excellent for Amateur use up to 450 MHz.

Underground burial

Moisture that comes in contact with any cable metal will cause corrosion, which increases the RF loss. Tubular aluminum outer conductors have almost been destroyed in 90 days, so burial cables must have a protective plastic sheath to absolutely keep out moisture.

Any cable installed underground should have a pinhole-free outer jacket. Since jacket damage due to installation techniques and rodents often occur, cables filled with a flooding compound between the outer plastic jacket and the outer conductor should be used. Two such cables are shown in *Table I*.

Useful coax cables

RG-214 is perhaps the most useful of conventional cables for Amateur use. It's capable of handling maximum HF Amateur power levels and has excellent efficiency for relatively short runs. Its survival when buried in most soils, however, is debatable, since its black plastic jacket is not really made for direct burial.

For the ham with the usual 100 to 150 watt transceiver, the smaller 50-ohm cable in the RG-58 series is useful. BELDEN has one type M17/28-RG-58. It also has their commercial type number 9203. While priced a bit higher than other RG-58 types, its plastic black jacket is non-contaminating.

The safe power ratings are shown in *Table I*. These are the values when the VSWR on the line is 1.0/1. For average working values of VSWR, divide the power rating shown in *Table I* by the VSWR. For example, a cable rated at 1,000 watts in the table, with a VSWR of 1.2, would have a safe working power rating of $1000/1.2 = 833$ watts.

Commercial coax

Manufacturers have difficulty in making plastic outer jackets for coaxial cables which will not eventually pass moisture. Therefore, a moisture-proof barrier substance is put between the outer jacket and the outer conductor.

Any of the cables discussed here may be safely used where it is totally surrounded by air. Only the two LDF types are recommended for direct burial in any soil for up to 25 years. There are two problems associated with burial in the soil. These include moisture penetration through the outer plastic jacket and the resulting corrosion of the braid, and the deterioration of the dielectric insulation as discussed previously.

The LDF series of coaxial cables have a tough type IIa outer black plastic jacket which also provides mechanical protection to the cable. The outer conductor of these cables are made of corru-

gated copper tubing which is airtight. The inter-plastic sheath and flooding compound keeps the moisture out, so it does not come in contact with the copper, causing corrosion, and eventual penetration.

The low loss of this LDF series of cables comes from the foam dielectric and is shown for several Amateur bands up to 450 MHz in *Table I*. This LDF cable is available from Andrew Corporation, 10500 W. 153rd Street, Orland Park, IL 60462. The LDF-2 is currently priced at \$1.32 per foot, and \$31.50 each for UHF-type connectors, factory attached. The LDF-4 is priced at \$1.70 per foot, and its connectors are \$20 each, also attached.

HI Z balanced lines

This discussion would not be complete without a discussion about open wire or twin-lead HI Z balanced lines and feeders. My RADIO HANDBOOK of 1939 says, "For many reasons, it is desirable to place a radiator as high and as much in the clear as possible, utilizing some form of non-radiating transmission line to carry energy with as little loss as possible from the transmitter to the radiating antenna." Things have not changed much over the past 47 years!

Open-wire line, and to some extent TV twin-lead, is less convenient to handle than coax. Its biggest features are power handling capacity and extremely low loss. If there is unbalance in the line currents, there is radiation which then increases its loss.

The textbooks are filled with information on the construction of this type line for impedances from about 200 to 800 ohms, using the open-wire technique. My G5RV antenna uses a 30-foot length of ladder line as a 300-ohm transformer to match the antenna to the 50-ohm coax line that feeds the transmitter.

Table II shows the power handling capacity and loss of commonly available twin-lead used for TV receiving antennas. Saxton Manufacturing Company in Los Angeles makes Amateur twin-lead in two styles. One uses enameled wire, with acrylic spreaders in an open-wire configuration, commonly called ladder line. Saxton also makes 450-ohm line, similar to twin-lead, but with a larger separation between the two wires. This line has rectangular punch-outs in the polyethylene dielectric. This increases the efficiency. It will safely handle any Amateur transmitter with the maximum allowable power at up to 450 MHz with VSWR values of up to 1.5 to 1.

There is very little difference between 300-ohm and 450-ohm or even 600-ohm line, except that the higher impedance line carries more power at less loss. This greater efficiency is due to less current flowing for the same wattage. After all, it's the current in these lines which (please turn to page 59)

Spider AntennasTM and AdaptersTM

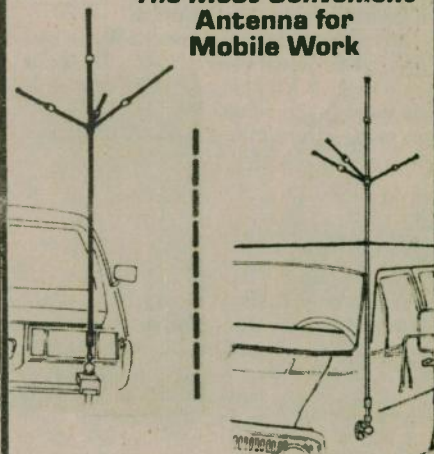
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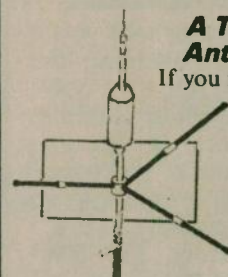
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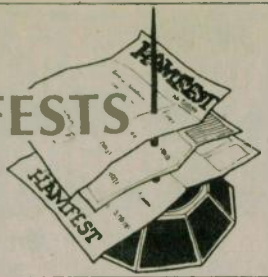
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Florida

The FLORIDA GULF COAST AMATEUR RADIO COUNCIL presents the ARRL South Florida Section Suncoast Convention. It will be held on October 18-19, at the National Guard Armory in St. Petersburg, Florida.

The convention hotel is the Holiday Inn I-275. Admission is \$4 in advance, \$5 at the door and the hours are 9 a.m. to 4 p.m. both days. There will be a QCWA luncheon on the 18th and a Western Barbeque that night; a ladies' luncheon and fashion show on the 19th. Plenty of free parking and some space for RVs. Swap-tables are \$12 for both days. All exhibits and flea market indoors.

For further information, write to FGCARC, P.O. Box 157, Clearwater, FL 33517.

California

The SOUTHERN CALIFORNIA AMATEUR TRANSMITTING SOCIETY will be sponsoring SCATCON 86 on Saturday, October 4, from 9 a.m. to 3 p.m., at Cortez Park, 2441 Cortez Avenue, West Covina.

Technical sessions, hands-on, packet, satellite and more. Swaps, vendors, etc. Donation \$2.

Talk-in on 147.765-600.

For more information, contact Bob Discount, N6NGN, at (818) 917-6470.

Connecticut

The 4th Annual TRI-CITY ARC Auction will be held on Saturday, October 25, at the St. James Parish Hall, Poquetanuck, 1 1/2 miles east of Rte. 12 on Rte. 2A (south of Norwich). Set-up at 9 a.m.; auction from 10 a.m. until sold out. Admission is free and there will be food available. Bring your equipment to be auctioned.

Talk-in on 146.52 direct.

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Georgia

The Rome (Georgia) Hamfest, sponsored by the COOSA VALLEY ARC, will be held on Sunday, October 5, at the Rome Civic Center on Highway GA 20 across from Shoney's.

Admission is free. Homemade bar-b-que and Brunswick stew. Camper parking available, but no hookups. Tables \$5 inside; outside spaces \$2. Drawings, bingo and contests. Super prizes for the main drawing. Amateur exams by Central Alabama VEC begin at 8 a.m. Reservations requested but walk-ins will be accepted. Something for the whole family.

Contact: Bobbie Carol Waller, KA4DXU, 24 Wellington Way, SE, Rome, GA 30161; (404) 235-5417.

Illinois

The ARRL's Central Division is having its first convention in 10 years on October 18-19. The convention will be part of a "Hamtastic Weekend" sponsored by one of the country's oldest clubs, the FOX RIVER RADIO

LEAGUE (FRRL): The event will be all under one roof at the new Norris Sports Center just off Rt. 64 in St. Charles, Illinois. The site is about 35 miles west of Chicago.

Special preparations are being made to insure that the Central Division Convention's addition to the FRRL's popular hamfest will become a yearly event looked forward to by area hams.

In addition to commercial exhibits and sales, there will be an indoor flea market and plenty of forums, seminars and technical demonstrations. Exams will be given for all license classes. On Saturday night, there will be a banquet at the nearby Pheasant Run Resort which will feature well-known guest speakers and important topics.

Sellers may set up 7 to 9 p.m. Friday and 7 to 9:30 a.m. Saturday. The hamfest convention hours are 10 a.m. to 4 p.m. Saturday, October 18 and 9 a.m. to 2 p.m. Sunday, October 19. Tickets good for both days are \$3 in advance and \$4 at the door.

Talk-in will be 144.870/145.470 and 144.610/145.210.

For advanced tickets, or information on tables or exams, contact Bill Heimann, WD9WE, 837 Lebanon St., Aurora, IL 60505; (312) 859-1171. An SASE will be appreciated.

Missouri

The ST. PETERS ARC's 2nd Annual September Swapfest will be held Sunday, September 28, at the Harvester Lions Club Park, Harvester, Missouri.

Admission \$1 per person. Free coffee and doughnuts for you early birds. Bring ham gear and any other electronic equipment to sell or swap.

Talk-in on 145.33.

For more information, contact Joe Riordan, KG0K, 2760 Hwy. 40-61, O'Fallon, MO 63366.

Nevada

HAM/WEST, the ARRL Nevada State

Are you radioACTIVE?



Dean LeMon, KR0V 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 W0ZSW at Courage Center, 3915 Golden Valley Road, Golden Valley, Minnesota 55422, phone (612) 588-0811.

Convention, will be held all day Friday and Saturday, November 7-8, at the Hacienda Hotel in Las Vegas, Nevada.

This is the big one in the West. Exhibits, flea market, seminars and forums, hospitality rooms, cocktail party, awards banquet. Registration \$12 before October 24; \$15 at the door. Banquet \$20, speakers Wayne Green, W2NSD/1, and Roy Neal, K6DUE. Flea market \$20 for large 16' x 20' space.

For full info, see the ad in any ham magazine or contact HAM/WEST, P.O. Box 19675, Las Vegas, NV 89132; (702) 361-3331. □

New Mexico

The NORTHERN NEW MEXICO ARC is proud to announce its third annual hamfest to be held on September 27 and 28, 1986. It will be held at Camp Stoney, 8 miles east of Santa Fe, New Mexico.

On Saturday, we will have ARRL/VEC exams and a tour of the beautiful fall colors of the aspen trees at an elevation of 9500 feet. Free camping with restrooms will be available at Camp Stoney, on Saturday night only (no hookups — several campsites in the area). On Sunday, there will be a tail gate flea market, programs on ham related items, and prize drawings.

The grand prize will be an ICOM IC-27A 2 meter transceiver. Several more prizes will be awarded to hams and XYL's.

Registration is \$5.00 for adults and \$2.00 for kids under 12. This includes lunch on Sunday of BBQ chicken or hot dogs.

Talk in will be on the 146.22-82 repeater or 146.52. Further info — send SASE to Alan Hill N5BGC, 2020 Calle Perdiz, Santa Fe, NM 87505. □

New Jersey

The ORANGE COUNTY ARC will be holding its hamfest and auction at John S. Burke Catholic High School on October 4, 1986, from 9 a.m. to 3 p.m. Tailgating will be available. Set-up starts at 8 a.m. License exams as available, starting at 9 a.m. Admission \$3. Tables \$7. Tailgating \$3.

Talk in on 146.76 and 146.52.

For more information call Bob Smith, WB2ENA, at (201) 767-6698. □

New York

The RADIO AMATEURS OF GREATER SYRACUSE will be holding their 31st hamfest in the Arts and Home Mansion at the New York State Fairgrounds, just two miles east of Thruway Exit 39 on Route 690, from 9 a.m. to 5 p.m., Saturday, October 18.

Activities include tech-talks, contests, entertainment, a giant indoor flea market, many commercial vendors, the famous Syracuse Hamfest breakfast and delicious lunch at very low prices; all of this in a pleasant, warm, well-lighted environment with plenty of comfortable resting areas.

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Worldradio

This year we are featuring an improved tailgating area at only \$3 per car. Also, improved free parking. Indoor flea market is \$6 per table (furnished by us). General admission only \$4. Under 12 free. VE walk-in exams start at 12 noon for Novice through Extra; bring current license, two forms of ID and \$4. Programs for non-hams, and a secret surprise for everyone.

Talk-in on 146.31/91 and 147.90/30.

For more information, call Ed Swiatlowski, WA2URK, (315) 487-3417, or Viv Douglas, WA2PUU, (315) 469-0590; or write RAGS, P.O. Box 88, Liverpool, NY 13088. □

North Carolina

The MAYSVILLE HAMFEST CLUB will be holding their annual hamfest Sunday, October 12, at Maysville Community Park.

Hours will be from 9 a.m. to 3 p.m. No admission charge. Flea market, tailgating, women's activities, lunches served on grounds.

Talk-in on 146.685 (Grifton repeater).

For more information, contact Jo Ann Taylor, RT. 1, Box 80-36, Swansboro, NC 28584. □

Ohio

NOARC (Northwestern Ohio ARC) will hold its annual Allen County Hamfest at Allen County Fairgrounds in Lima, Ohio on October 12. Location: 1 mile east of I-75 exit 125A on State Route 309 or 117. Tickets are \$3 in advance or \$3.50 at the door. Tables are \$6 for full table, \$3.50 for half-table. For reservations, send SASE to NOARC, Box 211, Lima, OH 45802.

ARRL-approved hamfest. License exams will be held. For information regarding exams, contact W8TY through above address. Campers take note: **FREE CAMPING** (electrical hookup \$7).

Talk-in on 146.67 and 146.52. □

ESTABLISH A HAM TESTING CENTER IN YOUR AREA

As of 1984, all ham radio license testing is handled by the amateur radio community itself. Teams of three Extra Class volunteer examiners (VE's) can now conduct all ham license upgrade examinations.

W5YI-VEC, the initial national VE Coordinator approved by the FCC, oversees the largest alternative (to the ARRL) testing program in the U.S. You can be a part of it by following the simple testing instructions provided.

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Let's get Amateur Radio growing again!



Illinois QSO Party

The Radio Amateur Megacycle Society will sponsor the 1986 Illinois QSO Party from 1800Z, October 12 to 0200Z, October 13.

Suggested frequencies: CW — 3550, 7050, 14050; Phone — 3890, 7290, 14290. Other bands may also be used.

Exchange: Illinois stations give RST and county; others give RST and state, province or country.

Scoring: Count 1 pt. per phone QSO, 2 pts. per CW QSO. No repeater QSOs. Stations may be worked once per band and mode, and once per band/mode/county for IL mobile stations. Illinois stations multiply points by sum of states, IL counties, VE provinces, and a maximum of five DXCC countries (W/K and VE included). Count additional DX for points but not multipliers. All others multiply points by number of IL counties worked. Illinois mobiles may add 200 pts. to final score for each county from which 10 or more QSOs were made. All stations may earn one extra multiplier for every eight QSOs made with the same Illinois county.

Awards: Stations will compete for certificates in the following categories — A) 10 highest scores, Illinois fixed station; B) Five highest scores, Illinois mobile station; C) Highest score in each state, province and country; D) Highest club/team aggregate score.

Logs: Entrants shall submit a log containing GMT, call, RST, state or province, IL county, band and mode. Circle new multipliers as worked. IL mobiles must indicate county changes in log. Any station with over 100 QSOs must submit a dupe sheet. A summary sheet shall also be submitted with every log.

Entries must be postmarked by November 8, 1986. Mail to RAMS c/o Joe LeKostaj, WB9GOJ, 9134 Ewing Ave., Evanston, IL 60203. □

Illinois counties

Adams	Fayette	Lawrence	Pulaski
Alexander	Ford	Lee	Putnam
Bond	Franklin	Livingston	Randolph
Boone	Fulton	Logan	Richland
Brown	Gallatin	Macon	Rock Island
Bureau	Greene	Macoupin	Saline
Calhoun	Grundy	Madison	Sangamon
Carroll	Hamilton	Marion	Schuyler
Cass	Hancock	Marshall	Scott
Champaign	Hardin	Mason	Shelby
Christian	Henderson	Massac	St. Clair
Clark	Henry	McDonough	Stark
Clay	Iroquois	McHenry	Stephenson
Clinton	Jackson	McLean	Tazewell
Coles	Jasper	Menard	Union
Cook	Jefferson	Mercer	Vermilion
Crawford	Jersey	Monroe	Wabash
Cumberland	Jo Daviess	Montgomery	Warren
De Kalb	Johnson	Morgan	Washington
De Witt	Kane	Moultrie	Wayne
Douglas	Kankakee	Ogle	White
Du Page	Kendall	Peoria	Whiteside
Edgar	Knox	Perry	Will
Edwards	La Salle	Piatt	Williamson
Effingham	Lake	Pike	Winnebago
		Pope	Woodford

YL Anniversary Party

The YLRL-sponsored YL Anniversary Party will be held during two weekends in October. The CW section will last from 1400 UTC, Wednesday, October 15 to 0200 UTC, Friday, October 17. The SSB section lasts from 1400 UTC, Wednesday, October 29 to 0200 UTC, Friday, October 31.

Eligibility: All licensed women operators throughout the world are invited to participate. YLRL members only are eligible for the cup awards. Non-members will receive certificates. Only YLRL members are eligible for the Corcoran and Hager Awards.

Procedure: Call "CQ YL."

Operation: All bands may be used. No cross band operation. Net contacts, repeater contacts, and contacts with OMs do not count. A station may be counted *only once* in each contest for credit. Participants may operate only 24 hours of the 36 hours of the contest. Operating breaks must be indicated in the log.

Exchange: Station worked, QSO number, RS(T) and country/state/province. Entries in log must show time, band, date, transmitter power and operating breaks.

Scoring:

A) CW and SSB will be scored as separate contests. Submit separate logs for each contest.

B) All YLs within one of the United States (Hawaii and Alaska included) or within a Canadian province: Score 1 pt. for each QSO with another station located in a state or province. Score 2 pts. for each contact with a station not located within a state or province (i.e. DX). Definition of DX: All stations not located within a state or province. DX YLs shall score 2 pts. for each contact with a station located in a state or province; 2 pts. for each contact with a station on another continent and 1 pt. for each contact with a station on their own continent. Multiply the number of contact points by the total number of different states/provinces/countries worked.

C) Contestants running 150 watts or less on CW and 300 watts PEP or less on SSB, at all times, may multiply the results of (B) by 1.25 (low power multiplier).

Logs: All logs must show the state/province/or country to qualify for awards. Logs should also state whether or not operator is a member of YLRL. Do not send carbon copies of logs. Please print or type. Logs must be signed by the operator and no logs will be returned. Remember to file separate logs for each contest. Logs must show claimed score, be postmarked by November 15, 1986, and be received by December 13, 1986 or they will be disqualified. Send logs to: Mary Lou Brown, NM7N, 504 Channel View Dr., Anacortes, WA 98221, USA.

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

Awards:

A) For the YLAP, cups will be awarded for both the NA-YL and the DX-YL with the highest CW scores and for the highest SSB scores. Only YLRL members are eligible to receive cups. If the winner of either contest is

a non-YLRL member, a first place certificate will be awarded. If a DX-YL does not wish to receive a cup because of duty charges, a first place certificate may be awarded. Second and third place certificates will be awarded for each contest. The highest CW and the highest phone score in each state, province and country will receive a certificate. NOTE: Certificates for the highest score in a state, province or country will be awarded only if there are at least two logs submitted from the district or country. In addition there must be a minimum of at least 10 contacts on the log.

B) *Corcoran Award:* A plaque given for the highest combined CW and phone score for YLRL members within a state or province.

C) *Hager Award:* A plaque given for the highest combined CW and phone score from North and Central America, including the Greater and Lesser Antilles, for YLRL DX members only. A duplicate plaque given for the highest combined CW and phone score from any other part of the world, for YLRL DX members only.

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

NOTE: Since band allocations in other countries are often different than the USA, North America YLs should look for DX YLs in other parts of the bands, especially on 40 and 80 meters. □

QRP ARCI Fall CW Contest

The 1986 QRP ARCI Fall CW Contest will be held October 18-19. Operating times are from 1200 UTC Saturday to 2400 UTC Sunday. Participants may operate a maximum of 24 hours.

Exchanges: Members give RST, state/province/country and QRP ARCI membership number. Non-members give RST, state/province/country and power output. Stations may be worked once per band for QSO points. Each member contact 5 pts. regardless of location; each non-member contact, same continent, 2 pts; each non-member contact, different continent, 4 pts.

Multipliers: The United States and Canada do not count as countries (count states and provinces only for W/VE). A s/p/c may be worked once per band for s/p/c multiplier credit. Add s/p/c's separately for each band, 1 pt. each, then add up s/p/c points for all bands to arrive at total s/p/c multiplier.

Power: 4 to 5 watts output × 2; 3 to 4 watts output × 4; 2 to 3 watts output × 6; 1 to 2 watts output × 8. Less than 1 watt output × 10; more than 5 watts output counted as check logs only. The highest power used for any contact, any band, will determine the multiplier to be used for scoring the whole log.

Bonus multipliers: Natural power (solar, wind, etc. — with or without storage) × 2. With storage, storage cells must be charged by the natural power source within 48 hours preceding the start of and/or during the contest. Battery power × 1.5. No other source of power may be used at any time during the contest to qualify for these multipliers.

Suggested frequencies: 1810, 3560, 7040, 14060, 21060, 28060, 50360 kHz; *Novice and Technician* — 3710, 7110, 21110, and 28110 kHz. No 30-meter (10 M¹¹) or 12-meter (24 MHz) contacts will be counted.

Calling method: CQ CQ QRP DE (call sign)

Scoring: QSO points (total all bands) × s/p/c multiplier (remember, a s/p/c may be worked on more than one band and counts once on each band for s/p/c multiplier points) × power multiplier × bonus multiplier (if none, use 1) = 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 are suggested for ease of scoring. Send full log data plus separate worksheet showing details and time(s) off the air. 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/c with two or more entries. In addition, Adrian Weiss, WØRSP, is sponsoring a special Milliwatt certificate to the highest scoring station in the less-than-1-watt category, provided there are two or more entries in that category.

Deadline: Logs must be received by November 19, 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. □

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Aerials

(continued from page 55)

causes most of the loss due to ohmic resistance.

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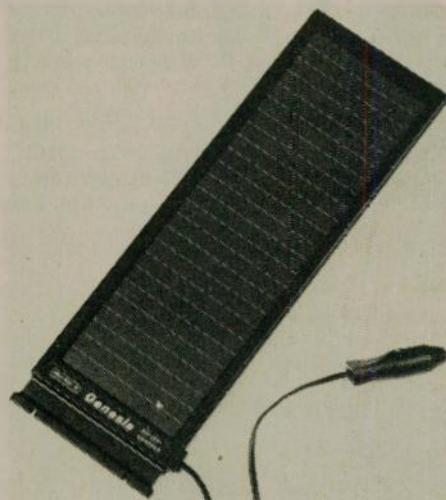
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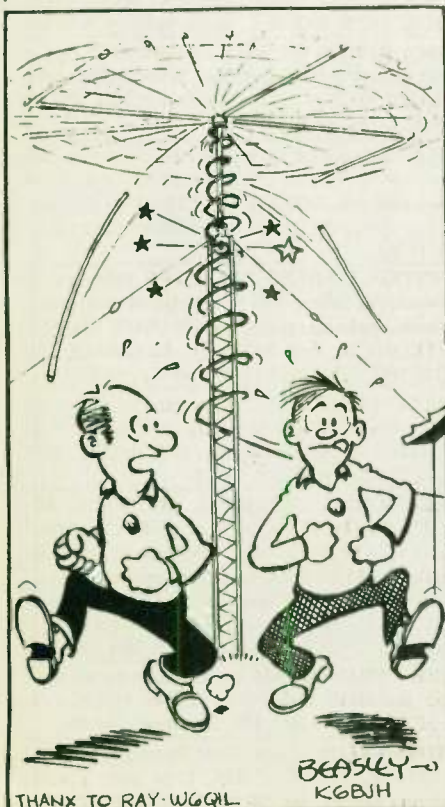
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I TOLD YOU NOT TO ASSEMBLE
THOSE GEARS IN THERE IN
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POST CARD QSL KIT — Converts post cards, photos to QSLs! Stamp brings circular. **LABELCRAFT**, P.O. Box 412, W. Sand Lake, NY 12196.

SIMPLIFIED, ABSTRACT BOOKLET explains radio waves/propagation. \$6.00 cash m.o. Box 2143 Elko, NV 89801.

Digital Bus

(continued from page 53)
of my Japanese friends have been lucky. Recently I read that sending a green stamp to India is forbidden — and that is what I did, not once but twice! Is that the problem? I would appreciate advice or comments on this note.

Packet software

I belong to an IBM users group here in Fargo that operates one of the best BBS operations in the country. There are at least a couple thousand "shareware" programs on it and its membership includes hobbyists from all over the world.

Shareware or freeware, as it is called by some, are programs which can be freely distributed for trial use. If you like the program, you send a donation to the author; usually the amount is specified in the documentation. I have a number of programs on my hard disk that I have paid for after trying them out. It is a great system.

Recently I received a shareware Packet program from Jeff Jacobsen, WA7MBL, that is very good. It is made for IBM and/or clones. It works fine and it has some nice features. I particularly like the buffer that keeps all the monitored packets in memory for easy review. You would be surprised at the activity on a busy channel. This program is available by sending \$5 to the Arizona packet Radio Association, c/o Wes Morris, K7PYK, 7422 E McKinley St., Scottsdale, AZ 85257. If you like the program and find it useful, a \$20 donation is considered proper.

Eavesdroppings

"USING A TOP-FED INVERTED VERTICAL ANTENNA" . . . "HAVE 55 RTTY COUNTRIES CONFIRMED ON THIS ATTIC ANTENNA." . . . "I'LL BE LOOKING FOR YOU DOWN THE HOG." . . . "PASS ME YOUR NAME ON THE FINAL." . . . "IT MUST BE NICE TO HAVE ALL THOSE GREEN STAMPS TO INVEST IN HAM GEAR." . . . "I WAS A TECHNICIAN FOR 20 YEARS, BUT I FINALLY WHIPPED 13 WORDS PER MINUTE!" . . . "I WON'T HOLD YOU AS MY FINAL IS SMOKING."

"I WAS NEVER ONE TO FORGET A NAME UNTIL I GOT INTO HAM RADIO." . . . "THE NAME HERE WAS RAY." . . . "AFTER THE HAIL-

STORM THE WEATHER WAS MARBELOUS." . . . "MY TRIBANDER IS UP 45 FEET ON A 35 FOOT TOWER." . . . "I HAVE TROUBLE FINDING HIDDEN FILES, WHEREVER THEY ARE." . . . "HAM RADIO CERTAINLY HAS A PLACE IN MY CRAZY MIXED-UP WORLD." . . . "WE AVERAGE ABOUT THREE OR FOUR THUNDERSTORMS A DAY, SO I KEEP MY ANTENNAS DISCONNECTED." . . . "WHAT A GOOD HAM AM I?" . . . "WITH COMPUTERS I JUST LET THE PRINT ROLL OFF THE SCREEN RATHER THAN PILING UP ON THE FLOOR." . . . "I HAVE A CAN OF MARCONI SPAGHETTI FOR LUNCH." . . . "I CURED MY TVI BY TAKING DOWN MY ANTENNA." . . . "THE GEAR HERE IS KENWOOD/HEATHKIT/JUNK, NOT NECESSARILY IN THAT ORDER." . . . "THIS IS A FUN HOBBY, COMPLETE WITH TVI AND OTHER GOODIES." . . . "WE ARE HAVING GENUINE CAJUN FOOD TONIGHT: SPICY HOT DOGS." . . . "GOOD EVENING, I HAVE BEEN READING THE PAIL." . . . "HE QUALIFIES AS A WORLD-CLASS LID." . . . "THERE ARE NO RULES WHEN ONE TALKS ABOUT THE WEATHER." . . . "I DON'T GET JAZZED UP ABOUT DX, AS IT TAKES A LOT OF WORK TO BEAT OUT THE BIG GUYS." . . . "MY BIKE HAS A NIFTY PAIR OF APE-HANGERS." . . . "I FLEW OFF A BIRD FARM IN THE VIET BASH." . . . "THE WRITER IS A ROBOT AND THE ANTENNA IS A LARGE MONSTER." . . . "I AM BACK ON RTTY AFTER A THREE YEAR ABSENCE, SO WILL SAY 73."

As usual I enjoy getting input for this column from all over the world. I would like to thank W7VFR, W0PCI, W5HEZ, WB6PJR, KA5CQJ, W3KV, W0HAH, W0JHS, KA4LSQ and a host of others who I watched on the 9-inch screen. My mailbox is open at 1514 South 12th St., Fargo, ND 58103. 73 de Bill Snyder, W0LHS. DIT DIT and/or TOOT TOOT. □

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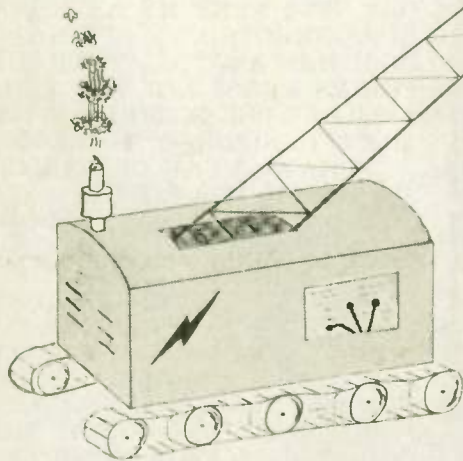
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All day Friday and Saturday

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