Worldradio

January 1982 • Year 11, Issue 7 • 80¢

'Plain language' rewrite is dropped

PR Docket No. 80-729

The Commission has decided to forego its proposed major rewrite and codification of the Amateur Radio Service rules due to overwhelming opposition to the 18 November 1980 proposal.

In addition to objections by individual Amateur Radio operators, the American Radio Relay League (ARRL) recommended that the Commission drop its proposed rewrite of Part 97 and terminate the proceeding.

ARRL believed that the reworded rules would turn the Amateur Radio Service into a "sophisticated Citizens Band Service." It added that it did not care for the proposed question-and-answer format, a style which it said could lead to conclusions about requirements which would be inaccurate. According to ARRL, the present wording of the purpose of the Amateur Radio Service should be kept since it is invaluable when restrictive zoning ordinances are tested in court.

ARRL also disagreed with the proposed renaming of the service as the "Amateur Telecommunications Service" since the name Amateur Radio Service is understood and universally used by national administrations worldwide. As for changing power limits, ARRL recommended that no changes be made in the present power rules, suggesting instead that a future Commission proceeding explore the possibility of stating power limits in output power for the service, as do the rules for the broadcast services.

In deciding to forego the rewrite, the Commission noted that should the Amateur community, at a later date, wish to pursue on its own a general rewrite of the Amateur Radio Service rules, the contents of this docket would be most helpful.

Action by the Commission 12 November 1981, by Order (FCC 81-529). Commissioners Fowler (Chairman), Quello, Washburn, Fogarty, Jones, Dawson and Rivera, with Commissioner Dawson issuing a statement. □

Halloween holocaust

Lenore Jensen, W6NAZ

Fierce "devil winds" — the Santa Anas — combined with devastating fire and roared across the west San Fernando Valley and parts of Ventura County in Southern California on Halloween weekend. Fifty- and 100-mile-per-hour gusts spread the flames over more than 17,000 acres. Heroic work by 1,000 fire fighters kept home loss down to nine, but hundreds were evacuated and considerable livestock had to be moved; some were lost.

Amateurs did their part, as well. They provided important backup communication links between Los Angeles City Fire and Police Departments, Los Angeles County Fire Department, Los Angeles County Sheriff, Ventura County Fire Department, the California Highway Patrol of Oxnard, between Red Cross disaster headquarters in Ventura and Van Nuys as well as with evacuation shelters in Chatsworth and Simi Valley.

There were many different fires in the dry hilly areas: the Chatsworth reservoir area, Simi Valley and Oat Mountain, including several steep canyons. Command posts were set up and sometimes moved as flames advanced. Communication was of the utmost importance over the wide area.

In the San Fernando Valley on Saturday morning, the EC (Emergency Coordinator) for Devonshire — Jim Fortney, K6IYK — became aware of the fire's severity and potential as he listened to his scanner. His group of more than 30 ARES (Amateur Radio Emergency Service) members had been holding regular Monday night drills on 147.585 MHz. (Only recently thay had conducted an SET (Simulated Emergency Test) in cooperation with Ventura's ARES and

(please turn to page 4)

Amateurs prevail in antenna ordinance battle

In September 1981, a proposed antenna and tower ordinance was introduced at the St. Johns County (Florida) Commission which would have limited all structures to 35 feet. The move was triggered by an accident involving a commercial communications tower in the South Ponte Vedra area which fell and caused concern among residents.

The blanket 35-foot limitation would have been a big obstacle to Amateur Radio installations in St. Johns County, and local amateurs had a big battle on their hands. Philip Hamilton, W7LIQ/4 of St. Augustine called on other amateurs in the area and the American Radio Relay League (ARRL) to assist in educating the County Commission on the value of Amateur Radio.

Several locals attended subsequent commission meetings and ARRL attorneys wrote letters with the results being favorable to Amateur Radio operators. The amateur operators had no objections to a reasonable administrative procedure being enacted but objected to any blanket restrictions.

When the ordinance was adopted in the final form in October, it automatically exempted amateur installations up to 50 feet and provided for a reasonable administrative process for routine exceptions above the 50-foot limit. Basically, any antenna structure above 50 feet must be registered with the county, and approval is virtually automatic upon submission of certain data.

In all, it was a big victory for ham operators in St. Johns County. Congratulations to W7LIQ; N4EZZ; Joe Albrecht Jr., WA4EYY; Wesley Kidd, K4HEU, and others who took the time to push for the revised ordinance!

— Balanced Modulator, North Florida ARS □

Generals get HF SSTV

The Federal Communications Commission has amended its rules to allow General Class amateurs to operate SSTV on any frequency where they are authorized voice transmission.

The action by the Commission on 24 November also authorizes facsimile transmissions under the same conditions. No date has been set for implementation of the rule change, but it is expected to become effective in either January or February of 1982. □

Beacon mode schedule

On page 1 of our November 1981 issue, we ran an article entitled "Beacon experiment authorized for new bands." The bands were to be 10.100-10.150, 18.068-18.168, and 24.890-24.990 MHz. The licensee for the experiment is Robert P. Haviland, W4MB.

Mr. Haviland has sent us a copy of the general schedule for the beacon mode, which is listed below.

Experimental Station KK2XJM

Starting date 7 pm EST	Frequency, MHz	Power, W
1982		
7 January	10.140	30W
14 January	24.930	3W
21 January	18.108	3W
28 January	18.108	3W
4 February	24.930	3W
11 February	24.930	3W
18 February	10.140	30W
25 February	18.108	30W
4 March	24.930	30W

Notes

Mondays are reserved for calibration and maintenance; Tuesdays through Thursdays are for special tests. Station may be on any frequency in 10, 18, or 24 MHz WARC bands.

The frequencies and times may change without notice, as dictated by interference limitations. Current information will be announced each 10 minutes when station is on the air.

For information, QSL, or to establish special test schedules, contact R.P. Haviland, W4MB, 2100 S. Nova Rd., Box 45, Daytona Beach, FL 32019. □

Attention all amateurs!

Your help is needed to defend an amateur's rights to use his property to erect a tower. Ken Gianino, WB0QNA of Oakbriar Woods subdivision in St. Louis, Missouri, is being sued by the trustees to remove his tower, even though *THE BYLAWS MAKE NO MENTION OF ANTENNA RESTRICTIONS.*

In addition, *the trustees have ignored a petition signed by 80 percent of the homes demanding that legal actions against WB0QNA be stopped.*

Your help (in any amount) is urgently needed. This could be a landmark case against restrictive antenna bylaws in the St. Louis area, and it is being supported by the ARRL.

Please send your contributions in any amount to the Antenna Defense Fund, c/o Jim Harper, WD0EWR, 515 Winding Trail Lane St. Louis, MO 63131.

— St. Claire ARC, Belleville, IL □

TM
Worldradio

is published monthly by
Worldradio, Inc.
Offices at 2120 28th Street
Sacramento, CA 95818 USA
Telephone: (916) 457-3655

STAFF
Armond Noble, N6WR
Chris Wilson
Jeanette Inouye
Norm Brooks, K6FO
David Tykol, WA6RVZ
Jack Schwartz, WA6TRZ

January 1982 Vol. 11, No. 7

Worldradio (USPS 947000) is an international conversation. You are invited to take part. Our newspaper is written by its readers.

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 into this avocation.

Our readers are participants — an alliance of active radio amateurs who are concerned with reality, who use radio as a communications tool. We ask your cooperation in helping us develop the skill, quality and full potential of Amateur Radio.

We are positively-oriented. We print all the news of this great activity, and particularly desire an input of stories dealing with the dramatic, the personal and humanitarian uses of Amateur Radio.

Worldradio needs your help to reflect the invaluable service of Amateur Radio.

Through **Worldradio** you can make contact with other individuals who share your interests.

Worldradio is an independent newspaper. It is not affiliated with any other firm, group or organization. Its pages are open to all. Permission is hereby automatically granted to reprint from this publication. If there is something useful, we wish to share it.

Subscription rates: $9.00 per year, $17.00 for two years, $24.00 for three years and $90.00 for life; $2.00 extra per year for surface mail delivery outside the U.S. Overseas. Please remit international postal money order. IRCs and local currency will be accepted.

Controlled circulation postage paid at Sacramento, CA.

Change of address?
If you are moving, we need to know your new address six to eight weeks before the address becomes effective.

Extra Class couples

Paul M. Jenkins, W4UIQ recently wrote to let us know that as of 15 September 1981, he and his wife — Alice P., NR4R — are Extras. They reside in Rossville, Georgia.

Jack, KM4Q and Doris Francis, NI4U; Fred, KZ4D and Mary Morris, NI4R; and Nic, NL7N and Beth Nicoson, NL7O are also new Extra Class couples.

Betty Baldo, KB6P of Berkeley, California notified us that she is compiling additional names to augment her list which was printed in our August 1980 issue. Also in the works, she says, is a forthcoming newsletter which will be sent to the Extra Class couples listed. All you husband-and-wife Extras out there might want to check with Betty and see if she has you on her list. □

Atlas radio replacement parts

The company below has been a service representative for Atlas radios since January 1978. Since the demise of the manufacturer, they have continued to service Atlas radios. They stock replacement parts and spare plug-in PC boards for the 210X, 215X, and the 350XL radios.

In about six months they will have an anti-drift circuit available for the 210X and the 215X lines to enhance the stability of the radio.

For more information, contact: Specialty Communications, 2523 Peach St., Erie, PA 16502.
—TRA Inc., Tucson, AZ □

New appointments

A pair of leaders for ARES (Amateur Radio Emergency Service) and NTS (National Traffic System) has been announced for the heavily-populated Los Angeles ARRL Section by Section Communication Manager (SCM) Stan Brokl, N2YQ.

Handling SCM duties will be John Walsh, N6UK, who takes over from Dave Tucker, WB6FAK. Dave had to resign due to health reasons.

The Section Traffic Manager will be Tom Eavenson Jr., K5DY, who will carry on after Gene Violino, W6INH, who has served for many years.

Stan said, "We hope many amateurs will volunteer for either ARES or the NTS to enjoy the satisfaction of public service. Please contact the appointees and offer your services. You will be glad you did!" □

'Spread Spectrum' to air in January

Fred Engelking — Supervisor of Research for Hazeltine Corporation, Greenlawn, New York — will present a talk on "Spread Spectrum Communications" on Wednesday, 13 January 1982 at 8:30 p.m. over the IEEE/LIMARC Long Island-based technical network. The net operates on 147.375 MHz and covers Long Island, metropolitan New York and southern Connecticut with interactive teleconferencing.

The net is sponsored by the Long Island section of the Institute of Electrical and Electronic Engineers (IEEE) and the Long Island Mobile Amateur Radio Club (LIMARC). The talk is part of a series of monthly topics which is designed to disseminate current information on "trends in the communications and electronics industry."

Telephone call-in with questions can be directed to (516) 541-2450. The caller can then be patched directly into the network. Future scheduled talks include "Tropospheric Scatter Communications" and "Direct Broadcast Satellites."

Other information can be obtained by calling Ed Piller, W2KPQ, Net Director at (516) 349-2530. □

Reciprocal licenses

Kent, KF7S

Have you ever tried to get a reciprocal license? If you have, you've found out that you have pages and pages of paper to fill out. I recently received orders to England and am in the process of obtaining my G5 call. I have to pay $15 a year, the same as all amateurs, and I must obtain permission from the government in order to take my radio into the country or it would be impounded at customs. Last of all, the application must be in their hands at least 30 days before I arrive in England.

You can obtain free reciprocal license forms from the ARRL or information about any country, just by asking.
— Great Falls ARC, MT □

If you received this publication and are not a subscriber of WORLDRADIO, it was no accident. Please consider it an invitation to join. We can be very friendly.

CONTENTS

ZAP!!

On 21 October 1981, the Private Radio ureau of the FCC revoked the Amateur adio station license (WB6VII) of Ed- ond M. Jules of Los Angeles, California nd suspended his Amateur General lass operator license for willful viola- ons of FCC rules.

Engineers from the Long Beach istrict Office monitored Jules' trans- issions and cited him for the following iolations: intentional interference with nother station, failure to identify by call gn, and the transmissions of unidenti- ed radio communications or signals. The ommission considers intentional inter- erence alone, in any radio service, as erious enough to warrant revocation.

The FCC received over 20 letters of omplaint against Jules from other ama- eurs and public safety organizations. His illful disregard of Commission rules ade revocation and suspension im- erative for the well-being of the amateur ommunity.

Jules has 30 days from the date of the rder of Revocation to appeal the Com- ission's action.

●

The Private Radio Bureau of the FCC as revoked the Amateur Radio station cense (KA3ARF) of Marc A. Chappelle, f Baltimore, Maryland for malicious terference and other rule violations in he Amateur Radio Service.

The Bureau ordered the revocation on 7 ctober 1981. Chappelle's General Class perator license had been suspended on 4 August 1981. Both actions were based on evidence collected by engineers from the FCC's Baltimore District Office which showed that KA3ARF had deliberately interfered with other amateur communications and transmitted obscene and profane language, one-way broadcasts, music, false messages and unidentified communications. Chappelle had also refused to cooperate with the engineers while they were inspecting his station.

The FCC had first detected the interference by monitoring an Amateur Radio maritime net on 14.313 MHz. The Baltimore Office traced the transmissions to Chappelle's station, inspected it, and later sent him an Official Notice of Violation detailing the offenses.

In its Order of Revocation, the Bureau stated that "jamming or interfering with another amateur's transmissions cannot be tolerated . . . Even a single instance would warrant revocation."

●

The Federal Communications Commission denied a Petition for Reconsideration from amateur Richard A. Burton of Chatsworth, California.

On 11 September 1981, the Private Radio Bureau revoked Burton's Amateur Radio station license (WB6JAC) and suspended his General Class operator license for the following violations: malicious interference, failure to use assigned call sign, use of profane and obscene language, one-way communication (use of repeater for re-transmitting code) and broadcasting. The FCC received 69 letters of complaint against Burton from amateurs citing alleged violations of the FCC rules. □

roduct Review

The DX EDGE

im Hadlock, K7WA

A new accessory has appeared on the mateur Radio market. It's refreshing to e a really useful device that isn't overly mplicated, digital or microprocessor- ed! Ingenuity survives! I'm speaking of he DX EDGE, which has been adver- sed in the magazines for the past couple months. The DX EDGE is a very use- l tool for the DXer and contester who ants an up-to-the-minute picture of orldwide propagation conditions.

The DX EDGE provides the following formation: worldwide areas of daylight nd darkness, sunrise and sunset times, hape of the Gray Line (the line between aylight and darkness), and local time for l 24 time zones. This information is alid for any day of the year with about 5 minute resolution.

How does it work? The DX EDGE con- sts of a carrier and a set of 12 slides, one r each month of the year. The carrier is nprinted with a map of the world (two aps actually) in Cylindrical Projection ou'll still need your great circle bearing hart). The 12 slides are clear plastic, with shaded area printed to represent the hape of darkness over the world map for ach month. This shape changes from onth to month due to the inclination of he Earth's rotational axis and the posi- on of the Earth in its annual orbit ound the sun. In October, for example, here is more darkness in the Northern emisphere than in the Southern, as we pproach winter (short days and long ghts).

OK, but how will this help me work ore DX? Here's an example: Suppose you're planning to operate in the CQ WW DX Contest, and want to know the best time to look for JA QSOs on 75 meters. The DX EDGE gives JA sunset at 0800Z, and our sunrise at 1430Z. So you might plan to look on 75 every half hour after 0900Z for JAs, concentrating on 1330-1430Z.

The DX EDGE map is printed with the CQ DX Zones and many prefixes for added convenience. You might think from this review that I'm pretty pleased with this product, and you'd be right!

Introductory price of The DX EDGE is $14.95 (ppd. in U.S., Canada, Mexico. New York residents add tax. Other countries add $2 surface or $4 airmail.) Order from: The DX EDGE, P.O. Box 834, Madison Square Stn., New York, NY 10159. An information flyer is available free of charge.

— *The Totem Tabloid, Clinton, WA* □

New chapter in Maine

About 40 licensed Amateur Radio operators and their guests held the first dinner meeting of the new Pine Tree Chapter at Bonanza in Waterville, Maine on 23 September 1981.

Mr. Leo Meyerson, W0GFO, a national director of the Quarter Century Wireless Association (QCWA), flew from Omaha, Nebraska to present the chapter and its president, Glenn Baxter, K1MAN with their charter.

Mr. Meyerson also presented a 60-year certificate to Charlie Howe, W1BQL. Qualifications for being a member of QCWA include holding an amateur FCC operator and station license at least 25 years ago.

Meyerson and Baxter are both members of the QCWA National Scholarship Committee along with Senator Barry Goldwater, K7UGA, who is past QCWA national president.

QCWA has awarded five scholarships to date, and Mr. Baxter said the goal of QCWA is to build the fund high enough to award some deserving licensed Amateur Radio operator a full scholarship each year to any school in the country.

Any individual donor of $10 or more will receive a certificate signed by Senator Barry Goldwater.

For more information and/or donations, write to QCWA, 1409 Cooper Drive, Irving, TX 75061. □

Pine Tree Chapter President Glenn Baxter, K1MAN (left) presents Leo Meyerson, W0GFQ — a national director of the QCWA — with Pine Tree Chapter's 1981 donation of $120 ($2.40 per member) to the fund with a challenge to all other 133 chapters to match this gift which is the largest by any chapter to date.

News program promotes ATV

James Van Zee, N7AFM

On Tuesday evening, 27 October 1981, commercial television viewers were given a look at what radio amateurs are doing with Amateur Television (ATV). This look occurred during a feature spot on KTVK-TV's 6:00 p.m. "Eyewitness News" program in Phoenix, Arizona.

Preparations for the presentation were carried out by Chuck Hilliker, W7KIV and Roland DuFault, K0JOA. Both are members of Arizona Amateurs on Television and the Phoenix Ham Television Club. They were approached by members of the KTVK-TV news team, who were covering the ARRL Southwest Amateur Radio Convention, and asked to help prepare a feature spot about ATV in Phoenix.

The presentation consisted of an ATV transmission on 434 MHz, in full color, from the QTH of Chuck W7KIV to the QTH of Roland K0JOA. The KTVK-TV news team recorded the interview at Roland's QTH with the reporter communicating with Chuck via ATV.

The cause of ATV was advanced by many years thanks to the efforts of Roland DuFault, Chuck Hilliker, the KTVK-TV news team, and several members of Arizona Amateurs on Television. □

Seeing double?

If you should receive duplicate issues some month, and one of them has only your name, call and address, and no computer number, you have been selected to pass the extra copy on to a ham who may be interested in seeing the paper. Pass it on.

Rule change affirmed

The Federal Communications Commission (FCC) has denied a petition by the Southern California Repeater and Remote Base Association (SCRRBA) asking for reconsideration of a rule change limiting Amateur Radio station power in certain military areas and providing for amateur satellite operations in those military areas.

Specifically, the change amended Parts 2 and 97 of the FCC's rules by adding Otis Air Force Base, Massachusetts, and Beale Air Force Base, California to those military areas where Amateur Radio stations must limit their power to 50 watts. The change also provided for amateur satellite operations in the 435-438 MHz band in any of the restricted military areas conditioned upon a specified power and antenna elevation angle.

SCRRBA is an association of Amateur Radio Service repeater operators which coordinated frequencies in the 420-450 MHz band in Southern California. In its petition, SCRRBA contended the FCC had erred by adopting the rules without issuing a notice of proposed rulemaking. It also requested the FCC resubmit the matter to the Interdepartment Radio Advisory Committee (IRAC) to determine whether transmitter output power of 375 watts should be specified for all amateur stations operating in the 420-450 MHz band in the specified military areas.

The FCC found SCRRBA's argument concerning the legitimacy of the rulemaking procedure to be invalid. The Commission noted the Administrative Procedure Act permits an agency to dispense with rulemaking when it finds it unnecessary. The Commission said soliciting comments was not necessary in light of the military's need for protection from interference.

The Commission also reported that it had submitted the petition to IRAC as requested and that IRAC had determined authorization of SCRRBA's request for a higher transmitter power would nullify the effect of the rules which protect certain military installations from harmful interference.

The Commission noted that the military services have extensive requirements for radiolocation operations in the 420-450 MHz band and that its primary concern was to limit interference to those operations without undue constraints on Amateur Radio operators as secondary users of the band.

Action by the Commission 30 September 1981, by Order (FCC 81-437). Commissioners Fowler (Chairman), Quello, Washburn, Fogarty, Jones, Dawson and Rivera. □

Holocaust

(continued from page 1)

the Red Cross. Then, it had been a simulated flood. This time it was a true, dreadful fire.)

Jim immediately started for the fire command post. En route, he checked "585" and found Jim Tittsler, AI8A, who became an NCS (Net Control Station) operating from his base station.

Using 220 MHz on the WB6LHK repeater (then operating on emergency power as normal mains had gone out on Oat Mountain the night before from strong winds), Jim and the Ventura DEC (District Emergency Coordinator), Ray Mote, Jr., W6RIC consulted. Ventura had a fire of its own in Simi Valley.

Arriving at the fire command post in Canoga Park, Jim found Red Cross personnel and was able to help them communicate with their disaster headquarters at the San Fernando Valley District Office in Van Nuys. Soon its own pre-arranged plans went into operation with Eric Eustis, KB6FL in charge as Assistant Communications Coordinator.

Traffic was handled on the WR6BAL repeater, 146.865 MHz, of the Litton Data Systems Amateur Radio Club and friends. (Red Cross drills are held Thursdays at 8:00 p.m. on this "machine.")

During the long hours, evacuees were taken to a shelter at Chatsworth High School with an amateur in attendance. There and at headquarters, the volunteer operators worked in six-hour shifts. The flow of traffic between those two locations and command posts helped things run smoothly.

Interaction between the several amateur groups at the many fires was a model of cooperation!

An important activity in such disasters is that of the Red Cross survey teams which must check out damage as soon as possible. Victims need such official reports for insurance claims or possible immediate subsistence. Radio amateurs accompanied these workers, helping to speed up the effort with instant communication. The operators, by the way, were shocked to see the devastation up close.

"In this disaster," reported Bill Holliday, WB6EDE, Chairman, Communications, Los Angeles Red Cross, "nearly 100 percent of the communication needed by the Red Cross was accomplished by Amateur Radio!"

"And," he added. "hearty thanks to the many amateurs who stood by in case they might be needed — or just refrained from using the 2-meter frequencies."

But amateurs did more than use their radios. For instance, John Benka, WA6DUB had come in his truck. At the end, he pitched in and helped clear the Chatsworth shelter of cots, blankets, etc., and returned them to headquarters.

Many incidents added to the drama of the long windy night. One family at the shelter was extremely anxious about their 93-year-old father, confined to a wheelchair, who was home in the danger zone. A half-hour of message handling via firemen, police, Red Cross and others finally brought the good news of his safety.

Mobile hams reported several fires which had broken out in new spots, information which was relayed to the County Fire Department.

Meanwhile, the Devonshire group had become established on 146.46 MHz after finding its original simplex frequency bothered with noise. The group also used the remote transmitter of WA6TXY on 450 MHz, linked to 2 meters, for its phone patch facilities.

Early planning in past months had established acquaintance with Capt. Washington of the Devonshire Police who now requested liaison communications with Ventura. So Bob Bright, WA6AQQ set up a ham station in their mobile command post.

It also became clear that more liaison was needed with the Los Angeles County Fire and Sheriff Departments in the Calabasas/Hidden Hills areas. Ivor Corbin,

(please turn to page 49)

Stolen equipment

I regret to advise that two WILSON Model T-1405SM 2-meter hand-held transceivers with chargers, were taken from my office in (California) State Office Building No. 9 on the night of 5 November 1981. The manufacturer's serial numbers are DD 6771 and OTE 4318.

There is a possibility that these units, which are the property of this department, might be purchased or otherwise fall into the hands of some "ham" who did not know they had been stolen.

It would be appreciated if you could give this information the widest possible dissemination.

Anyone having any knowledge of the units should contact the California State Police, Field Operations Unit, 1121 O Street, Room A-78, Sacramento, CA 95814; phone: (916) 445-2895.

Your assistance is greatly appreciated.

Sincerely,
C.H. OSTBY, WB6CCJ/WB6NFY,
Coordinator
Emergency Welfare Services
Sacramento, California □

Ignition noise?

Bernie Lavezza, KA4RBD

After I installed a Kenwood TS-120S i my 1980 Mazda GLC, I was distressed t find the level of ignition noise to be S6 o the signal-strength meter. Unable t operate with such a high noise level, I ha to find the noise source and correct th problem.

By disconnecting the antenna from th radio, I found that the noise was bein picked up by the antenna and not ente ing the radio by way of the DC powe cord. After following the suggestion outlined in the 1981 ARRL Handbook, found the noise to still exist.

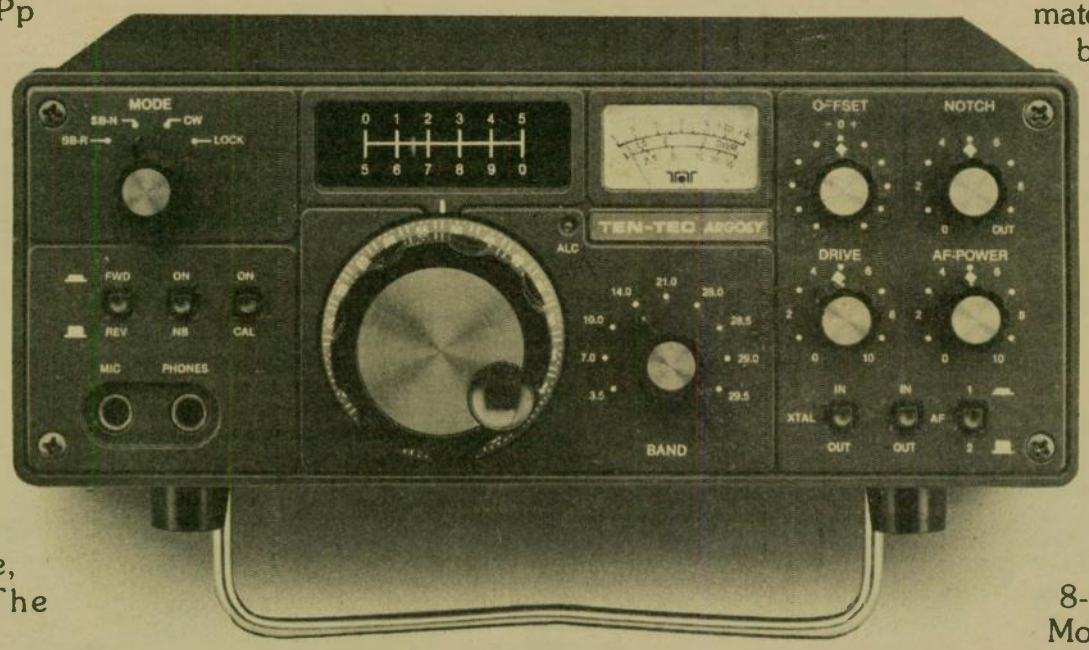
A few days later, I was able to talk th problem over with Mannie Papandrea W4SS. His advice provided the solutio to the problem. Ground the exhaus system, not at the engine, but at the bac of the car where the exhaust pipe is ru ber isolated from the car body. Manni also mentioned that the length of the ex haust pipe could explain why th 20-meter band has the most noise, whic was true in my case.

So, I made several ground straps fro the shield of an old coaxial cable. I co nected one end of the ground strap to th exhaust pipe, and the other end to the ca body using the existing hardware. Thi cured most of the ignition noise; howeve some noise was still present that the nois blanker could not remove. Upon furthe inspection of the exhaust system, I foun the shield around the catalytic converte to be ungrounded. Once the shield wa grounded to the car body, the ignitio noise was virtually eliminated.

Many thanks to Mannie, W4SS of Lak Worth, Florida. His advice saved man hours of work; in just two hours, the nois problem was eliminated! □

Here's a Concept You Haven't Seen In Amateur Radio For A Long Time—

Low Price.



New TEN-TEC Argosy

$549

The right design — for all the right reasons. In setting forth design parameters for ARGOSY, Ten-Tec engineers pursued the goal of giving amateurs a rig with the right features at a price that stops the amateur radio price spiral.

The result is a unique new transceiver with selectable power levels (convertible from 10 watts to 100 watts at the flick of a switch), a rig with the right bands (80 through 10 meters including the new 30 meter band), a rig with the right operational features plus the right options, and the right price for today's economy—just $549.

Low power or high power, ARGOSY has it. Now you can enjoy the sport and challenge of QRPp operating, and, when you need it, the power to stand up to the crowds in QRM and poor band conditions. Just flip a switch to move from true QRPp power with the correct bias voltages to a full 100 watt input.

New analog readout design. Fast, easy, reliable, and efficient. The modern new readout on the ARGOSY is a mechanical design that instantly gives you all significant figures of any frequency. Right down to five figures (± 2 kHz). The band switch indicates the first two figures (MHz), the linear scale with lighted red bar-pointer indicates the third figure (hundreds) and the tuning knob skirt gives you the fourth and fifth figures (tens and units). Easy. And efficient—so battery operation is easily achieved.

The right receiver features. ***Sensitivity*** of 0.3 μV for 10 dB S+N/N. ***Selectivity:*** the standard 4-pole crystal filter has 2.5 kHz bandwidth and a 2.7:1 shape factor at 6/50 dB. Other cw and ssb filters are available as options, see below. I-f frequency is 9 MHz, i-f rejection 60 dB. ***Offset tuning*** is ± 3 kHz with a detent zero position in the center. ***Built-in notch filter*** has a better than 50 dB rejection notch, tunable from 200 Hz to 3.5 kHz. An optional noise blanker of the i-f type has 50 dB blanking range. ***Built-in speaker*** is powered by low-distortion audio (less than 2% THD)

The right transmitter features. ***Frequency coverage*** from 80 through 10 meters, including the new 30 meter band, in nine 500 kHz segments (four segments for 10 meters), with approximately 40 kHz VFO overrun on each band edge. ***Convertible power:*** 100 or 10 watts input with 100% duty cycle for up to 20 minutes on all bands. ***3-function meter*** shows forward peak power on transmit, SWR, and received signal strength. ***PTT*** on ssb, ***full break-in*** on cw. PIN diode antenna switch. ***Built-in cw sidetone*** with variable pitch and volume. ***ALC control*** on "high" power only where needed, with LED indicator. ***Automatic*** normal sideband selection plus reverse. ***Normal 12-14V dc*** operation plus ac operation with optional power supply.

The right styling, the right size. Easy-to-use controls, fast-action push buttons, all located on raised front panel sections. New meter with lighted, easy-to-read scales. Rigid steel chassis, molded front panel with matching aluminum top, bottom and back. Stainless steel tilt-up bail. And it's only 4" high by 9½" wide by 12" deep (bail not extended) to go anywhere, fit anywhere at home, in the field, car, plane or boat.

The right accessories—all front-panel switchable. Model 220 2.4 kHz 8-pole ssb filter $55; Model 218 1.8 kHz 8 pole ssb filter $55; Model 217 500 Hz cw filter $55; Model 219 250 Hz cw filter $55; Model 224 Audio cw filter $34; Model 223 Noise blanker $34; Model 226 internal Calibrator $39; Model 1125 dc circuit breaker $15; Model 225 117/230V ac power supply $129; Model 222 mobile mount, $25; Model 1126 linear switching kit, $15.

Model 525 ARGOSY —— $549. Make the right choice, ARGOSY—for the right reasons ***and*** low price. See your TEN-TEC dealer or write.

TEN-TEC, INC.
SEVIERVILLE, TENNESSEE 37862
EXPORT 5715 LINCOLN AVE., CHICAGO, ILL. 60646

You may hear first word from space

Submitted by Norm Chalfin, K6PGX

If there are any broadcasts from outer space to be heard, Amateur Radio operators are the ones most likely to hear them, says a Stanford radio astronomer.

According to Ronald N. Bracewell, who constructed a large and complex radio telescope at the university, receiving signals from space is simply a matter of being in the right place at the right time.

"An amateur will be the first, because there are thousands of ham operators listening daily on the frequencies that are most likely to be used by an intelligent race out in the cosmos.

"The lonely scientist who is listening for signals from space is heavily outnumbered," the Stanford astronomer said.

According to the latest figures, there are more than one million Amateur Radio operators worldwide — representing virtually every nation — who have the capability to receive the signals, should they exist.

"If extraterrestrial signals are ever received," Bracewell said, "my hunch is that they are likely to be picked up by accident."

— Amateuradio, November 1981 □

It almost happened!

Dino Raptis, KB9MO

It was a rainy Sunday afternoon, and I was helping a friend put up his tower. Things were going along smoothly . . . except for the rain.

We got the tower up without any problems so we decided to take a break for lunch before starting on the antennas; hopefully the rain would stop again. After about 45 minutes it did stop, and we decided to start putting up the antennas. I reached for my safety belt and put it on without a thought.

Then I remembered what LaMar Ray, W9LT and John Goller, K9UWA told me. Always check your belt before climbing. No matter how new or old the belt is, make sure you can stake your life on it. So I took off the belt and guess what? The belt was about ready to break! In one spot, there were only a few threads holding it together.

It didn't really bother me at first. After all, I'd been using the belt all morning and nothing happened. But now as I sit back and think about it, I thank my lucky stars that I listened to those two voices in my head telling me to "Check your belt!"

Many thanks to LaMar and John. If it hadn't been for them and the training I received at the Field Day site over the years, I wouldn't have been told to check the belt. You see, it's little things like that which are gained by being an active participant in club activities such as Field Day. Even if we don't make 1st place, we all learn something. I probably wouldn't be here today to tell about this incident if it weren't for a couple of experienced people who were willing to share their knowledge and time!

Always remember to check out the simple as well as the complex things involved in any task. Safety should always be your FIRST PRIORITY!

—Fort Wayne Hamsplatter, IN □

Coincidence Department

In February 1980, Stephanie — small daughter of Rusty O'Donnell, WB3EUQ — was at a meeting with her father. Cliff Porter, W3IYI thought it would be nice if "the little girl" would pull the winning ticket. Guess whose number she pulled? Right! Cliff's!

At the January 1981 meeting, Stephanie was once again there with her dad. Once again Cliff suggested she pull the number, adding: "Wouldn't it be funny if she pulled my number again."

Whose number did she pull? Right again! Cliff's!

— Sine of the Times, IN/PA □

Listen first

Joe Myers Jr., KD4A

Do you want to pass a higher speed code test? The CW purist might say that after you become a good CW operator, the code test will be a snap. That is probably true, but not everyone wants to do it that way. Attempting to increase your code speed by copying increasingly faster records or tapes often results in reaching a frustrating plateau. I believe this plateau is experienced because you must become accustomed to the different sound at each jump from 5 wpm to 13 wpm to 20 wpm.

When I encountered this plateau recently, I tried a different approach. I obtained a code tape for which I had a copy of the text at 2 or 3 wpm faster than my objective speed. I then just "listened" to the tape while following the printed text. At first it was difficult just following the code. Soon it became easier to follow the code and even find the place within the text when I got lost. I continued listening to the tape rather than copying it until I felt fairly comfortable with it. Then I did start copying the code with increasing success with practice.

If your text does not have enough numerals, a separate tape with numerals may be used in the same way.

— Shelby County ARC, AL □

Special Events...

Frozen hams

The Tin Lizzies are at it again! The fourth annual "Freeze Your Arctic Off" expedition will take place between 1700Z, 23 January, and 1800Z, 24 January 1982 using a 20-mile-wide frozen lake as the ground plane for our phased vertical array. As in the past, a handsome certificate will be sent to all QSL'd contacts. No SASE is needed, but *please put your contact number* on your card.

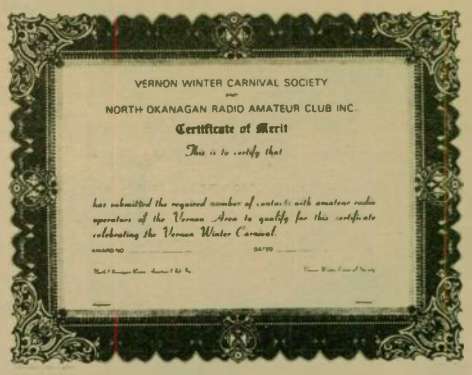
Look for AD8R/8 on 7.275, 21.380, 146.55, and 146.58 MHz out on the frozen wastes of Lake Saint Clair near the U.S.-Canadian border. QSL to Box 545, Sterling Heights, MI 48077-0545. □

Operation Icebox

The Robbinsdale Amateur Radio Club, KØLTC is proud to announce its 2nd annual Operation Icebox from the frozen surface of Rainy Lake near International Falls, Minnesota.

Operation will begin on 5 February 1982 at 0000 GMT and run till 6 February 1982 at 0000 GMT. The frequencies used will be 10kc up from the bottom of the General phone bands. Novice operation is also planned. There will be two operating stations to cover 80 meters through 10 meters.

KØLTC is offering an attractive 8½-by-11-inch commemorative QSL of the event to all who enclose an SASE business-size envelope with their card. The QSL route is via KBØPM, Club President. Hope to meet you on the air from the frozen North. 73. □


VERNON WINTER CARNIVAL SOCIETY
and
NORTH OKANAGAN RADIO AMATEUR CLUB INC.
Certificate of Merit
This is to certify that
has submitted the required number of contacts with amateur radio operators of the Vernon Area to qualify for this certificate celebrating the Vernon Winter Carnival.

Winter carnival

We of the North Okanagan Radio Amateur Club (NORAC), along with the Vernon Winter Carnival Society, are sponsoring a certificate this year to celebrate the 22nd annual Vernon Winter Carnival, western Canada's largest winter carnival, which is held annually in February. This year the carnival is being held 5-14 February. We will be operating daily at the following times. Daily from 2100-2400Z and on 7 February from 2000-0200Z.

This is a free award which can be obtained by sending the log information of QSOs with three Vernon area stations or one contact with the club station (VE7NOR) to P.O. Box 1706, Vernon, BC V1T 8C3. (Vernon area is defined as Armstrong, Enderby, Oyama, Winfield, Lumby and Vernon.) This award, by the way, is offered year-round — not just in February.

Frequencies to watch for: 28.575, 21.375 and 14.295 ± QRM, with possible CW and RTTY operation, also. □

Population Center event a success

On 10 and 11 October 1981, the Jefferson Amateur Radio Club operated a special event station in DeSoto, Missouri. This town had been designated by the Census Bureau as the center of U.S. population.

The site chosen was muddy and rocky, and the day of the event dawned chilly, damp and foggy, but all went well as the club members gathered with their equipment to set up. The equipment used included a Kenwood 820 and 20-meter beam; a Kenwood 520 and 40-meter dipole; a 30-foot tower and 10-meter beam; and a Collins KWM-2A.

High noon approached and the first "CQ Population Center" went over the air. Twenty-four hours and 473 contacts later, a weary but happy group of amateurs sat back and relaxed.

Mike Dieckmann, KAØIAR writes: "Twenty-eight of our members participated in the event, and we used the station to introduce Amateur Radio to 17 people who read about our event in the local paper. Things were a bit hectic, things were soggy, things were lost, things were muddy, Would we do it again? We sure would and we plan to in the future. All the problems cleared up as we enjoyed meeting the amateur community over the air. Your club should do the same. Find a unique spot in your area and set up a special event station. You'll have a ball!" □

Happy New Year from U.S. QSL Service, Inc.

Laryl Myers KM7Z

Did you know there is a bureau you can use for *all* USA/Canadian-bound QSLs? U.S. QSL Service, Inc. is a non-profit corporation. It is a bureau for all QSLs coming in to USA (and Canadian) amateurs. USQS is a FREE SERVICE, run by Laryl Myers, KM7Z.

Using USQS is much like using the other well-known bureaus. Any cards that are going to USA (Canada) can be sent to USQS. Before sending cards: group by call sign area 0-9, then sort each group alphabetically by suffix. Please print plainly!! To receive cards through the system: **keep self-addressed stamped envelopes on file.** Tell your contacts to QSL via USQS, or N7BMY (good in '81 book) or via KM7Z (good in '82 book).

The prefix hunters are doing great, as we have many cards with the new 2x1 calls with their strange prefixes! When claiming cards, always remember to include all of your past calls and family members' calls so we can cross-check our files!

USQS receives both domestic and DX cards daily. Please help by keeping SASEs on file, and tell others. We do offer SASEs for our files at 25 cents each. Please indicate how many cards you wish per SASE.

USQS is a FREE service, donations appreciated. We have been asked how donations are used. Besides buying stamps and envelopes, we have to pay to have flyers printed and for ads when we can afford to run them. As an example, in October we sent out unclaimed cards to their destinations at our expense. Over 250 amateurs received QSLs postage paid compliments of USQS. This complimentary mailing is one way of introducing ourselves to amateurs who are active, and who can benefit from our service. It also helps get cards delivered, so those of you who support and use USQS are the ones who benefit. Donations have not equaled the expenses so far, and even though we wish we could do more advertising, our funds are limited. We appreciate your donations!

If you prefer to send your outgoing U.S. cards direct, consider saving your time, effort and postage and send your cards to us. Send a donation to cover the cost of postage and a note stating you would like the cards mailed out direct, and we will be glad to do so. We have the most current Callbooks, so we can address and mail your cards for you.

The number of unclaimed cards is still very large and growing. Since October of 1980, Worldradio has listed a partial list of calls of amateurs who need to claim cards. Many have told me they watch for their calls and will send SASEs if they see their calls. Please note that the calls listed are a small sampling of what we have and are NOT complete.

USQS welcomes your comments and suggestions, and we thank you for the notes of appreciation and encouragement. **Send your cards, SASEs, etc. to: USQS, Laryl Myers, KM7Z (ex N7BMY), P.O. Box 814, Mulino, OR 97042-0814.**

Following is a partial list of cards on file awaiting SASEs. If your call or a friend's call is here (even if it isn't — hi) send SASE to USQS. 73, Laryl KM7Z.

N1AD	WB1EYI	W1NG	WA2CNF
KA1AMR	KC1F	K1NWE	N2CQ
WB1ANT	WB1FAK	AE1P	WA2CYQ
N1ARP	WA1FCN	WA1PDG	KB2DE
WB1AVA	KA1FVG	K1PLR	AB2E
N1AVL	K1FWE	K1PR	AJ2E
W1AW	KA1FXY	KA1Q	KA2EAY
K1BCI	KB1G	KA1R	WA2ECA
KA1BFC	KC1G	N1RI	KA2EIE
N1BHI	WB1GBA	K1SF	AK2F
K1BHR	W1GG	W1TRU	KB2FC
W1BIH	WB1GQR	W1TSP	KA2FEK
KA1BQB	K1HEF	AB1U	KA2FKI
K1BW	AJ1I	WA1UZH	KD2G
W1BWS	KA1IK	W1WZQ	W2GD
KB1C	AA1K	KC1X	KA2HMI
KA1CXC	K1KI	AI1Y	KD2I
KA1EBA	AK1L	WD2AFI	WA2JAS
KA1EBU	K1LL	W2BMN	KB2JM
N1EE	KA1LR	KA2BNL	KA2KLC
WB1EEM	K1MEM	K2BR	AF2L
KA1EKY	WA1MMD	AI2C	KB2M

(*please turn to page 17*)

Silent Key

Submitted by Victor Clark, W4KFC

Mr. Harry A. McConaghy passed away at his home in Bethesda, Maryland from a heart attack on Saturday, 26 September 1981. He was 71 years of age and was born in Camden, New Jersey.

Mr. McConaghy was well known among the Amateur Radio fraternity throughout the world for many years with the call letters W3EPC, and in more recent years as W3SW. He served as a member of the Board of Directors of the American Radio Relay League from 1970 to 1979, representing the 12,000 members of his district which included the District of Columbia, Maryland, Delaware, Pennsylvania and parts of New York state and New Jersey. His fellow amateurs affectionately referred to him as "Connie Mac."

He was the recipient of many awards and citations for his Amateur Radio accomplishments. Mr. McConaghy was a life member of the Quarter Century Wireless Association, the Society of Wireless Pioneers, and the Antique Wireless Association.

Mr. McConaghy graduated from the University of Pennsylvania with a degree in electronics engineering. Active from boyhood in many fields, he was a pioneer in outboard motor racing, and participated extensively in sailboating and automobile racing during the 1930s.

He was employed in Philadelphia in the field of professional radio as a broadcast station engineer in the 1920s and 1930s, and acquired his first Amateur Radio license in 1934, later qualifying for an Extra Class license and continuing as an active operator and experimenter until his death.

Mr. McConaghy served as a naval aviator during World War II, seeing extensive action in the Pacific area — part of the time with Commander "Pappy" Boyington's famous squadron.

In 1946 he was employed by the Navy's Johnstown, Pennsylvania Development Laboratory, and in 1950 by the Bureau of Weapons Development in Washington, D.C., where he made numerous significant contributions to the design of naval electronic equipment. □

Silent Key

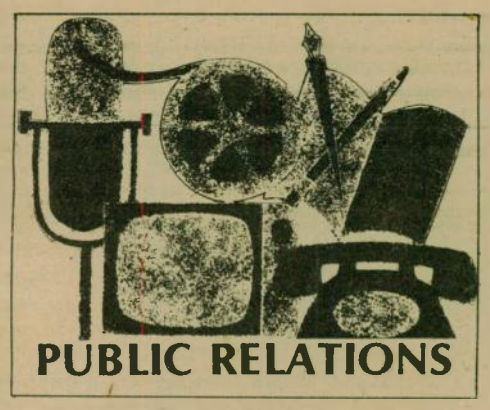
Submitted by Robert H. Mitchell, W2CSL

Alice G. Mitchell, KA2LCV, XYL of Bob, W2CSL (ex-W1PDG, ex-KL7PDG, ex-W8DSA) died 7 October 1981 in the University of Pennsylvania Hospital, Philadelphia.

Interested in hamming since she met Bob in 1942, she got her ticket only last spring, but was enjoying the Atlantic City repeater very much. It took her awhile, as she was homemaker, mother, and finally schoolteacher, but she did it.

Whoever Alice touched was a bit richer.

(Silent Keys continued on page 33)



A man with a dream

Paul Rothman, K3RBO

If it weren't for Rich Sambenedettc, WA3AOP, there may not have been a repeater on 146.685, for all of us to use. There wouldn't be a Holmesburg Amateur Radio Club (HARC). A lot of things would be different. So here is an article about Rich, whose dream made it all come true for HARC and the .685 repeater.

According to Rich, it all started soon after the Johnstown, Pennsylvania flood. Rich — then, as now, a firefighter with the Philadelphia Fire Department — went to Johnstown after the flood of 1970, along with Jim McKernan, WB3CRJ and some other amateurs, to assist in radio communications during the relief operations. It was during this emergency that Rich became aware of the need for emergency communications and training.

"During an emergency like a flood, it is important to have good communications," Rich says, "to aid in the transportation of food and supplies to the disaster area. Certain food items, like milk, can spoil if they are not delivered in a timely manner."

So, the dream of having the ability of providing reliable and clear communications haunted Rich, and he finally decided to do something about it. He applied for a license for a 2-meter FM repeater, and was granted a license with the call sign WR3AJZ, and a frequency allocation of 146.04/.64.

Now, having a repeater license is only half the battle because as we all know, it takes a lot of money, time and effort to put a repeater on the air. So Rich looked for other people who also had an interest in starting a repeater group, and a group of five amateurs formed the original HARC.

They each put up some money, bought the equipment, and went about the job of putting a repeater on the air. The original frequency of 146.64 turned out to be a problem, because a repeater in Pine Grove, Pennsylvania was already in operation on that frequency. When the HARC machine went on the air, the reaction was a little less than friendly. It was then decided that another frequency had to be chosen for the Holmesburg repeater. A look around the frequencies turned up the possibility — 146.085/.685. That frequency had already been allocated to another group — The Pennsylvania Institute of Technology. The frequency had not been used, and the time had elapsed during which a machine was to be in operation on that frequency. So HARC moved in and set up its machine.

What followed next is "a whole other story," says Rich. The important thing is that with that original group of people, a fine repeater came about, and Rich's dream of reliable FM communications through a repeater became a reality.

Thanks Rich, for your dream. □

Balloons sold to fight diabetes

Reynolds Davis, K0GND

For the third year, the Lincoln Amateur Radio Club provided communications necessary to coordinate the annual fund-raising event of the local (Lincoln, Nebraska) Juvenile Diabetes Foundation (JDF). The date of the event this time was 26 September 1981.

Each year, during a University of Nebraska home game, red balloons are sold for $1, with the proceeds going to JDF research. Since balloons are sold throughout the city, communications between sales and supply points for inventory control (over 15,000 balloons were sold in a four-hour period) are necessary. Collection and movement of the proceeds are also handled via Amateur Radio.

Once again, the organizers of the event congratulated the operators and admitted, "We could not have done this without you!"

Those who assisted with communications worked via WR0AEV (146.25/85), and included: Steve May, WA0ASM; KC0CI, Gail Tanbe, KA0CGF; Dave Knisely, KA0CZC; Roger Cox, WB0DGF; Bob Tridle, WD0DJT; Bruce Colgrove, WD0DMS; Gordon Yocum, KA0DWG; Lyle Hurt, KA0DWJ; Jerry Kohn, WD0EGK; Lynn Blesh, K0EK; Jackson Clift, KA0ERQ; Dennis Souba, WD0FDV; Mary Rea, WD0FJY; Reynolds Davis, K0GND; JoAnn Coller, KA5HOJ; KA0JQF; Bruce Steyer, KB0KA, Mike Walsh, KB0QH; Harold Tudor, WB0QQS; Bob Mitchell, WB0RJJ; Mark Cockson, WB0ROG; Russ Copple, WB0RRK; Grady Rea, WB0TED; Joe Eisenberg, WA0WRI; Arthur Gakel, WB0YYE; and Carroll Donoghue, WB0ZUY. □

Amateurs busy at Reunion

Dave Schneider, WD0ENR

The Mt. Pleasant, Iowa Amateur Radio Club provided communications and message handling for the Midwest Old Threshers Reunion in early September, which was attended by some 200,000 people. A guest book was kept at the ham shack on the grounds, and 166 amateurs from eight states signed in. □

In the photo, manning the ham shack are from left: (unidentified visitor); Dave Schneider, WD0ENR; Bill Barber, KA0BTE; Roy Lewis, WA0KLD; and Don Campbell, W0SWY. ***(Photo by Paul Heaberlin, K0KMP)***

Judge James Harvey Brown, W6VH was honored at a large dinner party and impressive ceremony 13 August for his 50 years of membership in the Masonic Order. The amateurs present included (left to right): Ralph Cabanillas, W6IL; Joe Reidel, K6SKT; Bob Jensen, W6VGQ; Lenore Jensen, W6NAZ; Judge Brown, W6VH; Moe Joffe, W6PHE: Nate Shaphran, W6UTE; and Norm Hinkel, K6BA. Plaques and certificates to Jim, congratulating him for important services to city and state, came from Senator Hayakawa, California State Senate, Los Angeles County Board of Supervisors, Los Angeles City Council, The American Legion, Peace Officers Shrine Club (he's a past president), and the Los Angeles Police Department. For more, see Worldradio, March 1981, page 17. ***(Photo by Moe Joffe, W6PHE)***

110-mile Oktobertrek

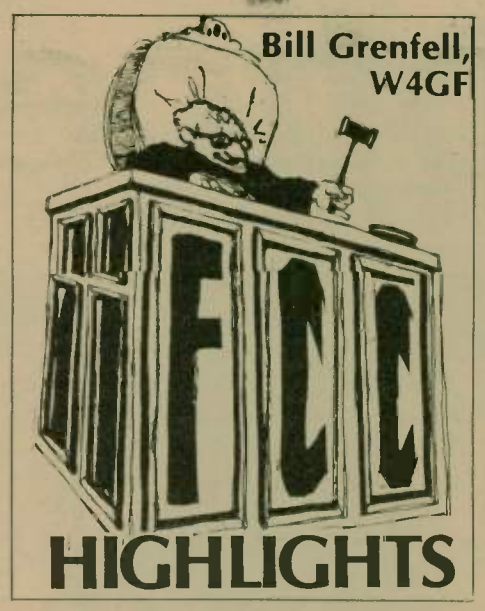
Reynolds Davis, K0GND, Lancaster County EC

The Nebraska Chapter of the American Lung Association sponsored the first Oktobertrek the weekend of 17-18 October. The event featured a 55-mile bike trip from Lincoln to Nebraska City on Saturday, and a 55-mile return trip on Sunday.

Nearly 90 bikers departed Saturday, with all completing the first leg of the trip. However, a dramatic change of weather from sunny 60s on Saturday to wind, rain and temperatures in the 40s on Sunday caused over half to drop out during the return trip.

The Lincoln Amateur Radio Club (LARC) was asked to provide communications along the race route (Nebraska Highway #2) for traffic and safety. In addition to 29 mobile units, five motorcyclists with 2 meters assisted. These five amateurs were: Bob Tridle, WD0DJT; Reynolds Davis, K0GND; Gordon Trout Sr., W0KBS; Roy Burgess, WB0WWA; and John Hauner, WA0YPY. Communications were handled on 146.52 simplex with three of the mobile units (Steve May, WA0ASM; Jerry Kohn, WD0EGK; and Donald Duckett, KA0ERR) also linked on 40 meters (7228 kHz) with end-point links at K0KKV (LARC club station), as well as in Nebraska City.

Other amateurs who assisted in this event included: Howard Cash, KA0AYY; Gail Tanbe, KA0CGF; N0DAE; N0DDE; Roger Cox, WB0DGF; Dave Kunkee, K0DI; Bruce Colgrove, WD0DMS; Lynn Blesh, K0EK; Jackson Clift, KA0ERQ; Mary Rea, WD0FJY; John Treanor, WD0GDU; JoAnn Coller, KA5HOJ/0; KA0JQF; Bruce Steyer, KB0KA; Mike Walsh, KB0QH; Harold Tudor, WB0QQS; Bob Mitchell, WB0RJJ; Russ Copple, WB0RRK; Grady Rea, WB0TED; Ronnie Buman, WB0UHZ; Merland Erickson, K0UJU; KB0WB; Joe Eisenberg, WA0WRI; Scot Davis, WB0WSL; Arthur Gakel, WB0YYE; and Carroll Donoghue, WB0ZUY. □



The Amateur Station Identification rule has been simplified. On 24 September, FCC amended Section 97.84, "Station Identification," to require identification at the end of each communication and every 10 minutes or less during a communication; and deleted the requirement to give the other station's call sign, except when engaged in the exchange of international third-party communications. The action was in response to petition RM-3714 filed by John Kanode, N4MM. The Order was effective 23 October.

•

Senator Goldwater's S. 929 bill to amend the Communications Act has been adopted by the Senate and sent to the House of Representatives. S. 929 would authorize FCC to: 1) Set standards for audio and visual equipment to reduce susceptibility to RF interference; 2) Issue non-broadcast licenses for 10 years instead of 5; 3) Use the services of individual amateurs and amateur organizations (without compensation) for monitoring for violations; 4) use the (uncompensated) services of amateurs to conduct Novice examinations. (Currently the Act does not provide for use of volunteer help.) S. 929 also would make it clear that amateur transmissions are not protected from being revealed (Section 605 of the Act). A late addition to the bill would authorize FCC to prohibit sale of transmitters, amplifiers and kits to anyone not licensed to use them.

•

Rules permitting the use of additional digital codes by amateurs were proposed by the FCC in its Notice of Proposed Rule Making, adopted 1 October 1981. In that notice, PR Docket 81-699, FCC also closed Docket 20777 in which the use of ASCII radioprinter code was permitted in addition to Baudot. The proposed use of additional codes would be limited to: points within areas regulated by FCC; amateur frequencies above 50 MHz; bandwidths of not more than 16 kHz between 50 and 225 MHz, and not more than 40 kHz on frequencies above 225 MHz.

The Notice also proposes an ASCII sending speed limit of 300 bits per second (bps), with A1 and F1 emission on frequencies between 3.5 and 28 MHz where F1 emission is now permitted; and at not more than 1200 bps with F1, F2 and A2 emissions on frequencies between 28 and 225 MHz, where use of those emissions are permitted.

Original comments are due at FCC, Washington, D.C. 20554, by 15 January and reply comments by 15 February 1982.

•

Repeater effective radiated power (ERP) limits would be imposed at 29.5 to 29.7 MHz and raised between 52 and 54 MHz by FCC's Docket 81-697 Notice of Proposed Rule Making adopted September 30. *Above* 29.5 MHz, maximum ERP would be (a) 800, (b) 400, (c) 200, (d) 100 watts at antenna heights of up to (a) 32, (b) 160, (c) 320 and (d) above 320 meters. *Above* 420 MHz maximum ERP would be 800 watts between 32 and 320 meters antenna height; 400 watts above 320 meters. At 420 MHz and bands above, the power input limits of Section 97.67 (a) and (b) would apply to repeater antenna heights below 32 meters. (32M = 105 ft.; 160M = 525 ft.; 320 M = 1050 ft.) Send original comments to FCC, Washington, D.C., 20544 by 15 January, and reply comments by 15 February 1982.

•

"FCC's plain language rules proposal drew well over 1,000 comments . . ."

(From *HR Report*, 25 September 1981)

•

The FCC's 7 October open *en banc* meeting was changed to the 14th. The meetings are intended to give interested persons an opportunity to express their views on a variety of communications policy issues directly to the full Commission and to contribute to the FCC's decision-making process. Dates and deadlines for submissions for future meetings will be announced as the meetings are scheduled.

•

FCC has recommended to Congress that it be relieved of responsiblity for penalizing licensees for transmitting obscene, indecent or profane language. Instead, responsiblity for penalizing users of such language via radio would rest entirely upon the U.S. Department of Justice. Section 1464 of the U.S. Criminal Code reads as follows: " . . . Whoever utters any obscene, indecent, or profane language by means of radio communication shall be fined not more than $10,000 or imprisoned not more than two years, or both." □

International communications

International communication has been a special privilege enjoyed by radio amateurs since the early days of radio. The amateurs' contacts with other "hams" all over the world have given them a "unique ability to enhance international good will," as expressed in Part 97 of FCC regulations. Because their communications cross so many national boundaries, however, they are governed by international radio regulations, treaties, and agreements.

As of this date (16 September) the United States has agreements for third-party communications and for reciprocal operating privileges in Amateur Radio with the governments listed below. This notice supersedes Information Bulletin 19, International Communications In Amateur Radio, dated August 1980.

For more information about this and other Amateur Radio subjects, call the Private Radio Bureau's Education Branch, (202) 632-7197.

Third-party agreements

The United States has made special arrangements to permit U.S. amateurs to exchange third-party communications with amateurs licensed by any of these 29 other governments:

Argentina	Dominican Republic	Guyana	Nicaragua
Bolivia	Ecuador	Haiti	Panama
Brazil	El Salvador	Honduras	Paraguay
Canada	Gambia, The	Israel	Peru
Chile	Ghana	Jamaica	Trinidad & Tobago
Colombia	Guatemala	Jordan	Uruguay
Costa Rica	Mexico	Liberia	Venezuela
Cuba			

The United States also has a special arrangement with the International Telecommunication Union (ITU) permitting third-party communications with its station 4U1ITU in Geneva, Switzerland.

Reciprocal agreements

The United States has also made special arrangements with 64 other governments to grant reciprocal operating permits to visiting foreign amateurs. These reciprocal argeements enable a U.S. citizen who is a licensed amateur to apply for a permit to operate in one of the 64 other countries, and an amateur who is a citizen of one of these other countries to apply for a permit to operate in the United States.

Governments that have reciprocal agreements with the United States are:

Argentina	Grenada	Nicaragua
Australia	Guatemala	Norway
Austria	Guyana	Panama
Bahamas, The	Haiti	Paraguay
Barbados	Honduras	Peru
Belgium	Iceland	Philippines
Bolivia	India	Portugal
Botswana	Indonesia	St. Lucia
Brazil	Ireland, Rep. of	Seychelles
Canada	Israel	Sierra Leone
Chile	Italy	Solomon Islands
Colombia	Jamaica	Spain
Costa Rica	Jordan	Suriname
Denmark	Kiribati	Sweden
Dominican Republic	Kuwait	Switzerland
Ecuador	Liberia	Trinidad & Tobago
El Salvador	Luxembourg	Tuvalu
Fiji	Monaco	United Kingdom
Finland	Netherlands	Uruguay
France	Netherlands Antilles	Venezuela
Germany, Fed. Rep. of	New Zealand	Yugoslavia

Amateurs who wish to apply for a reci-

...important notice

YES I want to know even more about the wonderful world of Amateur Radio

If you received this copy of Worldradio and you aren't yet a subscriber . . . this was your sample copy.

We sent it to you to acquaint you with our reporting on this great activity. Amateur Radio is exciting, challenging, stimulating, satisfying and very rewarding.

You are cordially invited to subscribe to, and be a part of Worldradio.

Tell us something:

So we may better serve you, this space is for your comments, suggestions and even criticisms. If you have any news and information, you are invited to share it. Tell us and we teli the world.

Tell us of your interests and what type of news, articles, features and columns you would like to see. Tell us of your activities. The more we know about you, the better we can tailor this publication to serve you.

Worldradio is a two-way communication. Send in Amateur Radio information and news. Share your knowledge with your fellow amateur and Worldradio reader. We are most interested in your comments and suggestions. We would appreciate being placed on the mailing lists of amateur club bulletins.

Subscriptions received by the 20th of the month will begin with the issue dated two months from the month of receipt, i.e., if we receive the subscription by April 20, your first issue will be June, and will be mailed to you in early May.

TO FACILITATE FASTER HANDLING OF YOUR SUBSCRIPTION, PLEASE USE THIS BLANK

(SOURCE) ☐☐☐☐ (59-60) 1

Name _____

Call _____

Address _____

City _____

State _____ Zip _____

☐ NEW	☐ Renewal	☐ Gift
12 issues	(75¢ per issue)	$9.00
24 issues	(71¢ per issue • save $1)	$17.00
36 issues	(67¢ per issue • save $3)	$24.00
Lifetime	(Be a WR super booster)	$90.00

Overseas Readers! Prices quoted are U.S. funds. Please include $2.00 extra/year for surface mail delivery outside the U.S.

☐ Check enclosed ☐ BankAmericard ☐ Master Charge ☐ Visa

Card # _____ Exp. date _____

Signature _____

Please clip and mail to . . .

Worldradio™
2120 28th Street • Sacramento, CA 95818

Thank you!

procal operating permit should write to the radio licensing authorities in the government of the country to be visited. Applicants may get the addresses of these licensing authorities either from foreign embassies or from radio clubs listed in the Foreign Amateur Radio Callbook.

An amateur who is a citizen of one of the countries above may apply for a permit to operate in U.S. territory by completing an FCC form 610-A, available from any FCC office or, in some cases, from U.S. missions abroad. The completed application and a photocopy of the applicant's current amateur license should be sent to: Federal Communications Commission, Gettysburg, PA 17325 USA.

A reciprocal operating permit issued by the FCC is valid for one year or until the date of expiration on the applicant's license — whichever comes first. ☐

Phone patch regulations

Al Torres, KP4AQI, after getting tired of hearing many different ideas and opinions of phone patch legality, wrote the FCC a letter, listing questions bearing on this matter. He received a reply which seemed to settle the matter. The following is a summary of what was learned:

1. Phone patches are legally authorized by the FCC.

2. Ring Back is legal, provided it meets with the proper interconnection regulations or uses grandfathered equipment (Heath HD-15).

3. Every Amateur Radio operator is a control operator.

4. Interpretations of the law made by Commissioner Ferris are no longer applicable. (An interpretation of a law is not a law until properly contested in a court of law.)

5. Telephone company personnel cannot legally operate or adjust a federally licensed radio station.

The Miami Valley FM Association has a copy of Al's letter to the FCC and their response, which is available to those interested. Write to: Miami Valley FM Association, P.O. Box 263, Dayton, OH 45401.

— The FM Scanner, OH ☐

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 radio district, as of 1 November 1981.

Radio District	Group A	Group B	Group C	Group D
0	KO0G	KC0JX	N0DEW	KA0MNO
1	KG1H	KA1WV	N1BVG	KA1HWR
2	KR2X	KC2JO	N2DAP	KA2NXO
3	KF3X	KB3WJ	N3CMZ	KA3IGS
4	NT4W	KE4ER	N4FXN	KA4WSG
5	KU5U	KD5CX	N5EBJ	KA5MSP
6	NF6S	KE6KO	N6FOC	KA6RPP
7	KO7I	KC7KV	N7DJT	KA7LSI
8	KS8C	KC8PH	N8DJU	KA8OHC
9	KK9D	KC9IY	N9CSX	KA9MAU
N. Mariana Is.	AH0A	AH0AA	KH0AC	WH0AAE
Guam	AH2N	AH2AL	KH2AS	WH2ACZ
Johnston Is.	AH3A	AH3AB	KH3AB	WH3AAB
Midway Is.		AH4AA	KH4AC	WH4AAF
Hawaii	NH6N	AH6DR	KH6PX	WH6ARG
Amer. Samoa	AH8A	AH8AB	KH8AB	WH8AAM
Wake Wilkes Peale			KH9AA	WH9AAA
Alaska	WL7H	AL7DH	KL7QY	WL7ASC
Virgin Is.	KP2G	KP2AG	NP2AM	WP2ACV
Puerto Rico	NP4H	KP4EI	NP4DX	WP4CBN

For more information about call sign assignment in the Amateur Radio Service, see Section 97.51 of FCC rules, or write to the FCC Consumer Assistance Office, Washington, D.C. 20554. ☐

AMATEUR RADIO IN PUBLIC SERVICE

Halloween help

Submitted by Marshall Watson, WB6PCW; Harriet Goldis, WA6REH; and Don Parrish, KB6RJ

Amateur Radio operators from the Santa Clara Valley Repeater Society (SCVRS) and the Lockheed Amateur Radio Club (LARC) once again took to the streets of Sunnyvale, California in a cooperative effort with the Sunnyvale Department of Public Safety. The main effort of the amateur operation was to provide additional safety for small trick-or-treaters with an "observe and report patrol" of 15 vehicles assigned to potential trouble spots within the city by the police. Base communications, using the SCVRS repeater (WB6OQS/R), linking 2 meters and 200 MHz, were established at Public Safety Headquarters with a direct telephone to dispatch.

For the past five years, members of SCVRS have provided the Halloween Patrol support for Sunnyvale. In 1980, SCVRS organizers — who realized not only the proximity, but the potential for assistance from the rapidly growing amateur club of the Lockheed Missiles and Space Company, headquartered in Sunnyvale — invited a cooperative effort which was completely successful. So, this last Halloween was the second year of what should be a long-standing mutual effort.

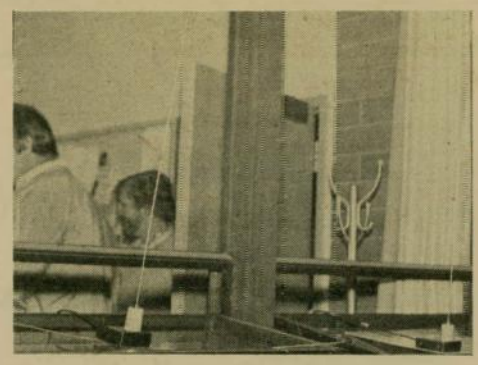
The week prior to Halloween, SCVRS and LARC organizers met with Sunnyvale Police Capt. Bob Dale, watch commander, and Lt. Ray Del Rossi, officer in charge for Halloween eve. Given the number of amateurs available, they determined where we would be the most help, and assignments were made. Lt. Del Rossi also provided a briefing for all the amateurs prior to their going out on patrol.

The communications system itself was kept as simple as possible. The base station was set up in a briefing room and consisted of 2-meter and 220 MHz (backup) mobile units with respective power supply and antenna. A directed net on WB6OQS/R was established at 1928 and secured at 2319, concluding a rather quiet and uneventful evening. Several incidents were reported to the net — the most notable being a non-Halloween related fire.

Halloween Patrol organizers and net control operators (left to right): Marshall Watson, WB6PCW (LARC); Don Parrish, KB6RJ (SCVRS); and Harriet Goldis, WA6REH (SCVRS).

Although not used in the Halloween effort, 2-meter radios are available at Public Safety Headquarters dispatch along with permanently installed 2-meter and 220 MHz antennas for emergency communications.

Participating amateurs were: Bob Elliott, N6AHH; Earl Boggs, KA6AOV; Ruth Lawrence, WA6AQA; Colin Fisher, N6BXO; Guy Ottinger, K6CN; Milton DeBuhr, WB6FEL; Bill Walters, WA2IBM; Gilbert Morris, WB6KCJ; Harvey Lawrence, K6KZ; Ernest Funk, W6MGL; Marshall Watson Jr., WB6PCW; Harriet Goldis, WA6REH; Don Parrish, KB6RJ; Doug Lykken, WB6SFC; Hugh Bryant, Jr., W6TWU; Bob Hudock, K6UAL; Christopher Winter, WB0VSZ; Arla Green, WB6WIC; Fred Rodley, WA6WOL; and Stephen Sledge, KJ6Z. □



Complex (?!) but efficient antenna system.

Amateur Radio helps locate lost man

Submitted by Gene Kirby, W8BJN

Amateur Radio played an important part in the location of an elderly gent near Woodstock, Ohio in October. Noel Brown, in his 80s, wandered away from a rest home and became confused and lost. After trying to find him on their own, the management and staff of the home contacted the Union County Civil Defense (CD) and a widespread land search was started.

The Communications Officer of the CD — Lt. Gene Kirby, W8BJN — contacted one of his club members by the local repeater, (W8BJN/R . . .99/.39) who drove to the airport and got air support. Larry Morris, KA8ETD (who is also a pilot) and a pilot from AIR (Academy for Instrument Rating) flew to the scene and joined the ground search. However, the air search was called off because of darkness, before locating the missing person.

The air operations were directed by Amateur Radio from W8BJN's car radio, via the repeater. The story has a happy ending, however, with the missing man being located the next morning, sitting in a bean field about one mile from the home by the Ohio Highway Patrol helicopter. He was alive and well, after being there for over 36 hours. □

Sirens checked

Submitted by Walter Rees, WA6BAX

Amateurs in the Sunnyvale, California (SCV) area were asked by Sunnyvale's Emergency Preparedness Coordinator to assist in checking out operation of the city's civil defense warning sirens. Most of the sirens had been in place for 20 years or more. While they had been given more or less regular checkouts, these tests had consisted merely of pushing a button at the police dispatcher's console nobody had ever bothered to observe the sirens in the field to hear their wail.

Seventeen radio amateurs manned 17 sirens and reported results of the test to headquarters, where Emergency Coordinator Walt Rees, WA6BAX operated the city-owned 2-meter rig. Result: nine out of the 17 were found not to be operating at all.

Participating in the test were: Malcolm Woodward, W6PLT; John Hallyburton Sr., W6BCY; Harold Hiner, W6WMO; Grant Head, W7CCP; Alan Borken, WB6LZH; KT6W; Kelly Tuttle, WB6AAJ; Bill Robinson, WB6OML; John McCollum Jr., WB6LVD; KA6PRU; Leonard Brumbaugh, K6JDF; Richard Satterlee, WB6VAL; Dave Gray, KE6N; Olney Medalen, W6CIE; Alan Jenson, W6UVP; Guy Ottinger, K6CN; Hugh Bryant Jr., W6TWU; Marshall Watson Jr., WB6PCW; and Jerry Stern, WD6BGP. □

Surprise drill

Richard Franzen
Submitted by Russell Stafford, WB3JVX

Amateur Radio operators scheduled a surprise drill to provide experience for men in locating downed objects, missing persons, or whatever other emergency is created.

The drill was initiated by Russell Stafford, WB3JVX of New Castle, Delaware, using the new Amateur Radio repeater located on Route 73 in Maple Shade, Pennsylvania.

Michael Franzen, WB2UBU, radio officer for Maple Shade, followed through by notifying the other members of the Maple Shade Amateur Radio Club, W2MX, that a small airplane was down in the town, location unknown. Designated areas were given to men who were equipped with their own transceivers, both mobile and hand-held.

Eleven men were in operation by 10:20 a.m., operating out of the radio trailer located by the Heavy Rescue Squad's building. The drill lasted about an hour and a half, covering about half of the town, looking for a "downed airplane."

The "plane" was located by Thomas Blair, WA2RUG, and his wife, Sue, KA2MWN, who reported via Amateur Radio that the plane was located in the swamps by the Pennsauken Creek, near the Maple Shade High School.

All other participants zeroed in, took pictures, and returned to the radio trailer site to discuss the exercise over coffee and donuts.

"The repeater, transmitting from the tower, did a wonderful job of automatically repeating messages to Base Station," Franzen said.

Members participating were Russell Stafford, WB3JVX; New Castle, Delaware; Thomas Blair, WA2RUG, and wife, Sue, KA2MWN; Michael Franzen, WB2UBU; William Fisher, N2BDQ; Jeffrey Pennel, KA2DHE; Philip Wien; Ed O'Brien, K2HES; and a guest, Nathan Burgess, K3RNT; and Harold Jones, WB3JSD.

Also Frank Cochrane, KA2DGF of Moorestown; and Robert Fischer, WB2YEH of Pennsauken.

Russell Stafford and Michael Franzen thanked all persons attending the drill.
— Maple Shade Progress, PA □

Emergency frequencies

North Texas: 7,290 kHz day, 3,961 kHz night
Oklahoma: 3,900 kHz

OFF THE AIR

What a signal!

I just had to write you about my QSO with Dick Goodman, WB1HIH/QRPp with the 50 milliwatt rig he built from QST, September 1981, page 12. On 29 October 1981 at 0535 EST, I was tuning around listening for weak signals, and heard WB1HIH calling CQ from Williamstown, Massachusetts.

I answered his call, and gave him an RST 349, and later, RST 449. I had a FB copy on him, even with all that normal 40-meter QRM. When I first heard his CQ call, I had a very hard time zero-beating his signal in the QRM. If I'm thinking right, 50 milliwatts is just 1/20 of a watt. I just can't get over his FB signal. He was operating at 7.068 kc. His antenna is a dipole at 66 feet in the air. (That helps.)

I work QRPp with my HW-8, but most of the time I answer CQ calls, and one time a feller told me my signal sounded like I was running 100 watts. HI!

I really enjoyed the article in the November **Worldradio** by Kurt N. Sterba on the see-all and tell-all field strength meter. I use one in my shack, and I'm with Kurt on FSM — it tells you something, and like he said, if you make some changes, it will tell you if they were good or bad changes.

Keep up the good work. Looking forward to receiving the next issue.

Best 73,
JAN L. KEMP, WB8VMF
West Alexandria, Ohio □

Ohio check-ins

I am net control for the 146.22-82 repeater, which meets every Tuesday at 9:00 p.m. I think we have the largest number of check-ins in northern Ohio. Over one year and still going strong.

TONY HROMADKA, WD8IZU
Cleveland, Ohio □

A stranger alibi

I was 72 when my first ticket arrived. Someone asked why I waited so long to get into Amateur Radio. My cooked-up answer was: "I always obeyed my mother. She said — 'Never talk to strangers!' "

WALT OTTINGER, KC8HP
St. Clair Shores, Michigan □

Trouble with cable

As radio amateurs, we have been experiencing some very severe radio interference on the 2-meter band from 145.25 to 147.60 MHz. From the information we have received, all the amateurs in this area are having the same type of difficulty. Therefore, on their behalf we would like to register an official complaint. The interference, from what information we have obtained, is coming from Channel 'E' of Teleprompter Cable Television Company's broadcast signal.

Apparently, the signal is coming from the RF cable routings of the cable company's link to the various communities in and around the Lompoc (California) area. This type of network will induce mutual interference. The only solution that we as radio amateurs can see is that Teleprompter remove its signal from that channel and place it on another.

The general manager of Teleprompter has advised us that he does have 22 channels he could go to if this was necessary. We feel this would be the only proper solution,

We have heard from other communities — nationwide — that they are also having the same type of interference from the same type of cable companies. This is a real and dire injustice to the Amateur Radio community. We have been directed through the years not to interfere, and these people seem to get off scot-free. Can something be done?

Sincerely,
CARL LOVEALL
Lompoc Amateur Radio Club
Lompoc, California □

MARS needs volunteers

The USAF (United States Air Force) MARS program in New Jersey is looking for a few well-equipped stations — particularly those with facilities to get on the Air Force 4.5 mHz region nighttime (after dark) frequencies. We have a statewide-linked VHF repeater system which could stand a little more exercise from daytime activity. Input 142.150 and output 143.450 MHz.

Any volunteers may contact G. Harris AFF1NJ, P.O. Box 797, Metuchen, NJ 08840. No ham band-only volunteers, please.

GARDNER HARRIS, AFF1NJ
Metuchen, New Jersey □

Please
send **NEWS** and **PICTURES** to
Worldradio

Seated in front of club station K6DTT in Thousand Oaks, California are H.M.S. (Harold) Richards Jr., WD6BDZ, and Iris Hayes, ZS2AA. Standing is Jan Richards, KA6EED.

South Africa's first YL

I noticed in the November issue of **Worldradio** on page 14, you mentioned you would like some info on any foreign amateurs visiting our area. We have recently had the privilege of having as a house guest Iris Hayes, ZS2AA — the first licensed woman Amateur operator in the Republic of South Africa! What a delightful woman! In visiting with her, this is what we found:

Iris Hayes was a young lady when she became an amateur, living on a cattle ranch in Queenstown, South Africa. In Germany, Hitler had almost obtained the power needed to fulfill his ambitions. Iris often heard the Nazi propaganda personality, "Lord Ha! Ha!" over the family's shortwave receiver.

While tuning across the band one evening, looking for Lord Ha! Ha!'s program, she chanced upon a conversation between three shortwave operators. After "reading the mail" for awhile, one of the men said, "If anyone is listening to this transmission, please do write, no matter where you are."

Always a good sport, Iris dashed off a letter saying she had heard the transmissions, giving the time and frequency. It must have been a good letter because the ham operators arranged times to broadcast to her. Unfortunately, these conversations were one-sided since all Iris could do was listen.

In the course of one of these monologues, it was suggested that Iris complete the requirements for an Amateur Radio license, thus becoming the only woman in South Africa to do so.

The challenge was accepted. Iris studied the regulations and radio theory, gained competency in Morse code, and then went to the post office to take her exam . . . which she passed! Now Iris Hayes was christened with a new name, ZS2AA, and carved her niche in Amateur Radio history as the first lady Amateur Radio operator in the whole of South Africa! The year was 1937!

In the years following, her crisp British accent — carried by radio waves all over the globe — made her an international set of friends.

This past May, while in South Africa on business, we visited Iris in East London. She returned the visit in September, not only to be with us, but to be with many of her ham friends she has known over the years.

After showing her some of the visitor's spots here in Southern California, such as Universal Studios, Forest Lawn, etc., we drove her to our work QTH in Thousand Oaks. She enjoyed visiting the Adventist Media Center and finished up at the microphone of our club station K6DTT!

A lovely lady, a dedicated ham . . . truly a credit to the fraternity!

73!
HAROLD RICHARDS JR. WD6BDZ
Glendale, California □

Excited about solar

The QRP article in the November 198 complimentary copy of **Worldradio** o operating on low power with solar energy is just the type of article I am looking for.

I am presently in a Novice radio theory class (AWARE) and we should be taking our tests soon. I have purchased a used HW-8 and have put up a 40- and 15-meter dipole.

I want to locate articles, clubs and other amateurs who work QRP. Using solar power really intrigues me.

73,
ROBERTA P. BEMBRY
Wilmington, Delaware □

World record still unbroken

Regarding my world record sending on hand key at 35 wpm, as stated in the 1981 Guinness Book of World Records.

I learned Morse telegraph (railroad Morse) at the age of 9, and was working at the age of 14. Worked as a Morse telegrapher on the railroad and other services up until 1936.

Harry Turner, W9YZE

Got my ham ticket in 1936, and was in the Naval Communication Reserve for four years. Enlisted in the Army Signal Corps in September 1942, and set this world record in November 1942. This record is entered on my service record and I have a certificate of achievement from the War Department attesting to same.

I keep up on my American Morse Code and practice on the hand key every day, using both codes.

With the requirements for sending on ham examinations, I doubt if this record will ever be broken.

I am a member of the Morse Telegraph Club, SOWP, QCWA, OOTC and several other clubs too numerous to mention.

73
HARRY TURNER, W9YZE
Alton, Illinois □

What a small world

Hugh R. McCartney

All the hams were assembled, sitting there in rows. Don't get me wrong. These weren't the type of hams Charlie Fonseca sells up at Family Foods in East Falmouth (Massachusetts).

They were Amateur Radio operators, members of a tightly knit organization known as the Falmouth Amateur Radio Association, and remind me some day to check and find out why they are called hams.

The gang of them get together every so often to discuss their favorite subject. At the sessions, you can usually find Kent Swift, Ab Aho, Barry Martin, Joe Kibela, Bob Kilduff, Al "Grumpy" Zwink, Bob Wagner, Mel Briscoe, and Jim Valdes, among others.

They met recently in Falmouth Town Hall, and the meeting produced one of those beautiful, isn't-it-a-small-world, vignettes that merit retelling.

Now hams sometimes have difficulty remembering last names. In their world, they deal in call signs and first names. "Never have occasion to use the last names," one of them said.

W0JF was a guest speaker at the meeting. Everyone knows him as Yardley. Few even knew that his last names was Beers.

Yardley lives in Boulder, Colorado and Gosnold Road in Woods Hole. He's been a ham for over 50 years, moving up and down the bands for a long time.

He told his story to the group in Town Hall that night and they were spellbound. He's made a highly successful career in electrical engineering, and it all started with his love for the radio.

One step further

But Yardley has always carried the avocation one step further than most hams. He builds much of his own equipment.

As a youth, he attended Phillips Academy in Andover. One of his stories started there.

"We weren't allowed to have electrical appliances in the rooms in those days. But I had heard how one could construct a radio in a lunchbox. So, I built my first lunchbox radio and it worked beautifully," Yardley told his fellow hams.

At the end of the meeting, during the usual question and answer period, an elderly man sitting in the audience raised his hand.

"Yes sir," said Yardley.

"In reference to your lunchbox radio, where did you get the idea?" the speaker asked.

"From a magazine, sir," Yardley replied.

"The magazine, perchance, wasn't QST?" the questioner asked, in reference to the trade journal put out by the American Radio Relay League since shortly after the turn of the century.

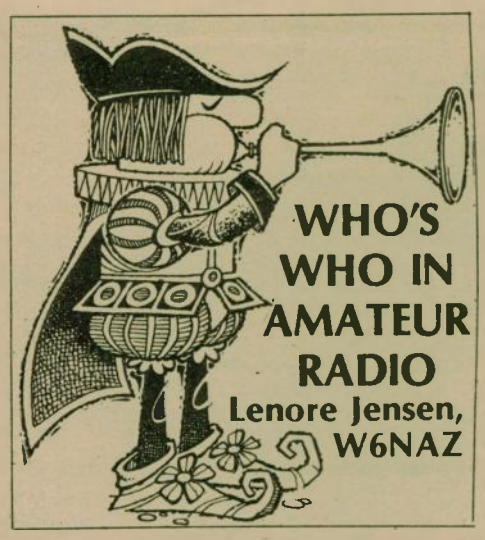
"Why yes it was, sir. Why do you ask?"

"Because," the questioner said, "I was the author of that article."

Yardley was nearly overcome with joy. His face broke into a wide grin, and he walked over to the other man.

"How wonderful it is to meet you after all these years. You set me on my life's course," Yardley told the man and, as one, the entire club stood up and cheered the two men.

Yardley adds that the man mentioned is Edward Braddock, now W1XZ of Orleans, Massachusetts. The QST article appeared in the July 1929 issue.
—*Falmouth Enterprize, Falmouth, MA* □



In Singapore, they call 9V1QM "Tiger," but his formal name is Dato´ Aw It Haw *(Dato´* being a title of respect, somewhat like a British *Sir* bestowed by the Sultan of Selangor, a Malaysian state).

Tiger seems most apt for this outgoing Chinese with a friendly, sparkling personality and great humor! It also recalls the company founded by his father and uncle, manufacturers of the famous Tiger Balm — a medicinal ointment. Many a tourist has come home laden with pictures of the spectacular Tiger Balm Gardens in Singapore or Hong Kong.

His own occupation is as vice chairman, concerned with business administration, of a major Chinese daily newspaper of Singapore — Sin Chew Jit Poh. Its circulation is around 100,000 and Tiger is proud of its many features, including international coverage, and its modern technology. Computer operation for Chinese characters is in the offing.

As you might suspect, he's an extremely well-informed individual with great interest in everything.

Tiger's adventures started early. During World War II, he accompanied his uncle to Burma. "I learned to read and write in Burmese," he remembers, "but sorry to say I've since forgotten all of it except one Burmese song. Shall I sing it for you?"

But he's fluent in other languages. He speaks several of the Chinese dialects, especially Cantonese and Mandarin. Of course, he's good in Japanese; his lovely wife, Akiko, is from Japan.

Tiger's excellent English was learned at prep school near Hightown, New Jersey, where he had chosen to study. Later, he spent time in New York and Miami.

But the one language he didn't study — Francais — could have helped in a time of trouble.

It was about 20 years ago when Aw It Haw decided to learn to fly in the Everglades area of Florida. When he'd racked up 100 hours of flying time, off he went to England to obtain a small plane with one Lycoming engine.

The aim? To fly solo the 7,000 miles back to Singapore, of course! (He'd read about the lady pilot who had done it as well as the ferry pilots who took the route via India and Australia.)

It was a cold December day in England when he took off. Once over France the weather turned foul. Peering down through the rain and fog, Tiger thought he saw an airport. Letting down, he realized it wasn't so he quickly pulled up to continue the search.

When there were but three gallons showing on the fuel gauge, it was time for "any old port in a storm." Down there in the wet appeared a field, so he decided to chance it. Bump, bump, bump over the uneven ground. Slowing, the plane tipped over. The propeller broke.

Alone in the tiny plane in a strange land, he reached for the microphone. "Mayday!" No response. (If only he'd then had a ham rig along?)

Eventually he saw a small auto approaching. It was the farmer who owned the land. Tiger remembers gratefully, "He was a kind man even though we could not understand each other's languages. He took me back to the house and gave me good homemade wine while he phoned the police."

"At last an inspector arrived who, of course, spoke French and I did not."

Tiger tried showing him the aeronautical chart, hoping to learn where he had landed, but communication was difficult. Apparently the inspector called his superior reporting that he'd found a Chinese holding a British passport and a broken British-registered aircraft.

Did the Chinese speak Espanol? Portugese? Deutsch? No. English? Yes!

The farmer solved the problem by sending for a school teacher friend who could serve as translator. They finally decided the Chinese was harmless. A truck came, the plane was partially dismantled and trundled off to the missed airport. Two weeks later, it was again airworthy.

Tiger had been wrestling with a decision — "to go or no-go the rest of the 6,700 miles?"

"You see, I had named my plane the *Spirit of Singapore* (having read about and admired Lindy), so I decided to go ahead."

The remainder of the trip, with its many stops in many countries "was uneventful." *(Really?)*

Today, in Singapore, Aw It Haw is an active business man with many hobbies. 9V1QM's super signal originates with the Collins S Line. He's especially interested in SSTV, taking Polaroid pictures from the screen of his new friends around the world. He enjoys "practicing English" when he QSOs Americans.

There are about 50 amateurs in his city. He'll be very sorry when Reece Whitney, 9V1OI pulls up stakes to return to Texas and retirement from his work with a major oil company. "I'm very grateful for all his help over the years," said Tiger.

Singapore has considerable electronics business, as most realize. He pointed out an interesting fact: transmitters are sold only to those holding proper licenses!

Music is a special pleasure. It used to be the guitar, but now it's the piano. A man of discipline, Aw It Haw states, "I practice half an hour each morning and evening." Then with twinkling eyes and smile, he adds, "If I go to an hour, then I will be like your Liberace?" He laughs heartily, but we know he sincerely admires many of our American performers. As he plays "by ear," he can do all the famous numbers of Nat King Cole, Tony Bennett, etc.

His 49-foot powerboat is another of his delights. He enjoys the opportunities it provides for "tinkering." However, his heavy business schedule and necessary traveling do not allow as much time for sea voyages as he would like.

Aw It Haw is justifiably proud of his beautiful wife, Akiko (*Anne*, to us). They met "on a French ocean liner between Yokohama and Hong Kong. She, too, is a successful business person, operating a large importing company which brings construction materials (including coat and cement) to Singapore. Its name: Timas Pte Ltd. We learn it is not at all unusual for a lady to be a top executive in that part of the world.

From left to right are: Dató Aw It Haw, 9V1QM; his wife Anne; and son John Lai. ***(Photo by Bob Jensen, W6VGQ)***

But that's only part of her activities. Akiko has written a book, *Passport*, for the Japanese. It explains to the island people the customs of other countries. She's a sought-after lecturer in her native country, where she goes at least once a month to speak at universities and for corporations.

Although her volume is not yet translated into English, it would contain much of value to us and help us to understand our Oriental friends. For instance, if a foreign business-person invites a Japanese businessman to dinner, no offense should be felt if the invitation is declined. "You see, if he accepted, there would be created a strong obligation to do business together." The Japanese characteristic of respect for others would make this necessary. "Also, although Japanese may seem very reserved at first, there is great loyalty once a friend has been made."

Both man and wife are active with the International Red Cross and other civic institutions.

There is a well-known collection of jade, made by his father, Aw Boon Haw, which is available to visitors at the National Museum — a rare treat to see.

There are two sons and a daughter. Son John, an engineer, lives in Los Angeles. He's becoming extremely interested in Amateur Radio!

As we go to press, Tiger will be welcoming several Americans to the SEANET Convention in Yogyakarta. These gatherings of amateurs from Southeast Asia are known as very special conventions. (He chaired the one in Singapore a few years ago.) Visitors attest to the splendid hospitality showered by the Asian hosts.

So if you should hear 9V1QM on the air, give him a call — so he can practice his English. And you can brush up on your Cantonese! □

USQS

(*continued from page 8*)

KE2M	NE4F	K4VX	W5NR
W2NSD	KA4FOF	W4VZB	WA5NUK
N2OO	NE4G	KT4W	K5OJI
K2PLF	KA4GDQ	NG4W	N5OM
KI2R	WB4GOG	WA4WRM	WB5OQR
WB2RDQ	K4II	ND4Y	KA5Q
W2RQ	KA4ITQ	W4YE	KM5R
WA2STM	KA4IUS	K4YF	KR5E
WA2SVT	K4KAH	N4YM	W5RBO
WB2TCQ	KA4KFF	WA4YNP	K5RQ
WB2TFL	KA4KID	W4ZM	N5RF
K2TR	KD4TU	KN5A	WA5SOG
WB2VFT	WD4KYO	N5AN	KA5T
WB2WGR	K4KZZ	N5APB	K5UR
N2WT	AK4L	KA5ASD	KB5UZ
AG2X	NE4L	N5ATC	W5VRC
KC2X	KA4LOB	WB5AZI	W5VSZ
W2XQ	WA4LZR	AF5B	KA5W
KK2Y	AA4M	KA5BEE	KM5W
WA2YEX	AI4M	N5BQR	WB5WHR
W2YWK	KI4M	KO5C	KM5X
WV2ZOW	WD4MDY	KA5CBY	AA5Y
WB2ZTD	KA4MFC	N5CG	WB5YDZ
KH3AD	K4MPP	KC5CP	WB5YMS
W3AS	WD4MWJ	N5CPI	K5ZD
KA3BKQ	N4NX	N5CUC	KS6A
KA3BVI	N4OH	WB5DBT	W6ABW
KA3CZE	KA4OLH	KA5DBW	N6AHA
KA3EOX	W4ORH	WB5DDI	WH6AKI
W3FA	KC4OV	KC5DT	KG6B
KA3GGP	KA4PSV	N5DU	KM6B
K3GT	WB4PZN	KC5DZ	KQ6B
K3HBP	W4PZV	N5EH	W6HSY
K3IU	WB4QBB	K5FP	KA6BTU
WA3JYV	K4QHH	KN5G	N6BZA
W3LPL	W4RKC	KA5GFJ	WD6BZS
KC3M	KA4RWC	KA5GIS	KK6C
AI3Q	KA4RYV	KA5GJO	KH6CKJ
K3SA	AA4S	K5GO	N6DHV
K3TA	KX4S	KA5GQO	WA6DIL
W3YY	KA4SAA	KA5GYM	W6DKO
WD4AHZ	KA4SCW	KM5H	K6DMN
KA4AIK	KA4SDS	KN5H	KH6DQ
N4AOJ	KA4SLD	KA5HFB	N6DY
K4AWY	N4SO	KA5HGE	KD6DY
WD4AXM	W4SPR	K5HGL	K6DYP
WD4BCB	KA4STL	W5HTK	WA6DZM
KD4BI	KW4T	KA5IEY	K6EBK
W4BMX	W4TFB	K5IID	WA6FZL
K4BNT	WA4TNT	KA5JCW	WD6EOE
N4BP	K4TS	KM5K	KA6EVT
KD4BU	AA4U	KA5KDK	W6ESJ
N4CD	NC4U	W5KL	K6EXQ
W4CUE	N4IU	KA5KNO	KM6FC
N4DFO	KC4UQ	WB5KYR	KA6FRY
K4DOR	N4UZ	KF5M	KE6G
WA4FHS	KC4VA	K5SM	KV6G
K4EZS	AA4VK	K5ME	NB6G

WA6GFV	W6OUL	KQ6V	WA7CAO
K6HIH	W6OVO	KT6V	N7CCW
KB6HM	W6OWQ	WA6VEF	N7CFO
KH6IJS	AE6P	KK6X	N7CMS
N6IP	AK6P	KR6X	W7CQR
KJ6J	K6PFW	K6XO	N7CYQ
KU6J	W6PGM	KD6XO	N7DD
KH6JRZ	W6PQZ	WB6YQV	KC7DD
N6JV	W6PRI	AI6Z	W7DG
AA6K	W6PWH	N6ZB	KA7DNJ
KK6K	KD6QE	N7AAL	WB7DOW
KA6KAO	K6QEZ	N7AEN	W7DRA
AA6KB	WB6QPG	AL7AF	AE7E
KR6L	N6QQ	KL7AF	W7EKM
WB6MBF	W6QUV	WB7AGZ	KA7ESS
WA6MIV	KF6R	KA7AHN	AF7F
W6MSF	W6SYM	N7AM	WB7FDQ
N6MW	KU6T	N7AME	KA7FIP
W6NAT	NC6T	WL7AON	KA7FIT
KD6NH	W6TKF	W7AYY	KA7FWY
WB6NHF	W6TZE	N7BES	AD7G
KA6NVM	WA6UFY	KA7BOJ	W7GB
KV6O	W6UZL	WB7BQP	K7GM
WA6OCV	AE6V	W7BUN	KA7GSS

W7GV	WB7PYR	WD8AAQ	KB8SO
KA7GVY	KD7Q	KA8ABU	K8UM
W7GXC	WB7QBC	K8AZ	N8UM
KA7GXK	WB7QCW	AC8E	K8UNP
NL7H	K7RDC	W8GDR	W8UVZ
W7HPI	N7RO	AD8I	AI8W
KG7I	AJ7S	N8II	WB8WHJ
KI7I	KB7SC	AI8J	W8WPC
N7SU	KA8JAZ	K8WW	KB9J
K7SV	KA8JCL	K8ZE	W9JBR
W7TYN	KC8JH	AA9A	AE9K
WA7UEC	KA8JYI	N9AAR	AK9L
KB7UL	W8KKF	KB9AW	W9LMC
WA7UQV	WD8KKF	AA9B	W9MZZ
N7US	KA8LJD	N9BGS	W9NUF
K8LJG	N9BKT	KB9OF	N0BIW
KA8LKG	N9BKU	W9PNE	WD0BNC
W8LT	K9BN	K9QOF	N0BQW
K8MJZ	KA9CHP	K9RF	N0BRI
WD8OWA	WD9DCL	W9RW	WD0BWH
KN8R	WD9DVO	WA9TGL	WD0CCL
AA8S	AB9E	KI9U	WD0CCW
KJ8S	KD9E	W9VT	WD0CHC
WB8SEN	W9FI	W9WLA	KA0CUC

K9FW	K9XR	KJ0D	KA0KBY
K9FZV	AD9Y	KA0DCP	W0KEA
K9GHP	W9ZRX	KA0DKJ	K0KKV
KA9GIZ	K9ZVU	KA0DXR	KB0KX
KA9GNG	WA9ZZG	AE0E	WB0LFY
KA9GNW	KF0A	W0EJ	AE0M
KA9IHG	WD0ADD	WD0EWD	KF0M
KA9ILL	N0AFW	W0EXG	WA0MTM
KB9J	K0AL	KG0F	AC0N
W9JBR	KA0ANR	KA0FBZ	KB0ON
AA9A	WA0AVL	N0GA	KI0Q
AE9K	N0BCN	AF0H	N0RJ
AK9L	KC0BF	KF0H	WB0RNA
W9LMC	WD0BFT	KA0HJI	K0RWL
W9MZZ	N0BIW	AB0I	AF0T
W9NUF	N0BKH	KI0I	KB0TL
W9PNE	WD0BNC	W0IJN	WB0UFL
K9QOF	N0BQW	KA0IKD	K0UK
K9RF	N0BRI	KA0IQM	K0VBU
W9RW	WD0BWH	KA0JVI	KB0VV
WA9TGL	WD0CCL	KA0JNP	K0WA
WD9DVO	WD0CCW	KA0JQU	KB0WD
KD9E	WD0CHC	WB0JWQ	W0WYV
W9WLA	KA0CUC	AE0K	WB0YJT

Hut, 2, 3, 4...

440, 220, and 146MHz. Any way you go, ICOM has you covered...

Complete, affordable and fun...That's the new ICOM IC-4AT 440MHz handheld. Identical in size and appearance to the very popular IC-2AT, the IC-4AT gets you into the 440MHz band at a very attractive price. The accessories used with the IC-4AT are the same items you may previously have purchased for use with your 2AT.

The IC-4A and IC-4AT cover 440 to 449.995MHz in 5KHz steps, giving full coverage of the FM portion of the 440MHz band. Featuring ±5MHz offsets, top panel switch for control of PL, 16 button Touchtone® pad, thumbwheel switch frequency selection and ICOM performance, the IC-4A is unsurpassed in a 440MHz handheld.

The IC-4A comes standard with BP3 battery pack, flexible antenna, belt clip, earphone and wrist strap.

ICOM

The World System

2112-116th Avenue NE, Bellevue, Washington 98004 / 3331 Towerwood Drive, Suite 307, Dallas, Texas 75234

All stated specifications are approximate and subject to change without notice or obligation. All ICOM radios significantly exceed FCC regulations limiting spurious emissions.

ICOM IC-730

ICOM's Go-Anywhere HF Rig for Everyone's Pocketbook

$50 Holiday Cash Rebate

From ICOM to you.

$50.00 for the purchase of an IC-730/PS-15 SYSTEM
$40.00 for the purchase of an IC-730 only.

Expires Feb. 28, 1982

Compact.

Only 3.7 in (H) x 9.5 in (W) x 10.8 in (D) will fit into most mobile operations (compact car, airplane, boat, or suitcase)

Affordable.

Priced right to meet your budget as your main HF rig or as a second rig for mobile/portable operation.

Convenient.

- Unique tuning speed selection for quick and precise QSY, choice of 1 KHz, 100 Hz or 10 Hz tuning.
- Electronic dial lock, deactivates tuning knob for lock on, stay on frequency operation.
- One memory per band, for storage of your favorite frequency on each band.
- Dual VFO system built in standard at no extra cost.

Full Featured.

- 200W PEP input—powerful punch on SSB/CW (40 W out on AM)
- Receiver preamp built-in • VOX built-in
- Noise blanker (selectable time constant) standard
- Large RIT knob for easy mobile operation
- Amateur band coverage 10-80M including the new WARC bands
- Speech processor—built-in, standard (no extra cost)
- IF shift slide tuning standard (pass band tuning optional)
- Fully solid state for lower current drain
- Automatic protection circuit for finals under high SWR conditions
- Digital readout • Receives WWV • Selectable AGC
- Up/down tuning from optional microphone
- Handheld microphone standard (no extra cost)
- Optional mobile mount available

ICOM

2112 116th Avenue N.E., Bellevue, WA 98004
3331 Towerwood Dr., Suite 307, Dallas TX 75234

STATION APPEARANCE

Certainly a classy looking station! And we don't think he cleaned it up just for the picture! This is the operating position of Mike Stone, WB0QCD, Lowden, Iowa.

"I became interested in shortwave radio in 1964," Mike writes, "when my Dad bought me a $30 receiver. First became licensed in 1975, and currently hold General Class license. I'm active on HF, VHF, UHF, SSB, FM, FSTV, SSTV, and RTTY."

Mike has worked 47 DX countries on 10 meters SSTV, and has over 2,000 contacts on 10-meter SSTV. He's building an ATV repeater system for Iowa.

Mike keeps busy as a member of SWOT, SMIRK, AMSAT, 10-10, Navy MARS, ARRL (he's a Section Emergency Coordinator), and is publisher/owner of A5 ATV Magazine, a Specialized Communication Journal, published six times per year with a worldwide subscription roster of over 1,600.

The gear in the photo is listed as follows: Drake MN-2000, Sanyo Monitor, Robot 400 SSTV Converter, DL2RZ SSTV Converter SC-422, Sharp RT-3388A cassette system used for RTTY and SSTV; ST6K Hal RTTY demodulator with crystal-controlled AFSK and UART, CDE Ham 2 Rotor system, Regency HR-212 for VHF RTTY Yaesu line FL/FR101 series; SP50 Phone Patch; FL2100 linear; YO-100 Monitor Scope; 28 KSR Teletype with 3-speed gearshift; PC Electronics FSTV System for 439.25 MHz. ATV, Kenwood 700-A all-mode rig (not in picture).

WB0QCD informs us that he used a 60-foot crank over (homebrew design) tower with Mosley TA33, Cushcraft 4-element 6-meter beam, 2-meter FM Twist, stacked pair of 96-element "J" beams for ATV, Hustler GP6 Ground Plane.

"I enjoy reading Worldradio," Mike adds. He'll soon be able to enjoy it for free, with the one-year extension he's won on his subscription.

How does your "station appearance" stack up with WB0QCD's? □

The next generation

Submitted by Walter Rees, WA6BAX

Mike Doherty, age 14, has been an amateur for two years; he has his Advanced Class license. He's not partial to any particular operating mode. He says he likes to work CW and SSB equally well, but especially likes to rack up some DX contacts.

His other interests include working with his father's TRS-80 computer, and he also enjoys hunting and fishing in the Sierra Nevadas (in California).

What does he want to do "when he grows up"? Go into electronics. □

Mike Doherty, N6EAF reports March of Dimes Walk-a-thon progress to Hugh Bryant, W6TWU; Steve Sledge, KJ6Z; and coordinator Walt Rees, WA6BAX. *(Photo by Chuck George, WB6YHS)*

American Radio Relay League

J.A. "Doc" Gmelin, W6ZRJ
Past Director, Pacific Division
ARRL Honorary Vice-President

One of the major issues facing the ARRL Board of Directors in recent months was PR Docket 80-729 from FCC — the so-called "plain language" proceeding.

The Docket proposed to simplify the language of the FCC Rules and Regulations, which certainly sounded like a good idea at first glance. The idea was to reduce the complexity of the present regulations by eliminating some and rewriting others in simpler language.

Certainly no one objected to simplification of language, but the FCC proposal also outlined certain other changes in the regulations which many radio amateurs and League members questioned as really being in the best interest of the Amateur Radio Service.

After much discussion with League members and a solicitation of opinions regarding the FCC Docket, which was released in December 1980, the League requested that the Commission abandon "plain language" by withdrawing the Notice of Proposed Rule Making. (See page 1 for more info.)

Exact details of the League's objections to the proposed changes can be found in an article appearing on page 61 of November 1981 QST entitled "League Comments in Plain Language: 'No Thanks.'" The article is subtitled "ARRL objects to the wholesale rewriting of long-established and clearly understood rules which have withstood the test of time."

The proposal was generally a part of the move by the FCC to "deregulate" the Amateur Radio Service.

There seems to be a strong move at "deregulation" in many quarters these days. An example is a proposal in Congress to "simplify" the Citizen Radio Service by changing the Rules and Regulations to eliminate CB licensing altogether. Under this proposed change, anyone could simply purchase radio equipment and operate on the Citizen Band without the need for obtaining a license. What would the result be if the same were done in the Amateur Service?

Of course, in the Citizen Radio Service a majority of people are now operating without any license at all by a ratio of something like eight to one.

The proposal to solve the problem of unlicensed operation on CB is to simply eliminate the requirement for a license, and then the large majority will become legal.

One of the problems is that the FCC staff simply does not have the means to monitor or follow through on regulating the large numbers who operate "outside the law.' Under new proposed budget cuts, the FCC will have even less money and personnel.

Even in the Amateur Service, the FCC seems nearly unable to do the monitoring and regulatory work necessary to keep illegal operation out of the amateur bands.

"Deregulation" may well be from an attitude of "If you can't lick them, join them." Are we going to change the rules to make those who do not follow the rules legal, since we can't seem to regulate and police everyone?

While some of the recent "deregulation" moves by the FCC have helped in smoothing operation by radio amateurs, many now wonder if some of the moves really were such a good idea.

As an example, the change in regulation to allow an individual to keep his radio call sign when moving from one FCC call area to another sounds good. If an amateur with, say, a "W2" call moves to California, he can now request that he be allowed to keep his "W2" call. In fact, he does not even need to sign "portable W6" any longer.

This is good for amateurs who have become highly attached to their call signs. The problem is that call area numbers identify the general areas in which stations are operating. At least, this is the way it was before regulations were changed.

Originally, the idea of FCC call areas was to help the monitoring stations identify amateurs by general location; but being able to identify a station as to its general location also helps radio amateurs, in many cases.

How often do we amateurs respond to CQs, believing the station to be in a particular state because of the station's call sign? Then, upon making contact, we discover the station is in a location 1,000 or more miles from where we thought it was located. This can be particularly frustrating in certain Amateur Radio operating contests, or when an amateur is working for certain operating awards.

In other matters, one wonders whether or not deregulation has really helped radio amateurs. Take the matter of log keeping.

When required to do so by regulation, I kept a pretty detailed log of my own operation, with the calls of all stations that I worked listed. When deregulation of log keeping procedures went into effect my log keeping went nearly to zero. (I wonder how many amateurs under the new regulations even keep the simple log that is required?)

Later, I found that the records I had kept over the years were highly valuable to me for many reasons, such as knowing what times I had been on the air on a certain day, keeping track of the calls of old friends, and verification of particular contacts.

I have now gone back to keeping a complete and detailed log — not because of requirements but for my own use. I found that the original requirement, which started me keeping a log in the first place, was to my advantage as well as to the advantage of the FCC.

Again, the change in the regulation on log keeping came about in good part because the Commission found they were unable to police everyone to make sure they kept a log. Many amateurs probably did not keep logs, so why not make log keeping simple; then everyone would at least keep the simple logs. Has this happened?

Referring back to Docket 80-729: one of the problems with the "plain language" rewrite, had it passed, would have been a name change for the Amateur Radio Service. The Service would have been renamed the Amateur Telecommunications Service."

Does a name change really make any difference? It does if in the end it changes what the service really is. In fact, the proposed "plain language" rewrite would have eliminated the definition of the Amateur Radio Service as a service to the public. It would, in effect, have made Amateur Radio just another personal hobby like fishing or hunting.

The fact that the Amateur Radio Service is a service to the public is what has often helped us win cases in court regarding the installation of amateur antennas. This fact has also helped us win battles to keep our amateur frequencies — battles which have been fought in the United States and at World Administrative Radio Conferences.

In the article explaining the League's position on "plain language," the point was made that there are more serious problems facing radio amateurs today than will be helped by a "plain language" change. The article stated, "The most serious problem confronting Amateur Radio in the United States is the proliferation of highly restrictive zoning ordinances."

From this, the conclusion was drawn that "we need a 'Bill of Rights' more than 'Plain Language.'"

The League also pointed out the unfairness of the FCC move to restrict the availability of commercial external RF amplifiers that will operate between 25 and 35 MHz. This was done in an attempt (largely unsuccessful) to eliminate illegal operation of high-power amplifiers on the 27 MHz Citizens Band (CB).

But we radio amateurs are also caught in this new regulation. We can legally operate a kW amplifier on our amateur 28 MHz band, but cannot legally purchase a new commercial amateur 28 MHz kW amplifier.

Again, the FCC has made a "shotgun" regulation to try to solve a problem that should be solved by strict enforcement of the FCC Rules and Regulations regarding the CB. This is something the FCC and our federal government seem unable to do. □

ARRL election results

The ARRL Committee of Tellers met on 20 November to count ballots in the elections just concluded for director and vice director. The number of votes credited to each candidate is as follows.

The first listed candidate is declared elected for the next term of office. Atlantic Division for vice director, Hugh A. Turnbull, W3ABC, 4156; Alan H. Komenski, AC2K, 1609. Delta for director, Clyde O. Hurlbert, W5CH, 1031; O.D. Keaton, WA4GLS, 894; Lionel A. Oubre, K5DPG, 788. Midwest for director, Paul Grauer, WØFIR, 1785; Robert S. McCaffrey, KØCY, 1251. Pacific for vice director, Jettie B. Hill, W6RFF, 1754; Ross W. Forbes, WB6GFJ, 1501. Southeastern for director, Frank M. Butler, W4RH, 3508; Stewart H. Woodward, K4SMX, 2169.

The new directors and vice directors take office starting 1 January 1982. On that date the following candidates — previously declared elected — also take office for two-year terms. Atlantic Division Director Jesse Bieberman, W3KT. Canadian Division Director Mitch Powell, VE3OT; Vice Director Thomas B.J. Atkins, VE3CDM. Dakota Division Director Garfield A. Anderson, KØGA; Vice Director Theodore A. Olson, KØTO. Delta Division Vice Director Edward W. Dunn, W4NZW. Great Lakes Vice Director George S. Wilson III, W4OYI. Midwest Division Director Claire R. Dyas, WØJCP and Southeastern Vice Director Evelyn D. Gauzens, W4WYR.

Previous director balloting in the Great Lakes and Pacific Divisions was declared null and void by the Executive Committee, and new director ballots in those divisions were to be mailed to members early in December, with those ballots to be counted on 20 January 1982.

The Central Division recall balloting resulted in a yes vote of 2094 and a no vote of 2931. The recall therefore failed and Edmond A. Metzger, W9PRN continues as director of the Central Division.

DX WORLD

John F.W. Minke III, N6JM
6230 Rio Bonito Drive Carmichael, CA 95608

Activities calendar

09 January	**73 Magazine** 40-meter Contest (Phone)
10 January	**73 Magazine** 80-meter Contest (Phone)
16-17 January	**73 Magazine** 160-meter Contest
29-31 January	**CQ Magazine** World-Wide 160-meter Contest (CW)
13-14 February	VERON "PACC" Contest
20-21 February	ARRL International DX Contest (CW)
06-07 March	ARRL International DX Contest (Phone)

W-100-N

The following amateurs successfully completed the requirements for the **Worldradio** Worked 100 Nations Award during the period 13 October through 9 November.

143. DF2RG	Gerhard Jaeger
144. W7GLU	Charles Butt
145. WA6IRN	Sherman Stanley
146. KB7SC	Andrew O. Isar
147. W0YBV	Charles J. Ellis
148. VE3FEA	Wilfried Antheunis

Wilfried Antheunis, VE3FEA is the first Canadian to apply for the award, and his certificate has been endorsed "1st Canada." Charles Ellis, W0YBV provided the necessary QSL cards all on CW. As much DX activity, at least outside of Europe, is on SSB these days, it is no easy task to do it on CW.

Gerhard Jaeger, DF2RG was another DX applicant, the second one from Europe to apply for W-100-N.

United Arab Emirates (A6X)

Check 28.705 MHz at 1500 UTC for A6XWT as he has been reported on this frequency and time on three different days. He has also been worked on 28.676 and 28.724 MHz at the same time. The operator, Tom, evidently prefers 10 meters as we have no other than 10-meter reports for him.

On 15 meters, A6XJC has been found on 21.263 MHz at 1615 UTC. If you care to send your QSL card direct, refer to the section on QSL routes.

Bahrain (A9X)

Several stations are active from Bahrain. Ed Ross, A9XCE visits 15-meter CW often and has been worked on 21.005 MHz around 0400 UTC.

Also on this band, A9XDD has been found on 21.356 MHz at 0300 UTC working the deserving sidebanders. We have also an A9XBE on 21.286 MHz at 2200 UTC.

10-meter weather is here with A9XCE on CW at the low end of the band from 1300 UTC and A9XDO on SSB from 1600 UTC near 28.608 MHz. A9XDD has been up here too, on 28.750 MHz from 1300 UTC.

Mauritania (5T5)

Look for 5T5RR, who is often around 28.510 MHz from 1400 UTC and later at 2300 UTC. He has also been worked on 21.294 MHz around 2300 UTC.

On 20 meters, 5T5ZZ has been worked at 2300 UTC on 14.212 MHz. Below the American Phone Band, 5T5AY has been worked on 14.185 MHz at 2120 UTC.

Campbell Island (ZL/C)

Chris, ZL4OY/C, should be on now and plans a one-year stay on the island. He will be using an ICOM 701 with a tri-band array and dipoles for 10 through 160 meters.

Also on the island is Les Price, ZL4PO/C, who has been reported on 14.205 MHz around 0930 UTC. Les has been found on 40-meter CW near 7.006 MHz from 1000 UTC. This station should be active for another four years.

Those P41's

A strange prefix surfaced during the past two World-Wide DX Contests. P41C and P41E were the calls used by the two multi-operator, single transmitter operations in October and November respectively. No, it wasn't a new country. It was just another prefix for Curacao in the Netherlands Antilles. If you worked P41E, send your QSL request to John Laney, K4BAI. P41C may be QSLed via Anthony McClenny Jr., WB3JRU, or Robert Sawyer, N4BV.

Grand Cayman Islands (ZF2)

Dick Beers, WD9IIC will be operating from the Grand Cayman Islands during the period 18 December through 28 December using the call ZF2FK. Most of Dick's operation will be on CW, 10 through 80 meters.

Those DXers who hold a Novice Class license might want to listen for ZF2FK, as he plans time on the Novice bands. Unfortunately, Dick did not provide an operating schedule to let us know when he will be on those bands, and which bands.

Christmas Island (VK9X)

Craig Woodford, VK9XW keeps the deserving DXer happy with his operations on Christmas Island. Look for him on the YL ISSB System on 14.332 MHz at 0945 UTC, Tuesdays. The YL SSBers have been around for 18 years now, and have been known to attract some interesting DX. You don't have to be a member of the system to join in.

Willis Island (VK9Z)

VK9ZG is another check-in to the ISSB system. He can be found on Thursdays from 0915 UTC on 14.332 MHz, with this session controlled by Jill Weaver, VK6YL. Incidentally, it's worth the effort to stay up late to work that lovely YL.

This station has also been found at later times on the lower end of 20 meters. He has been found quite often on 14.205 MHz after 1000 UTC. He plans to leave the island soon.

North Korea

It was reported in the information newsletter of the Lynx DX Group that a P5AC was found on 14.132 MHz at 1800 UTC. No other activity reports have been seen on activity from North Korea.

South Korean amateurs are in the process of phasing over their "HM" perfixes to "HL". When this is completed, the "HM" will be North Korea. Those calls you presently are hearing with the "HM" prefix are South Korea.

Ciskei

On 4 December 1981, Ciskei — another South African "homeland" nation — will be formed. No prefix has been assigned as of yet. Like Transkei (S9), Bophuthatswana (H5), Vendaland (T4), it will count only as South Africa for DXCC purposes. But it does count for a nation for the **Worldradio** Worked 100 Nations Award. It is already on the Nations List.

Romania (YO)

Last summer there were a few Romanian calls with "WUG" suffixes. There were nine of them, signing YO2WUG through YO0WUG, in celebration of the World Summer University Games. If you worked at least three of these stations, you are eligible for an award. Send your log extract, with a fee of seven IRCs, via the Romanian QSL Bureau, P.O. Box 05-50, 76100 Bucharest, ROMANIA.

Antigua and Barbuta (V2A)

This is a newly independent country now signing with a V2A prefix, formerly VP2A. there will be no change in the DXCC status, but the demand will be there for a bit until the deserving prefix hunters are satisfied. Active stations from Antigua include Guylin Dudley, N6YK/V2A who has been reported on 3.793 MHz at 0600 UTC and Ken Jarvis, V2AJ who has been worked on 7.024 MHz at 0430 UTC.

All that activity early in November was the celebration of their independence. A certificate is available for working at least four of these V2A stations during the event. Send log extract with a fee of $1 to P.O. 550, St. Johns, ANTIGUA.

Indonesia (YB)

Indonesia is well represented on the bands, especially on 10 meters where you may find YB3DC, YC2BSF and YC2QK near 28.530 MHz from 1300 UTC. Henri, YB3DC has also been found calling stateside stations on the band around 0200 UTC. YC1GJ is workable on 28.582 MHz from 0100 UTC.

YC1GJ has also been found on 21.315 MHz from 1700 UTC along with YB0BK on 21.022 MHz from 1700 UTC. Then on 20 meters you may find YB0PG between 14.215 and 14.240 MHz from 1100 UTC with YB0ADC on 14.250 MHz from 1000 UTC.

Down on 7.008 MHz after 1000 UTC you might listen for YB9ADE. This country is well represented, and you should have little trouble working this group of islands — both CW and SSB. With winter upon us, most likely you can also grab an 80-meter contact with Indonesia. A quick check of my records shows me I need that one on 80 — 40 too!

Crozet (FB8W)

FB8WG is still in there with contacts from Crozet Island. Unfortunately, the sickies have found him and delight in jamming him with malicious QRM. It is indeed a sad state of the art today, with the sophisticated equipment that is available, that the character of the amateur is in directly proportional to his equipment.

He is presently operating from lists, which in this case is necessary. There is a Saturday list on 21.280 MHz at 1600 where he is due to show an hour later. Europeans may find him almost daily on 14.170 or 21.170 MHz at 1600 UTC, where the list is reported to be taken at 1430 UTC.

Most likely, by now his activity will be increased with additional equipment being sent to him. He has been worked on the West Coast long-path on 14.010 MHz at 1600 UTC, Sundays. Signals, however, are still poor here, mainly due to the rhombic antenna aimed at France. A rotatable beam will solve that one.

Here's the gentleman who gave out Brunei to many of the deserving. Bob Parkes, VS5RP was with the Satellite Tracking Station in Brunei. Bob, whose home call is G3REP, has been reassigned to Saudi Arabia. ***(Photo courtesy of Barry Vierra, WB6GZK)***

San Felix Island (CE0X)

Bob Read, KF1O (ex-WB1GDQ) did operate from San Felix Island. Two other amateurs were to have gone with him, but changed their plans, with Bob making this a solo effort as KF1O/CE0X.

His operation was short and was forced to shut down after two days. A report was given that he was causing RF interference with the governmental radio system. Although he found the fault in their system, pressures, and time prevented him from correcting the problem. Bob did manage to make over 600 contacts.

Operating from San Felix Island is a difficult situation. From what we understand, Chilean nationals cannot operate from San Felix and "outsiders" can. This makes the CE types very unhappy, and understandably so.

160 meters

The summer static is gone and with that, 160 meters should be in the news again. Manufacturers of Amateur Radio equipment are now including this band in their new models. Years ago, the 160-meter band was included in the equipment (remember the old Viking Ranger). At least three 160-meter contests are on board to stimulate your interest.

The Japanese have been authorized operation on this band now, beginning 1 January 1982, from 1810 to 1825 kHz, CW only.

Richard, VP8ANT will be down in the Antarctic for at least 22 months commencing in November 1981. He will be operating on CW, split frequency, 1800 and 1807.

Other active DX stations on this band include EA8AK who has been worked on 1850 kHz at 2130 UTC; ZL1AH on 1804 kHz at 0630 UTC; 4U1ITU on 1935 kHz at 2200 UTC; and 7X4MD on 1837 kHz at 2100 UTC. Also reported on the band include such calls as ZD8TC, LU9EIE, EI9J, SP9DH, VK5KL, VS6DO, FO8GM, YU3FF, ZS6DW, OA8V, EA8QO, EA9EU, LA5HE, OE1KM, YB9ADE and PY1RO.

Delta Division Convention

Now is the time to plan for the Delta Division Convention in Knoxville this coming Memorial Day weekend. The DX program will include Don Search, W3AZD of the DXCC desk, and Bob May, K4SE, the official checkpoint for WAZ, who will be available for checking QSL cards for the WAZ award.

As the World's Fair will be in Knoxville, May through October, perhaps this would be a good time to attend the convention if you are planning to attend the fair — or as the case may be, the other way around.

The convention, held at the Bearden High School on 22 and 23 May, is part of the 16th Annual Greater Knoxville Hamfest. Additional information is available from Ray Adams, N4BAQ, 5833 Clinton Highway, Suite 203, Knoxville, TN 37912. Telephone: (615) 688-7771, Days, and (615) 687-5410, Nights.

Clubs

Organization of a new Central California DX Club is on the move. It is reported that at least 55 DXers have signed up as Charter Members. The board includes Leon Brammer, W6BYH; John Gray, W6UZ; Julius Wenglare, W6YO; Robert Smith, W6GR; Earl Rouse, W6ZZC; Earl Warford, W6MEL; and Fred Stenger, N6AWD. Interested DXers should contact L.W. Brammer, W6BYH, 1227 Princeton Street, Delano, CA 93215, for details.

With this new club, it will bring the number of major DX clubs in California to four: the San Diego DX Club, the Southern California DX Club, the Central California DX Club and the Northern California DX Club.

NCDXF newsletter

DXers who would like to receive a copy of the summer newsletter and questionnaire of the Northern California DX Foundation may request a copy by writing to: Northern California DX Foundation, P.O. Box 2368, Stanford University, CA 94305.

Letter from the Colvins

Barbados, West Indies
1 November 1981

We are deep into the Yasme DXpedition again, after a breathing spell in the USA for nearly six months, during which time we talked to a number of radio clubs.

Although the normal USA-hams visiting Barbados must use their USA calls followed by /8P6, we were lucky and Iris got the call 8P6QL which we used for three weeks here in Barbados. We worked all bands — SSB and CW — for a total of 9,000 QSOs with amateurs in 150 countries. We almost equaled our all-time high of 152 countries worked a couple of years ago from J3ABV in Grenada.

Our QTH here is in a three-story hotel which was found for us by Woody, 8P6CC (ex-VP6WR). We had met Woody in Barbados 25 years ago, and we are surprised and happy to find that he has changed very little during the last quarter of a century.

Our hotel has a sloping tile roof, and during antenna erection, Lloyd stepped on a weak spot in the roof and fell through. Fortunately, the only serious damage was to our relationship with the manager of the hotel!

We were on the air for 48 hours during the CQ-WW Phone Contest and made 3,000 QSOs. With no pre-arranged schedules, on 22 October 1981, all continents were worked in five minutes on 21 mc. Contacts were F6HEW, 2059Z; ZS1JD, 2100Z; KA1CY, 2101Z; 4X4FU, 2102Z; VK4SS, 2103Z; and PY1DFJ, 2104Z.

We are leaving immediately for Trinidad, where the special call, 9Y4KG, has been reserved for us. Please pass the word to all interested.

73 es 88
Lloyd Colvin, W6KG
Iris Colvin, W6QL

CQ M 1980 results

There were 134 entries in the USSR CQ M Contest for the year 1980. This is an annual event that is held each May by the Central Radio Club in Moscow. Following is the listing of the top scores only:

		7.0 MHz		
W3GG	119	342	20	6,840
		14.0 MHz		
W1RAN	455	1359	48	65,232
AI3E	189	560	35	19,600
K2SX	155	458	31	14,198
K3TX	119	357	21	7,497
AC0S	109	321	23	7,383
W0NB	120	351	21	7,371
KA3ARF	96	285	23	6,555
		21.0 MHz		
AC2U	297	888	39	34,632
W4LVM	232	680	41	27,880
		All band		
K5ZD	617	1815	98	177,870
N4WW	432	1279	103	131,737
K1KI	488	1458	82	119,556
K5KLA	501	1462	71	103,802
N4OL	468	1389	70	97,230
WB0YRN	241	709	58	41,122
W7ULC	265	781	47	36,707
WD9DCL	255	725	50	36,250
N4NW	218	646	51	32,946
WA0TKJ	181	535	52	27,820
W3ARK	186	555	49	27,195
WA4OML	176	523	50	26,150
WD4IHV	187	552	44	24,288
K6XO	161	472	46	21,712
WA4QMQ	161	483	41	19,803
WB4SXX	136	406	43	17,458
N5RF	117	342	41	14,022
N9AFY	130	375	35	13,125
WD8KGZ	107	302	38	11,476
W2FG	89	267	40	10,680
W9HE	101	300	35	10,500
		Multi-operator		
K3EST	775	2305	100	230,500
WD8CRY	355	1029	62	63,798
K3QMR	332	994	40	39,760

The column coding was not supplied, but we suspect that the first column indicates the number of contacts, followed by QSO points and multipliers, to give the final score in the last column.

Burt Cohen, W3GG was the sole entry for 40 meters, followed with 41 entries for 20 meters; 8 entries for 15 meters; 81 All-band entries, and 3 Multi-operator entries.

Considering that U.S. entries in contests out of the United States are usually very minimal, this is a good showing for us Yanks. Contacts made during this contest do not need QSL cards when applying for the awards program sponsored by the Krenkel Central Radio Club, nor is a fee required.

Oblast hunters also find that the contest is a good source for their missing oblasts.

Kiribati untangled

Confused as to which Kiribati you have worked, past and present? For DXCC purposes, the country is divided into three separate countries as follows:

T30 Western Kiribati. This includes the islands of Tarawa, Makin and Ocean. It was formerly the DXCC country of Gilbert and Ocean Islands, (VR1).

T31 Central Kiribati. This includes Canton and Phoenix Islands, formerly the DXCC country British Phoenix Islands, (VR1).

T32 Eastern Kiribati. This includes Christmas and Line Islands, the former DXCC country, (VR3). Note that this Christmas Island is not the Christmas Island, (VK9X).

If you worked Kiribati prior to the two-digit prefix, T3A and T3K are the same as T30, T3P is T31 and T3L is T32.

World-Wide DX Contests

The CQ World-Wide DX Contests are over for another year. As this column is being prepared, the Phone portion of the contest is over and the opinion of this editor is that this year's event was rather disappointing compared to past contests. I run a modest station here and didn't hear all that much selection of calls; even the JAs were down in numbers. That P41C seemed to be the most active with a consistently good signal. Nothing new for N6JM, although I did manage to snag 3X1Z.

What there did seem to be much of in the contest was the vast number of amateurs who didn't know how to operate their radios. The overdriven finals were something else. Splatter! Splatter! No wonder the DX was hard to hear with all those lousy signals from stateside stations calling CQ Test.

Another gripe is the new type of calling where the contesters only send part of their call. The DX station then has to ask for his complete call, wasting time. This partial call business must be a carry-over from the list operations where the Lid Listmaster calls for "last letter of your call only." And then there is the simpleton who comes up with some cut phonetics for his suffix when calling the DX station. Remember, that DX station may speak little or no English at all, so your funny call will be of no help to him at all.

Cuba Award

This award is offered by the Federacion de Radioaficionados de Cuba. To qualify for this award you must have worked at least one Amateur Radio station in each of the eight Cuban call areas (CM1/CO1 to CM8/CO8). Any missed district can be substituted, but not more than three, by a radio club station. The club stations are identified by their three-letter suffixes. All modes and bands are valid, and only contacts made since 1 January 1959 are valid.

To apply for this award, prepare a certified list of your contacts and send it with a fee of $2 (U.S.) or 12 IRCs to: FRC (Award Department), P.O. Box 1, Habana 1, CUBA.

Caribbean Award

This is another award offered by the Cuban Society. To qualify for this award, you must work 20 or more of the 32 countries and call areas in the Caribbean, including those countries with the coast to the Caribbean (XE, V3A, TG, HR, YN, TI, HP, HK, YV). If any of the countries or call areas change prefixes, the old and the new are valid. All contacts must have been made since 1 January 1959. The procedure is the same as the Cuba Award above. The list of contacts must include a station in Cuba, except Guantanamo Bay, (KG4), which is not valid.

Cuba DX Group Award

This award is offered to those stations who have worked at least four members of the Cuba DX Group. All contacts must have been made since 1 September 1980. Send your certified list, (certified by at least two licensed Amateur Radio operators), to the above address. The fee is the same.

Unofficial rules for list operations

List operations seem to be taking a lot of flack recently — and often rightly justified. Jim Cain, K1TN, Editor and Publisher of *The DX Bulletin*, gives his "rules" which we have printed here.

1. The list "manager" will always be on time for the list.
2. The DX station will never be on time for the list running.
3. The manager will always start on opposite end of the order from your call. (If you're a "1" he'll start at 0.)
4. If there are five stations in your call area and you are the weakest, they will list only four of you.
5. You will always be at least three S units louder at the DX station than you are at the list master's station.
6. You will always be at least three S units louder at the DX station than the list manager is.
7. The three people ahead of you will request (and get) two-way SSTV contacts and the band will go dead.
8. You will be in the Sandbox when your call is called.
9. The DX station will not show, and the list will be carried over to the evening of your wedding anniversary.
10. If you ask for QSL information they will put you on a list for it.
11. The ability of the list manager will be inversely proportional to his class of FCC license.
12. Once you make DXCC Honor Roll, *every* country you need will be available only on lists.
13. Your medical insurance will *not* cover toes broken from kicking your operating desk.

(TO BE CONTINUED)

Reader comments

I received a note from John Schmid, WA6PGA regarding my remarks on the unfair competition between the East Coast and the West Coast working into Europe. John, who also holds the call HB9CDP, writes, ". . . a miserably frustrating undertaking to accomplish schedules on HF between, for instance, DL/HB and W6 during most of the year, be they on 10M, 15M, or 20M. Even my two days at 4U1ITU yielded only QSOs up to the Rockies, and no farther."

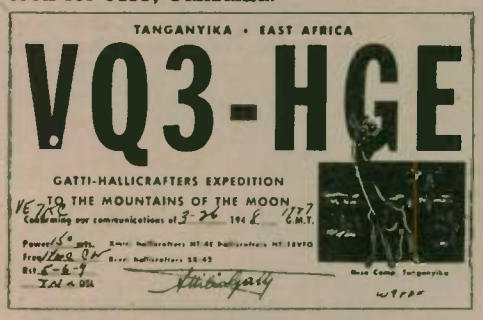
John also wonders how long U.S. amateurs are going to be subjected to the unfair phone restrictions, while the Canadians enjoy the best of both worlds. That one is a touchy subject. My own opinion on that one is: as long as the Canadians remain part of the ARRL. Every time a proposal is put to the FCC on expansion of the phone band privileges for U.S. amateurs, some of the VEs up north cry foul play. Why? They can run just as much power as us and have it made down below the limits of the phone band. All they have to compete with is the Japanese amateurs, of whom there are many.

Methinks it would be best for both the Canadians and the Americans if the Canadian Division would pull out of the League and be an independent CRRL. Either that, or support CARF.

Antique QSL Department

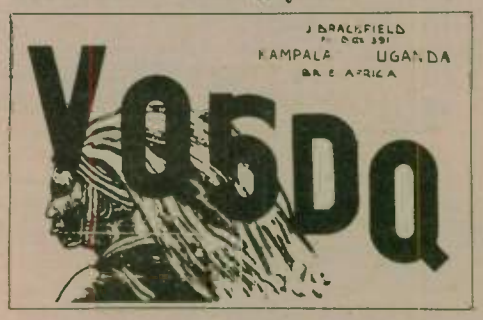
This month we will sample the "VQs". The prefixes are no longer used, with the exception of VQ9. The VQ3HGE card was provided by Al Miller, VE7KC, who has provided many of the cards shown here in the past. The contact was made back in

1948 on 20 meters on CW. This was a DX-pedition to Tanganyika using Hallicrafters gear, an HT-4E, HT-18VFO and SX-42. I wonder how many of those items are still around? Old-time DXers will now look for 5H3, Tanzania.



The other two QSL cards were provided by Nelson "Ray" Raymond, W6SYM, who made the contacts about 30 years ago while in Germany operating as DL4EA. The contact with VQ4CO was a phone contact on 20 meters on 15 April 1952. The "VQ4" prefix has been replaced with 5Z4. The fine print on this card reads: "The California of Africa."

Ray's contact with VQ5DQ was made back on 30 May 1952, also on 20 meters. The rig at VQ5DQ consisted of a 6V6 VFO, 807 Doubler and an 807 Final tube, running 40 watts to a dipole. His receiver was an Hammerlund HQ 120.



If you refer to the Callbook, you will see that the "VQ5" prefix for Uganda is now "5X5". None of the above three calls are in the present Callbook, even with the prefix change.

QSL information

Each month an attempt is made to compile a list of QSL routes that have been gleaned from the various DX newsletters. Often, one particular station is repeated several months at a time. This is not an attempt to pad the listings. More likely, the station is fairly active. Bear in mind that these QSL routes are not guaranteed.

The U.S. QSL Service, a non-profit corporation operated by Laryl Myers, KM7Z (formerly N7BMY), is found elsewhere in the pages of **Worldradio**. This service is for domestic QSLs only. She does not handle outgoing DX QSL cards, but does handle incoming DX QSL cards.

Dr. Vince Thompson, K5VT has another new address. All cards for the K5VT operation should now be directed to P.O. Box 32487, Phoenix, AZ 85064. Cards to his California address will be forwarded.

A note was received from a gentleman in Colby, Kansas, but he forgot to include his call. It seems that he worked a KP1AD on 40-meter CW, 21 January 1981. The station had claimed he was on Navassa, but the Kansas amateur has not been able to find anything on this station. Maybe I'm getting senile here, but I don't recall any operation from Navassa at that time. KP1AD is not on [illegible] K6HHD list, which is one of the largest and most complete QSL Manager Lists we have seen. I suspect, OM, you have had your acquaintance with Slim!

Speaking of Slim, Arve Helland, LA9TQ reports that he has no arrangements with stations signing TJ1AR, 3V8AL and 5V1HC, which claim him to be their QSL manager. Nor is Arthur Santella, K1VKO a QSL manager for any HH or VP1 calls.

Cindy McConnell, WB3ERY informs us that she is no longer the QSL manager for Joe Jeffries. KL7IB.

Al Faries, KX6MY informs us that the station signing KX6LO is a bootlegger. The QSL Bureau for the Marshall Islands has several hundred QSL cards for this station, which of course cannot be delivered. The license for the bonafide KX6LO expired in 1977.

Al requests a telegram from anyone who works KX6LO in the future, so that they may try to track him down. I doubt it, Al, if this phony KX6LO is operating from the Marshall Islands.

QSL routes

A6XJC	—PE0MGM	AH2AI	—WA3HUP
A6XWT	—WB2OHD	AH2AK	—KG6JJY
A7XM	—DJ9ZB	AH2M	—K2PL
A9XDD	—K7DVK	C5ACF	—K4YT
A9XDO	—KA4S	C5ACG	—K4YT
A22ZM	—ZS6CU	C5AEJ	—K4YT
		C5AES	—K4XG
C6ADV	—N7YL	FP0FSZ	—VO1FB
C21NI	—OE2DYL	FP0GBG	—W8AH
C31LX	—EA3VM	FR7AI/J	—FR7AI
C31OO	—DJ2BX	FW0BE	—DJ9ZB
C31PV	—ON6WR	FW0BF	—DJ9ZB
C31SJ	—DL1HH	FY7YE	—W5JLU
C31SP	—EA3CF	G4JOA/TR8	—G4JOA
C31TE	—EA3VM	GJ5CHV	—DL3EW
CN8CO	—WB3KGY	GJ5DGF	—DJ6PL
CN8CX	—WA3HUP	GJ5DQC	—DF3JD
CN8CY	—WA3HUP	GJ5DQE	—DK3KD
CT2CY	—N8BKB	GJ5EBP	—DL4EN
DL1BA/3A	—DL8MAP	GJ5EBQ	—DF1JM
EA6GK	—AF2C	HF0POL	—SP5EKZ
EA6IT	—WB1DQC	HH2A	—AJ9D
ED8VDR	—EA8RC	HH2SD	—VE3CVZ
EL2AV	—N6FL	HH2VP	—N4XR
EP2TY	—JR3WRG	HL9FR	—WA9RGA
FB8WG	—F2CL *(See Note 1)*	HL9RH	—ON5KD
		HL9YL	—WA9RGA
FB8XAA	—F6DHI	HP1XOG	—WA4TWS
FC9UC	—F5RV	HS1AMS	—W7PHO
FK8CE	—K2ROR	HZ1AB	—K8PYD
FK0RR	—ZL1BQD	IU6ONU	—I6JVH
FO8GW	—K6FM	IV3OSH/5R8	—IV3MUC
FO8HL	—WB6GFJ	IZ5ARI	—I5HCH

J5HTL	—SM3CXS	OH0XX	—OH2BBM	VK9ZG	—VK3OT	ZD8RW	—WB8MBT	7X4BL	—K4CNW	9Q5FL	—K4AEB
J6LIR	—WB6FCR	P29DI	—W4KXF	VP1UR	—N5UR	ZF2CZ	—WA8UFI	8P6QF	—Yasme	9Q5L	—K3FN
J28DM	—F2GA	P29LB	—WB2FLB	VP2EC	—KC5EA	ZF2DQ	—WA3UFI		*(See Note 4)*	9U5WR	—SP6FER
J28DP	—F2GA	P41C	—WB3JRU	VP2MFL	—K5BDX	ZF2DR	—K8HQ	8J2RO	—W6ORD	9V1UY	—W5AB
J88AG	—N0AFW	P41E	—K4BAI	VP2VDH	—N6CW	ZF2TL	—WB4GPR	8J2EO	—G3SLN	9Y4VT	—N6AA
J88AQ	—W2MIG	PJ8UQ	—W1HCS	VP5FP	—WB4OSN	ZF2PK	—WD9IIC	9L1FL	—K4KA	9Y4VU	—W3EVW
JW6MY	—LA6MY	PZ5RC	—WD9DAE	VP8AEI	—GM3ITN	ZK2EL	—OE2DYL	9M8PW	—G4DXC		
JX5VAA	—LA7JO	R1ARO	—UK1CAA	VP8AEN	—GM3ITN	ZK2TA	—OE2DYL				
JY9RV	—GW3RVG	SM5KI/OH0	—SM5KI	VP8AGX	—G4JDT	ZL4OY/C	—ZL1BQD				
K2ON/C6A	—K2ON	SV0AA	—N2OO	VP8AJM	—K0JW	ZL2PO/C	—ZL4KI	A6XJC	—P.O. Box 2730 Abu Dabi, United Arab Emirates *(See Note 7)*		
K2VCO/4X	—K2VUI	T2ETA	—OE2DYL	VP8QI	—G4CHD	ZL4AES	—K1MM				
K8MFO/C6A	—W8TPS	T2VEL	—OE2DYL	VQ9AB	—K0AB	ZS8E	—K8EFS	A35RX	—Ron, P.O. Box 46, Nuku' Alofa, TONGA		
KC2CS/C6A	—WB2QLO (KC2CS)	T5TI	—I0SSW	VS6CT	—KB9N *(See Note 3)*	ZS5SP	—WD4IHV	CO2OM	—Oscar, P.O. Box 4940, Havana, CUBA		
KG4GN	—WB1GQQ	T30AT	—GM3YTS	VS6GZ	—OE3GZA	1A0KM	—I0MGM	DA1WA/LX	—Steve Hutchins, Box 4573, APO New York, NY 09190 *(See Note 5)*		
KG6RE	—JA2VUP	T30BF	—OE2DYL	VU2RAK	—W3YTO	3X1Z	—W4FRU				
KH3AB	—KB7MO	T30BG	—OE2DYL	W8DNC/C6A	—W8TPS	4A2Q	—XE2AQ	EM8T	—DOSAAF, United Technical School, Botanicheskly Perevlok, 1, 720052 Frunze 52, USSR		
KH6XX	—W3HNK	T32AF	—JA1NVG *(See Note 2)*	WB7EHU/KH2	—KG6DX	4K1B	—UA3XBP				
KH0AC	—K7ZA	TA2KS	—G3SCP	WD6CDU/KH9	—WD6CDU	4N1R	—YU1DX	FK0AD	—P.O. Box 12, Noumea, NEW CALEDONIA		
KP4KK/DU2	—WA3HUP	TI9FAG	—TI2FAG	XD0LCH	—WD8NKT	4N2CBM	—YU2CBM	FK8DM	—P.O. Box 2016, Noumea, NEW CALEDONIA		
KV4AA	—K6PBT	TJ1CK	—DL1HH	YB0ACP/4	—K6DLV	4N2DX	—YU2DX				
LX1BW	—W3HNK	TL8RC	—F6EZV	YB0PG	—KB5AS	4S7MX	—SM3CXS	FW0BK	—Jean-Claude Kryger, 21 Rue Charbonneaux, Noumea, NEW CALEDONIA		
OA4SS	—KB6J	TU2HJ	—W3HNK	YC1GJ	—W2GR	4U36UN	—W2MZV				
OD5FB	—WA2QAU	TU2IN	—K3HBP	YU7PEF/HB0	—YU7GMN	4X4AB	—K3STM	H44WF	—P.O. Box 120, Vaucluse, NSW 2030, AUSTRALIA		
OD5RZ	—VE5QY	UA1PAM	—UK3SAB	YU7QCC/HB0	—YU7GMN	5N0KUY	—JI1IMI				
OE5JTL/YK	—OE5UYL	UPOL 22	—UA1ABY	ZB2EO	—K3MNW	5W1DG	—VK9NS	HK6CHY	—Phil, P.O. Box 1228, Manizales, COLOMBIA		
OE6BVG/KH6	—DJ0FX	V2AJ	—WB2TSL	ZD8RH	—G4DBW	5W1DK	—VK9NL				
OH0BH	—OH2BH	V3AUR	—N5UR			5T5RR	—F1ANH	KB7IJ/KH2	—Box 78, FPO San Francisco, CA 96637		
		VK9XW	—VK6RU			5Z4CM	—W5BCB	KC4AA	—Mike, Geographic South Pole, ANTARCTICA, P.O. Box 400, FPO San Francisco, CA 96692		
						6W8DY	—VE4SK	KF1O/CE0X	—Bob Read, SV0BV, c/o QSL Bureau, P.O. Box 564, Athens, GREECE *(See Note 6)*		
								S21GM	—IDXF, P.O. Box 171, Manahawken, NJ 08050		
								S85H	—Harry, P.O. Box 14, Mt. Ayliff, 4850 REPUBLIC OF TRANSKEI		
								SV0BP	—P.O. Box 301, Iraklion, Crete, GREECE		
								TU2JQ	—P.O. Box 2946, Abidjan, IVORY COAST		
								V3AET	—Peter, P.O. Box 46, Belmopan, Belize		
								V3AWS	—P.O. Box 306, Belize City, Belize		
								VQ9DO	—WB2HUT/6, 1172 W. McKinley Ave., Sunnyvale, CA 94086		
								YC1BMK/3	—Joko, P.O. Box 38, Kediri, East Java, Indonesia		
								YS1RG	—P.O. Box 2384, San Salvador, El Salvador		
								ZK2BDG	—P.O. Box 37, Niue Island		
								5A7BQ	—P.O. Box 733, Bengazhi, Libya		
								7Q7LW	—Les Sampson, P.O. Box 24, Mtakataka, Malawi		

NOTES

1. Present address for F2CL is: Georges de Marrez, Santa Severa, F-20228 Luri, Corse, FRANCE.
2. Use the 1981 Callbook for address of JA1NVG.
3. If you worked VS6CT on 80-meter CW, then you worked Slim. Phil, the real VS6CT, does not work 80 meters and is seldom on CW.
4. QSL Yasme, and other operations by the Colvins (Iris and Lloyd) to: Yasme Foundation, P.O. Box 2025, Castro Valley, CA 94546.
5. This applies for U.S.A. only. All others QSL via DJ0LC.
6. Send only your QSL card to this address, nothing else.
7. Or their QSL manager PE0MGM.

Thanks to our contributors, including W1BB, K2TV, WB3ERY, AA4AK, K4BAI, WB6GZK, WA6PGA, W6SYM, WD9IIC, KX6MY, VE7KC, DJ9ZB, Krenkel Central Radio Club, The DXer (Northern California DX Club), *The DX Bulletin*, *The Long Island DX Bulletin*, Lynx DX Group, and the *DX News Sheet*. Hope your New Year is a joyful one. 73 es GL DX de John, N6JM. □

•••••••••••

The arm of Amateur Radio reaches around the world; **World-radio** is out to reach you.

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 both high and low angle antennas, Maximum Usable Freqency (MUF) and Frequency of Optimum Transmission (FOT). Requests should be sent to W6LS, 2814 Empire, Burbank, CA 91504. Each request should be accompanied by a self-addressed stamped (28¢) envelope at least 9″ × 11½″.

FEBRUARY 1982

UTC	AFRI	ASIA	OCEA	EURO	SOAM
0100	26.2	36.7	33.0	13.8	29.3
0200	20.8	32.8	34.2	13.6	26.2
0300	15.6	28.1	32.7	12.6	23.3
0400	16.5	23.8	29.3	10.9	20.5
0500	14.9	20.0	26.2	9.7	18.5
0600	13.8	16.9	23.2	10.7	17.5
0700	13.8	14.7	21.2	13.7	17.2
0800	13.8	13.5	19.6	13.3	17.3
0900	13.2	13.4	17.9	13.6	17.4
1000	12.0	14.1	16.5	14.1	16.2
1100	10.6	14.9	16.1	11.9	13.7
1200	10.2	14.5	15.5	11.5	12.3
1300	12.3	12.9	13.5	11.6	15.2
1400	17.0	12.3	12.6	15.6	22.3
1500	22.4	15.0	16.6	21.4	29.6
1600	26.8	15.3	22.2	26.6	33.8
1700	30.1	14.3	20.9	26.5	34.5
1800	32.8	13.5	20.3	22.4	33.8
1900	32.4	14.3	21.8	18.6	34.0
2000	33.0	17.9	25.5	15.6	34.5
2100	34.0	24.5	29.0	14.9	34.3
2200	33.8	31.8	30.4	14.0	33.4
2300	31.8	36.9	30.5	13.7	32.2
2400	29.4	38.8	31.3	13.7	30.6

Ross Forbes, FO0FB, using the rig of FO8DF in Pirae, near Papeete on the island of Tahiti.

Jean Parker, FO8DF of the island of Tahiti. He is former president and current treasurer of Radio Club of Tahiti. He operates all bands SSB and CW plus SSTV.

Ross Forbes, FO0FB sits next to Andre Chatelin, FO8AZ. Andre lives in Pirae, near Papeete and enjoys mostly CW.

Left to right, in this photo taken at Faaa Airport in Papeete, Tahiti, are: Wilber Trafton, FO8GW; Ross Forbes, FO0FB; and Victor Sioult, FO8CX.

QSL? Read this

Listen for KK2XGM (N4DR) on 10.125± MHz weekdays 0100-0130 and 0200-0230Z. Station will QSL for SASE.
— East Bay ARC, Albany, CA □

Family of hams

A family of four in Hudson, New York proudly announces the calls of its family members. Bill Maurer — the father — is KG2W; his wife, Cynthia, is KC2HR; daughter Lisa, 17, is KO2C; and son Billy, 13, is KO2B. All are Extras except for Cynthia, who is an Advanced. □

Amateur's dream fulfilled

Phil Timp
Submitted by Jim Johnson, WB4YDM

Jim Wise, W4PRO, an electronics technician at NASA, made a DXpedition to Easter Island early last year. The island was exactly to Wise's liking — a place inhabited by only 2,000 Spanish-speaking Catholic people, 3,000 wild horses and 1,000 ancient stone statues spotting the hilly countryside. Better yet, it is 2,200 miles west of the South American coast — next to nothing but miles of blue ocean, in one of the most remote of radio's 40 air wave zones.

It's easy to understand that Wise and his partner, Terry Appleton, a shipyard designer, were kept hopping. Day and night, they were bombarded with calls from hungry operators. By the end of their four-week stay in February and March, they had heard from more than 11,000 callers from 150 countries.

"Sometimes the whole United States would come back at us at once," Wise said, thumbing through reams of radio postcards he's still receiving from contacts made while on the island.

It was the pinnacle of his 35 years of interest in Amateur Radio, dating back to his teen-age days when, during World War II, he lost interest in air patrol and fell hard for the electronics profession.

As soon after the war as radio was back in business, Wise had his Amateur Radio license and was barking out invitations to callers over air waves.

"It's a hobby and a profession all together," he said. And a mighty big hobby, he should add. Behind his home in Fox Hill stand three tall rotating antennas and inside his garage are racks full of radio components.

Wise speculates it is probably the biggest Amateur Radio operation on the Peninsula, one he has built slowly. He figures his system is worth $10,000.

"It's about as much as any working guy can handle," Wise said. "You can buy the equipment if you have the money, but you can't buy the expertise to keep it all operating."

Wise converted his garage into a radio room for convenience sake because so many radio operators were spending weekends at his home participating in worldwide radio competitions using his equipment.

Impressive certificates of achievement hang on one wall in his makeshift room. He is most proud of being a member of the Quarter Century Wireless Association, which recognizes him as a ham operator for at least 25 years. He also holds membership with Southern Peninsula Amateur Radio Klub and American Radio Relay League.

Wise learned about Easter Island 11 years ago from his son, Gary — now 28 — who wrote a book report in high school on it.

Most intriguing to Wise was the origin of the statues, carved from the mountains on the island and moved by the natives over burial grounds. In time, he learned, a civil war killed off the people who carved the huge figures. Many remain only partially carved.

"I've been to some of the Carribbean Islands but none are like Easter Island. This place isn't on the way to someplace else. It's out there all by itself and it's some experience."

Only two ships from Santiago, Chile make trips to the island each year. Rocks line the coast, making for rough harboring, and there are no factories and little seafood activity. All roads are dirt.

The barren island is 15 miles long, with a huge inactive volcano on one end and a small town and airstrip at the other. Almost the entire population greets visitors.

Wise and Appleton stayed in a small, simple, blue shack. Out back they built the 95-foot aluminum tower they took from Hampton. It was the important device that would send out and bring in air waves across land and sea from the rest of the world.

"It's been the highlight of my career. Every day I get cards and I'll get them for years," Wise said.
— Daily Press, VA □

TS-530S

IF shift, digital display, narrow-wide filter switch

The TS-530S SSB/CW transceiver covers 160-10 meters using the latest, most advanced circuit technology, yet at an affordable price.

TS-530S FEATURES:

- 160-10 meter, LSB, USB, CW, all amateur frequencies, including new 10, 18, and 24 MHz bands. Receives WWV on 10 MHz.
- Built-in digital display (six digits, fluorescent tubes), with analog dial.
- IF shift tunes out interfering signals.
- Narrow/wide filter selector switch for CW and/or SSB.
- Built-in speech processor, for increased talk power.
- Wide receiver dynamic range, with greater immunity to overload.
- Two 6146B's in final, allows 220W PEP/180 W DC input on all bands.
- Advanced single-conversion PLL, for better stability, improved spurious characteristics.
- Adjustable noise-blanker, with front panel threshold control.
- RIT/XIT front panel control allows independent fine-tuning of transmit or receive frequencies.

OPTIONAL ACCESSORIES:

- SP-230 external speaker with selectable audio filters.
- VFO-240 remote analog VFO.
- VFO-230 remote digital VFO.
- AT-230 antenna tuner/SWR/power meter.
- MC-50 desk microphone
- KB-1 deluxe VFO knob.
- YK-88C (500 Hz) or YK-88CN (270 Hz) CW filter.
- YK-88SN (1.8 kHz) narrow SSB filter.

MC-50

SP-230 TS-530S VFO-240 AT-230

TS-660

"Quad Bander"...dual VFOs, memory, scan, IF shift, FM, SSB, CW, AM

The TS-660 is a unique, all-mode transceiver designed for operation on 6, 10, 12, and 15 meters.

TS-660 FEATURES:

- FM, SSB (USB), CW and AM operation.
- 10 Hz step digital VFO. The frequency step is determined by mode of operation.
- F. STEP switch allows alternative step size in each mode.
- Dual VFOs built-in.
- 5 channel memory stores frequency and band information.
- Memory scan scans all bands, skips channels not in use.
- UP/DOWN push-button frequency control on microphone.
- UP/DOWN bandswitch.
- Frequency lock function switch.
- IF SHIFT circuit built-in.
- Fluorescent digital display shows Tx/Rx frequencies.
- Squelch circuit for FM, SSB, CW and AM.
- CW semi break-in circuit, with CW side tone.
- 10 W RF output on SSB, CW, FM. 4 W on AM.
- Two antenna terminals provided.
- RIT control. • Noise blanker.

OPTIONAL ACCESSORIES:

- PS-20 power supply.
- SP-120 external speaker.
- MB-100 mobile mounting bracket.
- YK-88C normal CW, (500 Hz) filter or YK-88CN narrow band CW, (270 Hz) filter.
- YK-88A AM (6 kHz) filter.
- VOX-4 speech processor/VOX unit.

KENWOOD

TRIO-KENWOOD COMMUNICATIONS
1111 West Walnut, Compton, California 90220

TR-2500

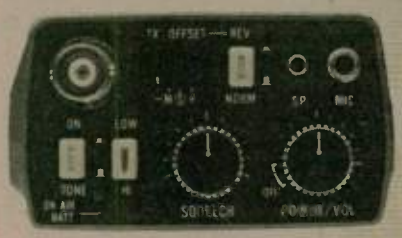
BIG performance, small size, smaller price!

The TR-2500 is a compact 2 meter FM handheld transceiver featuring an LCD readout, 10 channel memory, lithium battery memory back-up, memory scan, programmable automatic band-scan, Hi/Lo power switch and built-in sub-tone encoder.

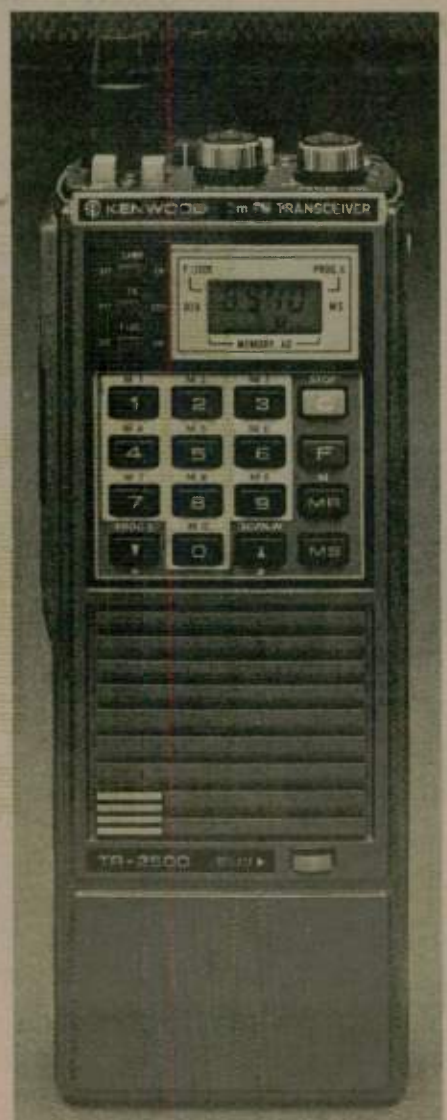
TR-2500 FEATURES:

- Extremely compact size and light weight 66 (2-5/8) W x 168 (6-5/8) H x 40 (1-5/8) D, mm (inches), 540 g, (1.2 lbs) with Ni-Cd pack.
- LCD digital frequency readout, with memory channel and function indication.
- Ten channel memory, includes "M0" memory for non-standard split frequencies.
- Lithium battery memory back-up, built-in, (estimated 5 year life) saves memory when Ni-Cd pack discharged.
- Memory scan, stops on busy channels, skips channels in which no data is stored.
- UP/DOWN manual scan in 5 KHz steps.
- Repeater reverse operation.

CONVENIENT TOP CONTROLS



- 2.5 W or 300 mW RF output. (HI/LOW power switch.)
- Programmable automatic band scan allows upper and lower frequency limits and scan steps of 5 KHz and larger (5, 10, 15, 20, 30 KHz . . . etc) to be programmed.
- Built-in tuneable (with variable resistor) sub-tone encoder.
- Built-in 16 key autopatch encoder.
- Slide-lock battery pack.
- Keyboard frequency selection across full range.
- Extended frequency coverage: 143.900 to 148.995 MHz in 5 KHz steps.
- Optional power source, MS-1 mobile or ST-2 AC charger/ power supply allows operation while charging. (Automatic drop-in connections.)
- High impact plastic case.
- Battery status indicator.
- Two lock switches for keyboard and transmit.



STANDARD ACCESSORIES:

- Flexible rubberized antenna with BNC connector.
- 400 mAH heavy-duty Ni-Cd battery pack.
- AC charger.

OPTIONAL ACCESSORIES:

- ST-2 Base station power supply and quick charger (approx. 1 hr.).
- MS-1 13.8 VDC mobile stand/ charger/power supply.
- TU-1 Programmable "DIP switch" (CTCSS) encoder.
- SMC-25 Speaker microphone.
- LH-2 Deluxe top grain cowhide leather case.
- PB-25 Extra Ni-Cd battery pack, 400 mAH, heavy-duty.
- BT-1 Battery case for AA manganese or alkaline cells (not Ni-Cd).
- VB-2530 RF power amplifier.
- BH-2 Belt hook.
- WS-1 Wrist strap.
- EP-1 Earphone.

TR-7850

40 W, 15 memories/offset recall, scan, priority, autopatch (DTMF)

Kenwood's remarkable TR-7850 2-meter FM mobile transceiver provides all the features you could desire, including a powerful 40 watts output. A 25 watt version, the TR-7800 is also available.

TR-7850 FEATURES:

- 40 watts output, with selectable high or low power operation.
- 15 multifunction memory channels, easily selectable with a rotary control. M1-M13 . . . memorize frequency and offset (±600 KHz or simplex).
- M14 . . . memorize transmit and receive frequencies independently for non-standard offset. M0 . . . priority channel, with simplex ±600 KHz or non-standard offset operation.
- Internal battery back-up for memories. Requires four AA Ni-Cd batteries, (not supplied).
- Extended frequency coverage, 143.900-148.995 MHz in 5 or 10 KHz steps.
- Priority alert. Beep alerts operator when signal appears on priority channel.
- Built-in autopatch encoder (DTMF). All 12 plus four additional DTMF signaling tones. (With simultaneous push of REV switch.)
- Autoscan of memories and entire band. Scan resumes automatically.
- Front panel keyboard.
- Compact size.
- UP/DOWN manual scan of entire band and memories, using UP/DOWN microphone (supplied).
- Repeater reverse switch.
- Separate digital displays for frequency and memory channel.
- LED S/RF bar meter.
- Tone switch.

Matching accessories for fixed station operation:

- KPS-12 power supply (for TR-7850)
- KPS-7 power supply (for TR-7800)

SP-40

Compact mobile speaker
Only 2-11/16 W x 2-1/2 H x 2-1/8 D (inches)
Handles 3 watts of audio

KENWOOD
TRIO-KENWOOD COMMUNICATIONS
1111 West Walnut, Compton, California 90220

AMSAT OSCAR

Dr. Norman L. Chalfin, K6PGX

20th anniversary of OSCAR-1

On 12 October 1961, a Thor Agena B lifted off from Vandenberg Air Force Base carrying the Discoverer 36 and OSCAR-1, Amateur Radio's first satellite. OSCAR-1 weighed all of 10 pounds and carried a 144.1 MHz beacon transmitting "HI" in Morse code. The rate of recurrence of the "HI" was a function of the temperature within the spacecraft case. The transmissions were received by several amateurs around the world through 30 December 1961. The spacecraft finally spiraled into Earth's atmosphere a month later and was consumed.

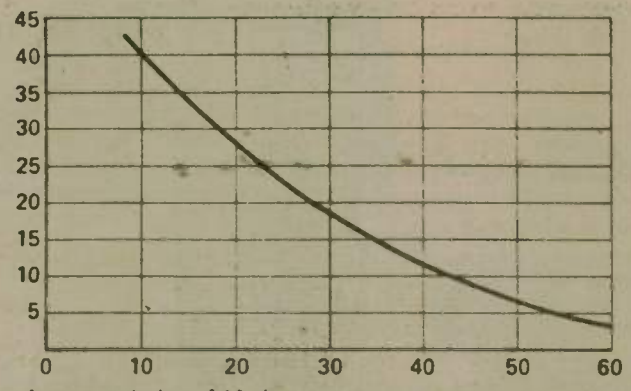


Figure 2 — **Calibration curve for determining interior temperature of OSCAR-1**

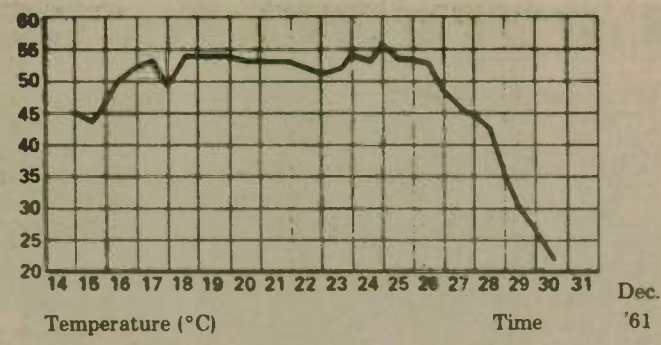


Figure 3 — **Temperature of OSCAR-1 as a function of its life**

group called PROJECT OSCAR, at Foothill College in Los Altos, California with members of the Lockheed Amateur Radio Club, Ampex and others participating.

OSCAR-1 was a downlink-only spacecraft — a beacon. It is interesting to note that OSCAR-9 (UOSAT) is also a downlink-only instrument, but as we reported in the December column, it certainly provides a greater complexity of downlink data transmissions.

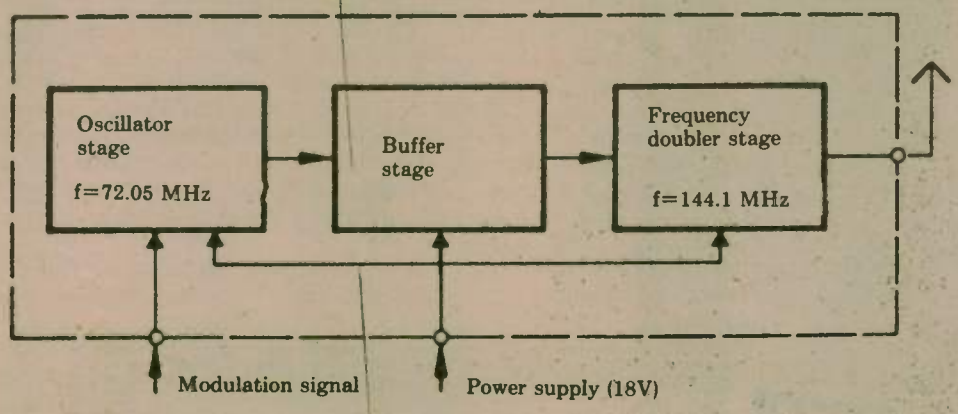


Figure 1 — **OSCAR-1 transmitter**

OSCAR-1's transmitter was a master-oscillator-buffer-doubler with a crystal-controlled frequency of 72.05 MHz modulated by a tone oscillator as shown in *Figure 1*. The output was buffered and doubled to 144.1 MHz. A loaded whip antenna was coupled to the varactor doubler output of the transmitter. The power output was 100 milliwatts.

Amateurs who received the OSCAR-1 signals were able to translate the received "HI" rate into temperature values using the time for 10 successive "HI"s against the chart shown in *Figure 2*.

The chart shown in *Figure 3* illustrates the temperature variation plotted over the life of the transmitter aboard OSCAR. This was the first amateur space telemetry system.

The power supply was made up of three 6-volt storage cells in series and planned to last 21 ± three days, which was met because it lasted 18 days. Even then the amateurs were able to do some good predictable planning.

The spacecraft idea was conceived by a

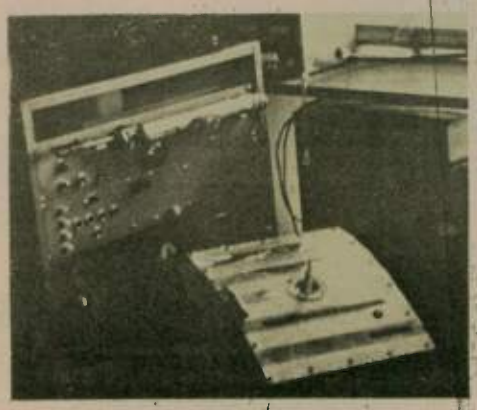


Figure 4 — **OSCAR-1 in test lab**

In *Figure 4* there is a photo of OSCAR-1 showing its upper deck with the loaded whip in view.

Figure 5 is a print of W6EE/S's QSL card. W6EE was the call of the Lockheed Amateur Radio Club in Northern California. The /S represented "satellite." This was used following the launch of OSCAR-1.

Figure 5 — **W6EE/S used this card following the launch of OSCAR-1. Chuck Towns, K6LFH told the author these QSL cards are being cherished by their owners.** ***(from PROJECT OSCAR historical files)***

Sources of information on OSCAR-1 are: *OSCAR — the Ham Radio Satellites;* by Dave Ingram, K4TWJ; published 1979 by Tab Books. *OSCAR — Amateur Radio Satellites;* by Stratis Caramanolis; distributed in United States by Ham Radio Books. Various issues of QST beginning in February 1962. □

Pass it on . . . WORLDRADIO

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

OSCAR-9 telemetry (TLM)

Bruce Balla, VE2QO

Telemetry from OSCAR-9 since launch on 6 October 1981 have been asynchronous data transmissions. One speed used is 300 baud ASCII. The format is afsk using 1200 hertz (mark) and 2400 hertz (space).

To receive these data transmissions, a demodulator is required. A modified ST-5 or the 565 phase lock loop (PLL) circuit shown in *Figure 1* performs well if the received signal is full quieting.

Each telemetry block starts with AMSAT followed by numbered five-digit code groups. Interpretations of the data will be published by the University of Surrey in England.

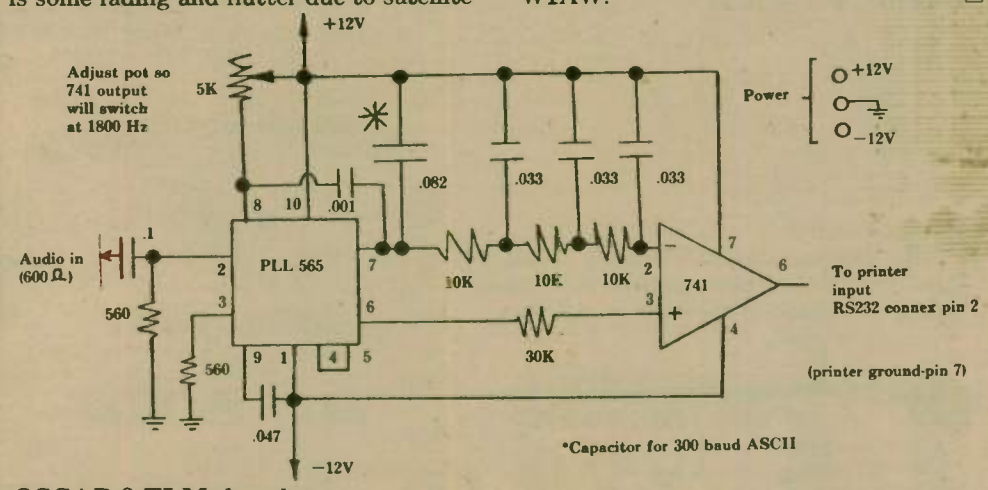
Listen for the OSCAR-9 signal on an FM receiver tuned to 145.825 MHz. There is some fading and flutter due to satellite motion. Doppler shift is 3 to 4 kHz (down), but receiver retuning is not necessary. For error-free decoding, a 2M preamp is a necessity. Here are additional comments from other satellite enthusiasts:

— de Bardy Takabe, VE2FRF: the signal breaks the squelch on a hand-held with a rubber ducky antenna.

— de Dennis Brown, VE2DAF: the signal strength is S-2 on the FT227 using a ground plane antenna.

— de Terry McLean, VE2TY: the signal from OSCAR-9 is comparable to OSCAR-7. (Terry has azimuth and elevation control on his 2M beam.)

When to listen for OSCAR-9 will depend on your portion of the country. Orbital predictions are transmitted by W1AW. □



OSCAR-9 TLM decoder

New system for 6-meter award

The US-CHA (United States - County Hunter's Award) custodian, Paul Schuett, WA6CPP has announced a separate numbering system for 6-meter award certificates in response to demand by several award participants. To date, nine certificates have been issued for 50 MHz county hunters:

6-mtr No.	Call	Name	Date	Reg. No.	
1	K1ZGH	Robert Jennings	9- 1-65	76	
2	K5FLK	Bob Berg	9-21-66	190	**
3	WA2BNF	Joe Stauhs	9- 6-68	339	
4	K1WRO	Ernest Doane	10- 9-68	347	
5	WA5RMS	Tom Hegwood	12- 4-69	469	
6	K9KCQ	Brad Bradbury	-	698	
7	K8WKZ	Dave Bosteder	-	819	
8	K6YK	John W. Lee	6-14-75	850	*
9	WA9AHZ	Jack Dietrick	10-23-81	903	

* 600 counties **900 counties

Because of the eccentricity of band conditions on 6 meters, awards are considerably harder to obtain there than on the lower frequencies.

As demand generates, special numbering for special accomplishments will be continued. To date, 21 SWL certificates and one RTTY have been issued. Most endorsements have been for all SSB, all CW, all 20 meters, or all mobile. A total of 81 awards have been made for contacting all counties in the United States.

Complete information on the award is available from the custodian. A #10 SASE or one IRC would be appreciated. Send to Paul Schuett, WA6CPP, 13779 North Wells Lane, Lodi, CA 95240. □

Worked All Sinkholes Award

"Worked All Sinkholes" is the name of an award sponsored by Dennis Phillips, KA4RUL. For more information on this unusual award, read on:

On the morning of 9 May 1981, the bowels of the earth opened at Winter Park, Florida. A city block of the central Florida town was destroyed within moments. Geologists said this was one of the largest sinkholes in history and certainly the most costly. A dry cleaner firm, a print shop, a television store, a drapery factory, a stereo shop, a car repair shop, a city-owned swimming pool, two city streets and a house were swallowed. Total damage was in excess of $2½ million.

Southern Florida would fail. Dennis Phillips quickly assembled a ragtag collection of gear and homebrewed an antenna system on his property at the edge of the crater. He began operation as KA4RUL Portable 4.

The story of this massive earth collapse spread around the world. During the following hours, hundreds of amateurs in the United States and abroad were provided with up-to-the-minute information about their relatives, their property, and the other sinkholes that had developed on the parched Florida landscape.

Every purpose of Amateur Radio as stated by the FCC was accomplished and

A sinkhole is caused when the porous limestone rock below ground is depleted of water due to drought and collapses. The sandy ground layer falls into the underground cavern. The Winter Park sinkhole was 400 by 450 feet wide and over 100 feet deep.

Within minutes of the collapse, a telephone call was made to Dennis Phillips, KA4RUL, who owned property on the south side of the hole. Phillips was unable to get any detailed information from the Police Department or Fire Department so he turned to his 2-meter rig and called for a break on the local repeater. He immediately made contact with Ed Cox, WØRAO/4, who just happened to be at the rim of the hole. Ed stayed on the air for nearly an hour providing information to local amateurs. Phillips was able to gain access to his property and the area due to advice via Amateur Radio and the efforts of Ed Cox.

Officials advised that a Bell System long-distance trunk line was damaged and that the phone communication link to fulfilled by KA4RUL during the sinkhole operation. Activity was made on both SSB and CW. Phillips' rig was a Drake TX4B and R4B. The antennas were a 20-meter coaxial dipole and a 40-meter end-fed Zepp through a Dentron Junior Tuner.

Within a few days, the hungry sinkhole had stabilized and the slow task of clean-up and restoration began. As a monument to the good accomplishments of Amateur Radio and as a gesture of thanksgiving that his property was spared major damage, Dennis Phillips continued operation from the side of the sinkhole providing contacts with a humorous certificate and information on this geologic oddity.

So, if you should hear KA4RUL Portable 4 "The Sinkhole Station" on the "Lower" bands, please give a call. You will become part of this fascinating story! (For a monthly schedule of activities and operations, send SASE to Dennis Phillips, KA4RUL, 3901 Ibis Drive, Orlando, FL 32803.) □

AWARDS

Scott R. Douglas Jr., KB7SB
P.O. Box 9990
Glendale, CA 91206-0990

WAP "Worked All Pacific"

Issued to both licensed amateurs and SWLs, the NZART (New Zealand Association of Radio Transmitters) offers the WAP for contacts with 30 of the countries in Oceania on the WAP country list below.

NZART uses the honor system, so applicants need not hold QSL cards for claimed contacts. It is sufficient to merely certify that the QSO was legitimately made. Endorsements for mode/time/location etc. are made at the applicant's request.

The award is printed on the same "Goes Award Form" as DXCC and makes a handsome display measuring 11 by 14 inches.

Send your certified log extract along with $1.50 (add an extra $1 if you wish to receive the award via air mail) to: NZART Awards Manager, Jock White, ZL2GX, 152 Lytton Road, Gisborne, NEW ZEALAND.

Countries for WAP Award

Port Timor	Marshall Is.	Fiji Is.
Philippines	Java	Fanning and Washington Is.
Adelie Land	Sumatra	Solomon Is.
New Caledonia	Borneo	Tonga
French Oceania	Celebes	Pitcairn Is.
Wallis Island	West Irian	Sarawak
New Hebrides	Australia	Brunei
Baker, Howland, American Phoenix Is.	Lord Howe Is.	Sabah
	Willis Is.	Northern Cook Is.
East Carolines	Macquarrie Is.	Southern Cook Is.
West Carolines	New Guinea	Samoa
Mariana Is.	Norfolk Is.	Tokelau Is.
Marcus Is. (now Minami Is.)	Papua	Kermadec Is.
	Nauru Is.	Niue Is.
Guam	Christmas Is.	New Zealand
Hawaiian Is.	Cocos Is.	Chatham Is.
Johnston Is.	Gilbert Is. (now Kiribati)	Auckland and Campbell Is.
Midway Is.	Ellice Is. (now Tuvalu)	Antarctica (ZL5 only)
Palmyra Is.	Phoenix Is.	
American Samoa		
Wake Is.		

Worked All Arizona Award

Any Amateur Radio operator is eligible for the Worked All Arizona Award. A valid contact with each of the 14 counties in Arizona is required. All contacts must be made from the same location or within a 25-mile radius of it. The stations contacted in Arizona must be either fixed or portable, but not mobile.

Applicants should submit the following information for each contact: country, call letters, date and time of contact, band worked, and city or approximate location. No QSL cards are required.

Submit the above information to the current Arizona Section Communications Manager, Erich Holzer, N7EH, 3526 E. March Pl., Tucson, AZ 85713.

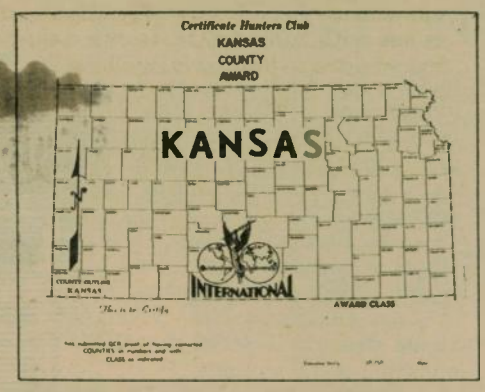
JARS Award

Issued by the Joliet Amateur Radio Society for contact with members of the society as follows: Continental U.S. stations must contact five JARS members; DX stations must contact two JARS members; and Illinois stations must contact 10 JARS members.

A complete membership list is available from the Society for your SASE or two IRCs to: Joliet Amateur Radio Society, Paula Franke, WB9TBU, P.O. Box 873, Beecher, IL 60401. The award measures 8-½ by 11 inches and the fee for the award is $1 or three IRCs.

Issued for confirmed contact with counties of each state as follows: **Iowa County Award:** Class E=25-39, D=40-59, C=60-74, B=75-89, A=90-98, AA=All 99; **Michigan County Award:** Class E=20-35, D=36-44, C=45-54, B=55-64, A=65-82, AA=All 83; **Kansas County Award:** Class E=15-24, D=25-44, C=45-59, B=60-74, A=75-104, AA=All 105.

Send your log extract along with $3.50 for each award you wish to apply for to: International Certificate Hunters Club (see address in column head).



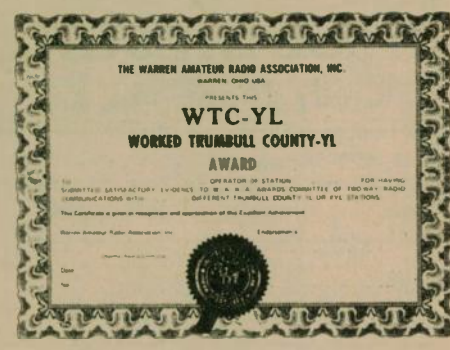
WAM Award

The "Worked Area Ministers" Certificate is issued for contact with three St. Louis area stations operated by a priest, minister or rabbi.

For a complete list of qualifying stations and further details send your SASE to: Rev. Mike Dieckmann, KAØIAR, 3009 High Ridge Blvd., High Ridge, MO 63049.

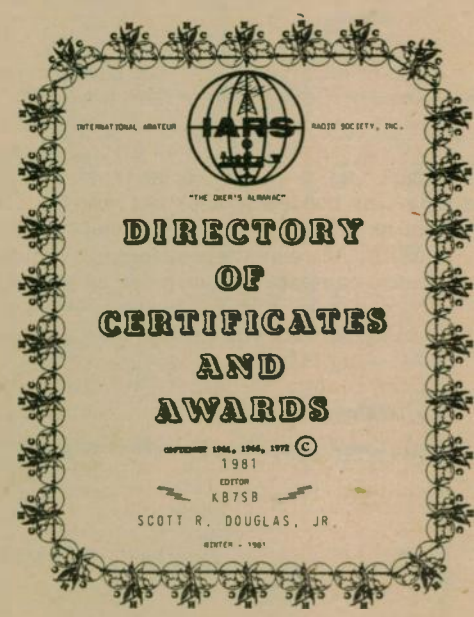
WTC-YL

The "Worked Trumbull County YL" Award is issued for contact with 10 Trumbull County YLs.



The certificate is very handsome and measures 8-½ by 11 inches. All endorsements are available upon request and the award fee is $1 or three IRCs. Only contacts after 1 January 1959 are considered valid.

Send your log extract along with $1 to: WARA, P.O. Box 809, Warren, OH.



The IARS Directory of Certificates and Awards is once again available. It is the most complete publication of its kind containing all the necessary data for the DXer and the award hunter including maps, charts, country and county listings, and ITU and CQ Zone maps and listings, etc. If you are a DXer or an award hunter, your shack is not complete without it.

For your copy of this 230-page almanac, send $12.95 plus $3 for first class postage to: International Amateur Radio Society (see address in column head).

CHC DX Nets — international participation

Membership in the CHC is not a requirement for participation in the club-sponsored nets, and there is always something of interest on frequency.

0000 to 0300 GMT 21.370 MHz Daily
Net manager: Gene Evans, N4EBZ
0200 to 0600 GMT 14.297 MHz Daily
— —
1900 to 2200 GMT 21.370 MHz Mon to Sat
Net Manager: Bob O'Toole, KB7SU

The club is about to get nets going on 28 and 7 MHz, and we look for them to start in late November. We hope you will be interested and stop by to see the goings on. If you would like information on the club and its activities, send an SASE to: IARS/CHC (see address column head), or call (213) 507-0666.

Till next month — 73s, Scott. □

Contact Worldradio for hamfest prizes.

The ART of Contesting

Randy Thompson, K5ZD

"I am not in the contest, but . . ." If you are one who fits into this category, you are the most important element of a contest. Surprised? The winner of a contest is usually the one who makes the most contacts during the contest period. The serious competitors all work each other easily. Without you, the casual participant, everyone would have a tie score.

A contest is a race to see who can work the most stations *not* in the contest. The non-contesters become more important to the success of a contest than the serious participants.

Contests definitely fit the old saying — "The more, the merrier." The more activity there is, the more enjoyable the contest is for everyone. An important thing for you to remember is that the Big Gun stations depend on you for their big score. If you are located in a rare state or country, your presence takes on added significance. One way to look at it is that the Big Gun contester does not win the contest as much as *you* let him win.

With the relaxation of logging requirements, contests are even easier to enter. You can work stations in the contest and not log them. The casual operator can have a big effect on a contest by logging all the contest QSOs and submitting the log to the sponsoring organization. Magazine editors do not look at the winning QSO count to determine the popularity of a contest; they look at the number of logs submitted. A 10 QSO log counts the same as one with 2,000 QSOs. It only takes a few minutes to prepare a small log for entry. If you enjoy a contest, give it your vote.

You have helped the contest by working a few stations, but what can the contest do for you? By concentrating activity, contests provide the opportunity to find new countries or states. They are a good testing ground for antennas and equipment under "worst case" QRM and competition conditions. By making many QSOs, you can increase your QSL collection. This is especially true if you are in a rare QTH. Most important, a contest provides the excitement and fun of any competitive event.

There are a few things you can do to make contest operating more enjoyable for yourself and those you work. The No. 1 rule is brevity. If you don't know what the contest exchange is, ask someone.

The contesters will do what they can to get you on track. If it's a few quick signals or audio reports you are after, most operators would be happy to swap a contest QSO for a report. The contest operator is not interested in your name, the weather, what kind of antenna you have, etc. They are in a hurry but do not want to be rude.

To return to my original statement, the only way to not be in the contest is to not work anyone in the contest! Instead of saying you're not in the contest, try asking what you can do to give out a point. Good luck. I know I will be looking for *you*. □

Silent Key

(*continued from page 8*)

Paul Morrison, K6SUE joined the ranks of Silent Keys on 24 April 1981. Paul had been in a wheelchair for a number of years. He had lost a leg as a result of an automobile accident in Argentina.

Prior to his death, he had been an electronics circuit design consultant. Despite his handicap, he continued to teach his ham colleagues about new circuits and operate his Amateur Radio gear frequently, appearing on many nets from time to time.

Following is a poem about the passing of K6SUE, written by Eileen McKinney, KA6DGV, which was printed on the front page of the May *W6VIO Calling* — the JPL (Jet Propulsion Laboratory) Amateur Radio Club monthly newsletter.

Manner so gruff, but heart so kind
Willing to help, an outstanding mind;

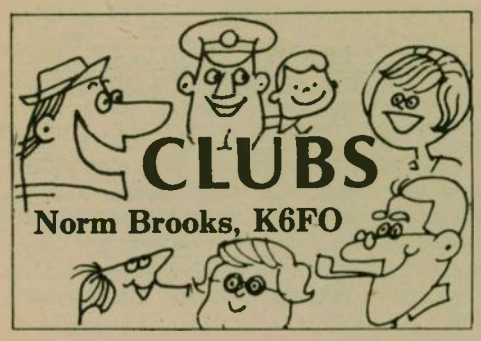
Always was there at our beck and call
To solve a problem, he'd give his all.

Wheelchair bound but NONE so tall,
We'll always remember K6SUE's call.

We're sure he's in heaven with notebook and pen
Designing the place all over again;

Deciding some systems would be better just so
But sentimentality will get the heave-ho!

Deep in our hearts we'll always recall
That our lives have been brighter because of Paul. □



Programs!

How much do programs contribute to the success of your club? If you've been a long-time club member, think back to the years when the club enjoyed a "good year." High membership, high participation and a good treasury. I'll bet that during that time, your club leadership had arranged for regular and interesting programs.

Where do you get programs? From just about everywhere. What you're looking for is a person with special expertise who is willing to share it with you. This person might be one of your own members. He/she may have previously made a presentation before a group. If you can get your member to tell your club about this special knowledge for the first time, you'll be getting him/her started into a side hobby of making presentations to other clubs.

I was recently surprised when a club, of which I am a member, had a program on TVRO (Television Receiving Only) from satellites. It was put on by one of our own members. I never dreamed he had taken a surplus telephone company microwave receiver and adapted it to TVRO. Actually, his talk was so effective that I am now "hooked," and am planning to build a TVRO set-up myself.

That same club found a local person, not an Amateur Radio operator, who collected old Edison phonograph records and players. One of his machines had been rehabilitated to like-new condition, and he proudly demonstrated it. I was amazed at the good audio quality that came from those Edison wax cylinders. Yet Tom Edison never envisioned the current phonograph record industry (music). He was only concerned with the reproduction of voice.

So much for individuals presenting programs. On the other end of the scale are professional programs put on by large corporations or government agencies. The organizations have public relations staffs, trained in the art of making effective presentations. Their material is carefully prepared, using multi-media methods, usually designed to enhance the public image of the presenting organization.

Subjects

Must the program only be about Amateur Radio or electronics or closely related subjects?

Of course not! Any subject is acceptable as long as it is *interesting*, and this could cover a wide field. Since Amateur Radio is technical in nature, most radio amateurs would find technical programs most attractive, but don't rule out other subjects.

One club I know of has among its annual events a homemade chili-making contest. Don't ask how Amateur Radio and chili got together, but it did. The judging is done by Amateur Radio club members, with a great deal of hamming it up before the cameras. They made a videotape of this humorous affair, and will loan the tape out to other clubs as a program.

Field trips

Many corporations will allow your club to meet on their premises and then, as your program, provide a tour of their facilities. In this category you'll find manufacturing plants, research organizations, your telephone company (electronic switching?), your power company (atomic plant?), your police, sheriff or fire department (computer-assisted dispatching?), military bases and other government facilities. Don't be afraid to approach any of these and ask for programs. All have public relations deaprtments with people trained and paid to put on programs and be hosts for groups like your radio club.

Your telephone company

I have just retired from the Pacific Telephone Company after 47½ years service, so I can tell you about Bell System companies with personal knowledge. The telephone company can help you with your programs in three ways: The Management Speaker's Bureau, field trips, and films/videotapes.

Bell System telephone companies have volunteer managers who give presentations before groups — primarily service clubs. Managers volunteer for this activity because of the professional training they get (not unlike Toastmasters), and the satisfaction they get from improving their own skills in public speaking. Their subjects are up-to-date and just the type a radio club would be interested in. Current subjects cover optical fiber transmission, microwave transmission, satellites and the digital switching network. If you can provide an audience of, say, 35 people or more, your telephone company would be glad to schedule a management speaker to come to your meeting and give his/her presentation.

Field trips to telephone facilities can also be arranged. Have you ever seen an electronic or cross-bar switching center? If there is one in your community, your telephone company would be glad to show it to you.

If you'd rather do it yourself, your telephone company has a library of 16mm sound and color motion pictures on technical and general interest subjects. Recently, more and more of this material is being put on videotape instead of film.

Some of the films and tapes are for training within the company on subjects like wave propagation, impedance matching, use of test instruments, etc., and the company is willing to let clubs such as yours see them. In any case, if you have the equipment on which to show them, your telephone company will loan you the film or tape to be used as your club program for an evening.

Here's the good news. There is no charge for any of these services from your telephone company. However, if you have a management speaker at a luncheon or dinner meeting, it would be courteous for the club to pick up the tab for his/her meal.

ARRL film library

The American Radio Relay League (ARRL) has 64 different shows in the form of 16mm films and 35mm slides and tapes that are available to all ARRL affiliated clubs. Subjects are designed to help entertain as well as educate your members.

For more information, contact Sandy O'Dell, KB1O, Club Program Manager, ARRL, 225 Main Street, Newington, CT 06111. I got this information from the ARRL's publication *Radio Club News for Affilated Clubs*. This same publication gives the following information, for which club affiliation with the ARRL is not necessary:

"Search and Rescue — the ELT" (Emergency Locator Transmitter)

35mm slides — 30 minutes — A very realistic simulation of search and rescue done by the Amateur Radio and Mountain Rescue personnel in the Albuquerque area. Suited for general audience.

"Direction-Finding — The RF environment, equipment and the techniques of RDF" (Radio Direction-Finding)

35mm slides — 30 minutes — A training program created as a substitute for the personal seminars previously presented by HAPPY FLYERS.

For the above two items, contact Mr. Paul Hower, WA6GDC, HAPPY FLYERS, Box 2323, La Mesa, CA 92041.

QUARTER CENTURY WIRELESS ASSOCIATION INC.

Ethel Smith, K4LMB
National Director

Trim the antennas and limber up the key. The CW portion of the QCWA QSO Party will be coming up 13-14 February. See the winter issue of *QCWA News* for details. Don't forget to listen for our DX members. We have a growing number, and they are anxious to participate in our activities. Bonus points are being allowed this year for *every* DX contact. And do a little tuning away from the pack to listen for some of our QRP operators. The QSO Parties are not just for the fellows with a kW and a beam! These parties are for everyone.

Former QCWA President Barry Goldwater, K7UGA introduced this bill (a counterpart to House Bill H.R. 16-916) and he succeeded in getting it passed through the Senate with a unanimous vote.

Senator Goldwater made some fine remarks about the amateurs when putting the bill on the floor, and those remarks appear in the Congressional Record for 25 September. On the other hand, the FCC in commenting on the RFI Docket 78-369 suggested one option might be to place liability for RFI on the *transmitter* operator. Your comments are needed!

Plain Language Docket PR 80-729 is dead. Thanks to those of you who wrote your comments on that docket. The Commission has left the door open to make future changes on an individual subject basis, but the complete rewrite as proposed is now dead.

Recognition of outstanding contributions to Amateur Radio has been given to QCWA President Stuart Meyer by the Roanoke Division of ARRL. Stu has just been awarded the prestigious Roanoke Division Service Award. This award is given to members who have made significant contributions over a sustained period of time. The award reads: Stuart Meyer, W2GHK/For diligent and dedicated service in behalf of Amateur Radio/With appreciation from the Amateurs of North Carolina, South Carolina, Virginia and West Virginia.

Our congratulations to Stu.

The beginning of a new year brings new eligibilities for the various QCWA certificates. Golden Anniversary certificates, etc. are issued at any time after the beginning of the year in which you qualify. See the last page of any issue of *QCWA News* for the list of certificates and the requirements. If you are eligible for any of these certificates in 1982, send your application to Headquarters right away.

The spring meeting of the new Board of Directors will be held in Gaithersburg, Maryland on 27 March. There will be an open meeting of the Board on Saturday afternoon and all interested members are invited to participate. The meeting will be held in conjunction with the annual QCWA "Old-Timers" (not the OOTC) dinner, sponsored by the Washington, D.C. and the Northern Virginia Chapters. Location will be the Gaithersburg Marriott Hotel. For further information and reservations, contact W2GHK. If you have any comments or items you would like to have considered at the Board meeting, contact any member of the Board.

The scholarship fund is inching toward the $25,000 goal set by Director/Scholarship Chairman Leo Meyerson, WØGFQ, and we are hoping to offer a nice scholarship this year. Our thanks to those who have sent contributions. Now, help us find good candidates for the award. Applications for the scholarship will be accepted in April.

Let the new Board hear from you. President Meyer does a good deal of traveling throughout the United States and will work in as many QCWA chapter meetings as he can. Other members of the board are also planning to attend as many QCWA activities as possible. Keep in touch.

Sincere best wishes for a Happy New Year. □

VISIT YOUR LOCAL RADIO CLUB

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

ALASKA

EIELSON/NORTH POLE ARC
Eielson AFB, Alaska 99702
North Pole Jr./Sr. High School
3rd Friday/monthly — 7:00 p.m.

ARIZONA

Metropolitan Amateur Radio Club
J.C. Penny Restaurant, El Con
Tucson, AZ 85726
Call in on 34/94 K7CC/R
Every Saturday morning — 8:00 a.m.

Tucson Repeater Association
P.O. Box 40371, Tucson, AZ 85719
2nd Sat/monthly — 7:30 p.m., Pima Co. Bldg.
Net Thurs 7:30 p.m. 146.22/82 (146.28/88 & 147.69/09)
(602) 747-8903 or 899-4776

CALIFORNIA

ARALB (Assoc. Radio Amateurs of Long Beach)
1708 E Hill St. Signal Hill, CA 90806
Meets: Signal Hill Comm. Center
1st Friday/monthly

East Bay Amateur Radio Club
P.O. Box 6017, Albany CA 94706
Salvation Army Bldg., 36th & Rheem,
Richmond (415) 525-6200
2nd Friday/monthly — 7:30 p.m.

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

Lake Elsinore Valley Radio Club
Wildomar Elem. Sch. (corner Palomar Rd. & Central)
Take Baxter Rd. turn off 71 Freeway
Monitor 146.55 simplex
3rd Thursday/monthly — 7:30 p.m.

Marin Amateur Radio Club (Founded 1933)
Coop Meeting Room
71 Tamal Vista Blvd.
Corte Madera, CA 94925
1st Friday/monthly — 8:00 p.m.

North Hills Radio Club
P.O. Box 41635, Sacramento, CA 95841
Meets: Gethsemane Lutheran Church
4706 Arden Way, Carmichael, CA 95608
3rd Tuesday/monthly

Satellite ARC, Inc.
Bldg. 21160
Vandenberg AFB, CA 93437
1st Thursday/monthly — 8:00 p.m.

Sonoma County Radio Amateurs, Inc.
Box 116
Santa Rosa, CA 95401
3400 Chanate Rd.
1st Wednesday/monthly — 8 p.m.

S.C.A.T.S./WB6LRU
S. CA Amateur Transmitting Society
P.O. Box 1770, Covina, CA 91722
Cortez Park Rec. Hall
1st Monday/monthly — 7:00 p.m.

Stockton Amateur Radio Club
University of the Pacific, Room 122
2nd Wednesday/monthly — 7:30 p.m.
Club repeater net roll call:
Wednesdays 8:00 p.m. — 147.165/765

Tri-County Amateur Radio Association
Pomona First Federal Savings and Loan
399 N. Garey Ave., Pomona
Talk-in 146.625/025 For info. call (714) 985-8184
2nd Monday/monthly — 7:30 p.m.

CONNECTICUT

Tri-City ARC, Inc.
P.O. Box 686, Groton, CT 06340
Meets: Groton Public Library
Rt. 117, Groton, CT
2nd Tuesday/monthly — 7:30 p.m.

FLORIDA

Indian River Amateur Radio Club
P.O. Box Five, Cocoa, FL 32922
1st National Bank, Merritt Island
Cor. SR 3 and SR 520, Merritt Island
4th Tuesday/monthly — 7:30 p.m.

GEORGIA

Atlanta Radio Club
Box 77171 Atlanta, GA 30357
1st Thursday/monthly — 7:30 p.m.
Community Rm./Perimeter Mall Shopping Center
Call (404) 971-HAMS Net Sun. 9:00 p.m. 146.22/82

Columbus Amateur Radio Club (CARC)
David Nulty, N4ATI, Secretary (404) 687-3272
The Quonset Hut next to Food Stamp Center
Buena Vista Road at the "Spider Web"
2nd and 4th Thursday/monthly 7:30 p.m.

ILLINOIS

Fox River Radio League
McCullough Park Dist. Bldg. Rm. 101
Rt. 31 & Illinois Ave., Aurora, IL
(312) 898-2779 for more information
2nd Tuesday/monthly — 7:00 p.m.

Radio Amateur Megacycle Society
Irvingwood Acacia Church
3900 N. Plainfield, Chicago, IL 60634
(312) 625-2879
3rd Friday/monthly — 8:00 p.m.

Tri-Town Radio Amateur Club
P.O. Box 302, Hazelcrest, IL 60429
Above Hazelcrest Police Station
Net every Wed. 8 p.m./146.49 MHz
1st & 3rd Friday/monthly — 8 p.m. (except July & Aug)

Wheaton Community Radio Amateurs (WCRA)
College of DuPage, Room 2061
Glen Ellyn, IL 60137
1st Friday/monthly — 7:30 p.m.

INDIANA

Allen Co. Amateur Radio Tech'l Society, Inc.
P.O. Box 10342, Ft. Wayne, IN 46851
Allen-Wells Chapter House • Amer. Red Cross
1212 E. California Rd., Ft. Wayne, IN 46825
3rd Tuesday/monthly — 7:30 p.m.

Fort Wayne Radio Club
Ron Koczor, K9TUS
2512 Glenwood Ave., Fort Wayne, IN 46805
The Salem Church
3rd Friday/monthly — 7:30 p.m.

MICHIGAN

The Eastern Mich. ARC (EMARC)
St. Clair County Comm. College
Student Center Building (Cafeteria)
Port Huron, MI (313) 364-9640
1st Tuesday/monthly — 7:30 p.m.

NEW JERSEY

Old Bridge Radio Assoc. (OBRA)
Cheesequake Firehouse — Route 34
Old Bridge Township, NJ
Daily 8 p.m. Net on 147.72/.12 MHz
3rd Thursday/alternate (odd) months 8 p.m.

NEW MEXICO

Eastern New Mexico ARC
First National Bank, Clovis
Box 206 • Clovis, NM 88101
(505) 763-6960/356-5993
2nd Tuesday/monthly — 7:30 p.m.

NEW YORK

Genesee Radio Amateurs, Inc. (GRAM)
PO Box 572, Batavia, NY 14020
State Civil Defense Center, Batavia
(behind NYS School for the Blind)
3rd Friday/monthly — 7:30 p.m.

Staten Is. Amateur Radio Comm. (SIARC)
Northfield Savings Bank (side entrance)
Richmond and Castleman Avenues
Call KA2CUS (698-2006) or WA2KQN (981-0372)
3rd Thursday/monthly — 8:00 p.m.

OHIO

Ashtabula County ARC
Ken Stenback, A18S (964-7316)
County Justice Center
Jefferson, OH
3rd Tuesday/monthly — 7:30 p.m.

OREGON

Clatskanie Amateur Radio Club
Route 2, Box 553
ClatsKanie, OR 97016
ClatsKanie Grade School Library
2nd Tuesday/monthly — 7:00 p.m.

C.A.R.S. (The Clyde Amateur Radio Society)
Gary A. Kauffman, WB8MUG, Secretary
2nd Tuesday/monthly — 7:30 p.m.
Community Rm., City Building, Clyde, OH
Repeater 147.075/.675 MHz

Champaign-Logan Amateur Radio Club
John Wentz, W8HFK, President
2 Meter Net, 147.60/00, Tuesdays, 9 p.m.
Dinner meeting, 1st Thursday/monthly
Dajolees Restaurant, West Liberty, 7 p.m.

Findlay Radio Club
1333 W. Sandusky St./Box 587
Findlay, OH 45840
Repeater 147.75/15
1st and 3rd Thursdays/monthly — 7:30 p.m.

NOARS (Northern Ohio ARS, Inc.)
P.O. Box 354, Lorain, OH 44052
K8US (216) 988-2345/near OH T.P. Exit 8
3rd Monday/monthly — 7:30 p.m.
K8KRG/R 146.10/70-144.55/145.15-449.8/444.8

SOUTH CAROLINA

Keowee-Toxaway A.R.C. (Seneca/Walhalla)
147.87/147.27 WA4JRJ/R
Seneca Police Dept. Bldg.
Call Hum Walker, S/T, KD4WL (803/882-0471)
3rd. Tuesday/monthly — 7:30 p.m.

TENNESSEE

Lakeway Amateur Radio Club
Roy A. Zeigler, Activities Mgr.
Rt. 11 Box 61, Morristown, TN 37814
State Area Vocational School
Last Thursday/monthly — 7:30 p.m.

Oak Ridge Amateur Radio Club
Dick Church, N4ARO (615) 482-9054
Oak Ridge Civic Center
W4SKH/R 146.28/88
2nd and 4th Monday/monthly — 7:30 p.m.

Radio Amateur Club of Knoxville (RACK)
PO Box 124, Knoxville, 37901
Fire Training Center
Prosser Road, Talk in 147.90/30
3rd Thursday/monthly — 7:30 p.m.

TEXAS

Garland Amateur Radio Club (GARC)
146.775/146.175 K5QHD/R (info Net Mon. 8 p.m.)
Garland Women's Activity Building
713 Austin Street, Garland
4th Monday/monthly — 7:30 p.m.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK)
P.O. Box 9029, Hampton, VA 23670
Call Steve Silsby, WA4BRL (804) 599-6877
VEPCO Bldg. (Pembroke and G St.)
1st and 3rd Wednesday/monthly

Marine band with a ham set

Last month we listed all of the popular HF maritime nets. This month we'll examine the maritime frequencies adjacent to our ham bands. Since the marine frequencies and ham bands are so close together, it's only natural that the enterprising amateur might consider using his set on these marine channels in an emergency.

FCC Part 83 rules prohibit the use of almost all Amateur Radios on marine frequencies. Marine transceivers — almost identical to the ham sets in power output and emission characteristics — must all receive Part 83 type acceptance.

Why is the Commission so tight on the transmitter specs for a marine radio? Marine bands are allocated on frequencies where the second harmonic could be devastating for our military. Take, for instance, the second harmonic on a marine channel at 8 MHz. That would put us into the 16 MHz military slot, and this would not be good!

Amateur sets certainly have good harmonic suppression, but not as good as marine sets. If the amateur has a harmonic on one frequency, it's generally only going to clobber another Amateur Radio band, double or triple the fundamental frequency. On 7 MHz, 40 meters, your second and third harmonics would only crunch fellow amateurs on 20 and 15 meters.

Amateur Radio manufacturers are now producing ham sets that quite nicely tune in all frequencies between the broadcast band and 30 MHz. A simple one- or two-wire modifcation enables the transmit circuitry to work on all of these frequencies, in addition to the ham frequencies.

The ICOM 720 ham/marine transceiver (marine in an emergency).

The following Amateur Radio manufacturers have equipment immediately available that works nicely on the marine frequencies in an emergency: ICOM 720, Collins KWM380, Cubic Corporation (Swan), Drake TR7, Yaesu FT-one.

We know these manufacturers as Amateur Radio suppliers. These same suppliers may also make a compatible and comparable version of their Amateur Radio set that is even type-accepted for marine use, such as Drake, Collins and Cubic. To receive marine-type acceptance, you will probably pay the additional price tag so your entire purchase ends up around $3,000.

But take the ICOM 720A. One wire and you are on the air. Not legal, but let's face it — when you're out there on the water, you want every means available to call for help in case you have to abandon ship.

There are plenty of marine frequencies that are monitored constantly for such a call. Your high seas marine operator uses rhombic antennas to pull out even the weakest of signals. They guard their channels 24 hours a day. The United States Coast Guard operates a high seas HF radio system and monitors the frequencies regularly. The marine HF ship-to-ship bands are always active, and you could probably always raise someone in an emergency in your vicinity.

Marine channels are all *upper* sideband. Except for the telephone service, all marine upper sideband frequencies are full suppressed carrier. Just like ham sideband, you want no carrier on your signal.

ICOM 720 with Swan ST-3 tuner

The HF upper sideband marine telephone service would like to see a slight amount of inserted carrier. 1 watt would do just fine. However, it's not an absolute necessity, in an emergency, that they see your "pilot carrier" which they use for locking on to your exact frequency for telephone clarity.

The following list is only a partial one, listing the marine bands and popular marine frequencies. Note that ship-to-ship frequencies are simplex — you transmit and receive on the same frequency. Also note that ship-to-shore channels, such as the Coast Guard channels and the marine operator channels, are used half duplex — you transmit on one frequency but receive on another.

A couple of other notes: remember, unless you use Part 83 equipment, using your ham set except for an emergency on marine frequencies is illegal. If you are going to purchase Part 83 equipment for the marine band, you should also obtain FCC Form 503 for a permit to operate on frequencies in the 2-30 MHz HF region.

2 MHz

Ship transmit	Ship receive	Authorized use
2096.5 kHz	Same	Intership communications
2082.5 kHz	Same	Ship to ship and coast
2182.0 kHz	Same	Coast Guard and emergency
2638.0 kHz	Same	Ship to ship
2738.0 kHz	Same	Ship to ship

4 MHz

4125.0 kHz	Same	Ship to ship, 4A

Atlas 350XL with Kenwood tuner at right.

Maritime Mobile Frequency Directory

Services	TX	RX	Tuner
Ham — Local nets	7.235 MHz	Simplex	— — — —
Ham — Local nets	7.285 MHz	Simplex	— — — —
Ham — Pacific nets	14.313 MHz	Simplex	— — — —
Ham — Pacific nets	14.340 MHz	Simplex	— — — —
Ham — Worldwide nets	21.404 MHz	Simplex	— — — —
Ham — Gordo, WB6NOA	14.2345 MHz	Simplex	— — — —
Ham — Marine nets	28.500 MHz	Simplex	— — — —
Marine — Emergency, Coast Guard	2.182 MHz	Simplex	— — — —
Marine — Ship to ship local	2.096.5 MHz	Simplex	— — — —
Marine — Races, 4A	4.125 MHz	Simplex	— — — —
Marine — Races, 8A	8.291.1 MHz	Simplex	— — — —
Marine — Worldwide, 12A	12.429.2 MHz	Simplex	— — — —
Marine — Worldwide, 16A	16.587.1 MHz	Simplex	— — — —
Marine — Worldwide, 22A	22.124.0 MHz	Simplex	— — — —
Marine phone — KMI local	4.063.0 MHz	4.357.4 MHz	— — — —
Marine phone — KMI local	4.109.5 MHz	4.403.9 MHz	— — — —
Marine phone — Mexico, KMI	8.204.3 MHz	8.728.2 MHz	— — — —
Marine phone — Mexico, KMI	8.219.8 MHz	8.743.7 MHz	
Marine phone — Mexico day, KMI	12.330.0 MHz	13.100.8 MHz	— — — —
Marine phone — Worldwide, KMI	16.463.1 MHz	17.236.0 MHz	— — — —
Marine phone — Worldwide day, KMI	22.040.3 MHz	22.636.3 MHz	— — — —
Marine — Coast Guard, local	4.134.3 MHz	4.428.7 MHz	— — — —
Marine — Coast Guard, Mexico	8.241.5 MHz	8.765.4 MHz	— — — —
Marine — Coast Guard, worldwide	12.342.4 MHz	13.113.2 MHz	— — — —
Marine — CG, worldwide, day	16.534.4 MHz	17.307.3 MHz	— — — —
Time — GMT	No TX	5, 10, 15 MHz	— — — —

WEATHER: Weather broadcasts from KMI phone station at 0000, 0600, 1500 GMT on 4.357.4, 8.728.2, 13.100.8, and 17.236.0. Traffic lists every three hours beginning 0000 GMT.

SPECIAL NOTE: All marine channels are used upper sideband (UA). When dialing in marine frequencies at 2 MHz and 4 MHz, be *sure* and select *upper* sideband.

DUPLEX NOTE: When using marine phone and Coast Guard channels, be sure and switch to duplex. The simplex position (same transmit and receive) is used only on marine ship-to-ship (race) channels and on Amateur Radio frequencies.

LEGAL NOTICE: Using Amateur Radio equipment on marine frequencies is specifically prohibited and not recommended. Only in an emergency would you use this set on ham frequencies.

TUNER: To double-check the antenna tuner for best resonance, switch to AM and transmit briefly once the tuner is properly set with listed readings. Then switch back to SSB and watch left needle deflect with voice as right needle barely moves.

IN AN EMERGENCY: Always leave your set and tuner tuned to 14.313 MHz — the International Maritime Mobile band. Using the words "May Day" will always bring a response from Amateur Radio stations. In an emergency, you may use any frequency and any means to signal for help.

Enjoy your cruise — I wish I were there with you!
Gordon West, WB6NOA
14.2345 MHz, 4:00 p.m. Pacific Time daily
(three long RTTY dashes to signal) □

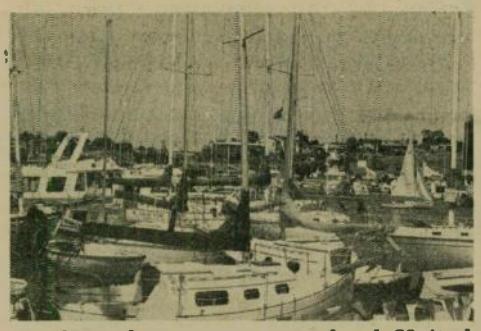
4143.6 kHz	Same	Ship to ship, 4B
4134.3 kHz	4428.7	U.S. Coast Guard
4063.0 kHz	4357.4	West Coast high seas telephone
8 MHz		
8291.2	Same	Ship to ship, 8A
8294.2	Same	Ship to ship, 8B
8241.5	8765.4	U.S. Coast Guard
8204.3	8728.2	West Coast high seas marine operator
12 MHz		
12429.2	Same	Ship to ship, 12A
12432.3	Same	Ship to ship, 12B
12342.4	13115.2	U.S. Coast Guard
12330.0	13100.8	West Coast high seas marine operator
16 MHz		
16587.1	Same	Ship to ship, 16A
16590.2	Same	Ship to ship, 16B
16534.4	17307.3	U.S. Coast Guard
16463.1	17236.0	West Coast high seas marine operator

There are additional frequencies at 22 MHz for ship-to-ship and ship-to-shore use. These are not listed because one has to be all the way across the world to be able to use them!

Long-distance telephone frequencies

If you would like to receive a complete list of all of the maritime telephone channels used by the Bell System, write AT&T-Long Lines H.Q. High Seas Product Manager, Room 4A-250, Bedminster, NJ 07921, or call collect your nearest Bell System High Seas Station in Oakland, California; Manahawkin, New Jersey; and Fort Lauderdale, Florida.

For a complete list of United States Coast Guard AMVER high seas emergency channels, contact your local United States Coast Guard office and ask for their area communications directory booklet.



For a complete list of maritime frequencies, channel identification numbers, as well as brochures on marine single sideband equipment that may also be used for ham frequencies, write Stephens Engineering Associates, 7030-220th Southwest, Mountlake Terrace, WA 98043.

Some of the new marine single sideband sets, all Part 83 type accepted, may dial in through the use of PLL synthesis Amateur Radio frequencies. Although the equipment starts out at $5,000, here you would be able to have both ham and marine, legally, all in one package.

If you choose to go the other way — finding marine channels in a ham set — just remember, you may only do this legally in an emergency to signal for help. The ICOM-720A is probably the least expensive way to go if this is how you're going to operate.

Good cruising!

NEXT MONTH: VHF antennas — ways to use your marine VHF antenna on 2 meters. □

Maritime Net and MARCO — busy spots

Bob McGarvey, WB2EVF

One of the busiest frequencies in all Amateur Radio is 14.313. That's home to the Maritime Mobile Net, MARCO and other services, which keep that spot on the band busy around the clock.

The Maritime Mobile Net's name speaks for itself. Its purpose is to provide communication between ships and land. Deployed military men and women all over the world have been able to speak with their families at home, thanks to the net and the phone-patching of dedicated amateur volunteers. Strategically placed net control stations at points far removed from each other make virtually complete coverage possible.

All the activity is not confined to amateurs in the United States, by any means. Similar groups blanket the Pacific all the way down to New Zealand and Australia.

MARCO is a medical net, which takes up some of the time on the frequency. If someone in a South American jungle needs medical assistance, MARCO can handle the call, seek out expert advice, relay information to the doctor of the afflicted person and arrange for air shipment of medical supplies. In a hurricane, flood, volcanic eruption or earthquake, MARCO can take over and expedite efforts to relieve suffering victims.

Dr. Christine Haycock, WB2YBA of Newark, New Jersey is the new president of MARCO. (See Worldradio, August 1981, page 15.)

Make no mistake about it, the 14.313 frequency in the 20-meter General phone band is a lifeline to the world, extended by the Amateur Radio community.

— The Home News, NJ □

Happy Flyers
HAMS & PILOTS

"THERE IS NO LIMIT TO WHAT YOU CAN DO – IF YOU DON'T CARE WHO GETS THE CREDIT"

INTERNATIONAL COMMANDER, **Hart Postlethwaite, WB6CQW**
1811 Hillman Ave., Belmont, California 94002 (415) 341-4000
International Vice Commander, Paul Hower, WA6GDC
Box 2323, La Mesa, California 92041 - (714) 465-5288

Happy New Year!

Each year offers us another opportunity to improve on the things we did the year before. Many will have made their New Year's resolutions. Most of us will probably not keep all of the resolutions we made. Hopefully, one of the things you think about as you enter this new year will be the possibility of expanding your horizons. Those of you who read this column know of our bent toward Search and Rescue (SAR).

We hope some of the things we discuss each year will have an effect on you — to the extent that you will do some personal research on your local SAR groups. Each group has its own special needs. Some groups need communications, some pilots, some scuba divers, mounted workers, typists, newsletter writers, teachers, maintenance, etc. The list could go on and on. Gender is not involved, nor is age. Men, women, boys, girls, senior citizens, disabled — all can find places where they are needed. Give it some thought. *YOU ARE NEEDED!*

DF tester continued

It took all of last month's column to lead up to the reason and need for a DF tester. If you did not read last month's column, you really should get a copy and read it along with this. (I know better than to suggest that you read it before you finish this one.) Suffice to say, lives are known to have been lost because our volunteer SAR crews have been unable to locate the 100 milliwatt ELT transmitter on a downed aircraft. A big share of this has been traced to non-working DF installations.

In my own work as a volunteer DF repair SAR worker, I found some units would work on the ground, without the engine running. When we got in the air to give the DF flight instruction, it did not operate properly (or at all). This was embarrassing as well as frustrating. Often, we were many miles from home, with only limited time to effect the repairs and training. A method was needed to allow testing the DF in flight.

This required a way to monitor the various stages, as well as a way to substitute known good electronics one at a time. I had constructed what I called a DF Porta-Lab, using the Non Linear Systems battery-powered scope, DVM, counter, home-built generator, gel cell battery pack, antenna simulator, etc. The problem was that it can get difficult, if not unsafe, to fly a plane with panels hanging all over the place.

It was obvious that we needed something that had good connectors, a set of matching cables, and a method of switching things around while in flight. On the ground, I had always used a spare DF as my method of rapidly determining if the installed DF had a problem — or if it was actually the installation itself.

We started by installing a receptacle that matches the two major DF units issued by most SAR agencies. We built a six-conductor cable that has two connectors on each end. One joins with the cable coming from the plane to the DF, and the other connected to the DF in the plane. On the other end, the two connectors terminate into the text box. Actually, the box can be connected directly, provided you can get to the back of the unit. The cable allows me to put the test unit wherever I wish.

In essence, we have now brought the power, ground and detected audio into the test box, through a series of switches, and back to the plane's DF (depending on the position of the various switches). We then installed a connector to each stage we needed to monitor. We also installed one of the HAPPY FLYERS phase-type DF units inside the box. This allowed us to make instant substitution between DF units. If neither worked, we knew to look at each area of the installation very carefully.

The final step was to bring over the antenna connections. The switched antenna DF systems, themselves, go with the normal installed Comm receiver in the plane (except the Lper, which has its own receiver). We used BNC fittings because most DFs used them (except the DF22). We used RG 174 inside the box to switch the RF between units and antennas. It would be preferable to use coax switches on the box for the RF switching chores, but they would add too much cost with not enough benefit. (We would recommend them if you plan to do very much actual DFing with the internal DF itself.) Whatever you use for switching, you should test for interaction and RF crosstalk by a few DF runs on known targets. We have found that all DF installations have their own peculiarities, and most of them are easy to live with once you identify them.

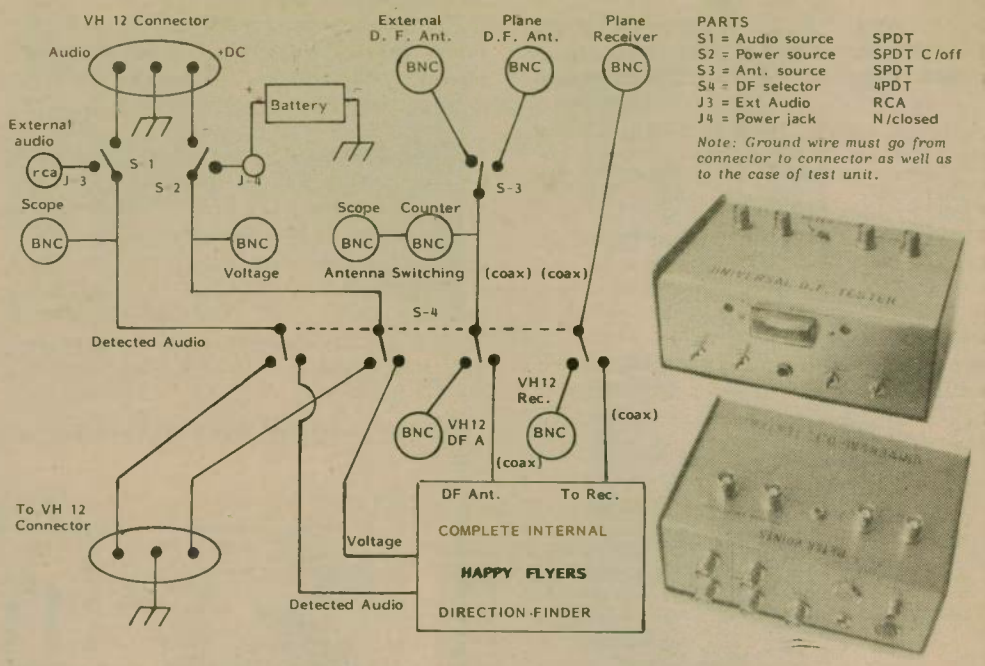


Figure 1 — DF Tester

The final requirement was an internal battery of 12 volts, and a plug that could provide auxiliary DC if we let the battery run down. A standard power plug with normally closed contacts completed this part. A number of installations in planes did not work because of "garbage" on the DC line. One Cessna turbo 210 had almost 50 volts of 400 cycle AC riding on the DC battery line. I asked him if he had frequent radio problems in his plane; he did! Turns out that the plane has a poorly filtered 400 cycle inverter. You could even see the AC at the battery (looking at it with my scope). We disconnected his 24-volt DC, and connected his DF to a 9-volt battery. Voila! It worked. Having a 12-volt battery in the tester is essential. A flick of the switch gives the answer.

Ground loops (poor grounds) have been another source of trouble. Some have relied on the coax connector for their ground. This can be dangerous to a DF installation. The BNC may not have the best connection (some people find them very difficult to install on coax). The antenna may not have a good solid connection to the frame. Some planes do not have a good path back to the battery through the frame. High resistance grounds can set up some real weird situations.

While we were installing our HAPPY FLYERS DF, we decided to go ahead and install the Instantaneous Condition Indicators (ICI), which are unique to our unit. Meters are damped in these types of DFs. The antenna systems switch anywhere from 100 to 4,000 times a second, depending on the brand and model. By tapping into part of the circuitry, we are able to get an "instantaneous" indication of what is happening during a switch by looking at an LED on each side of the meter. When you are in a multipath situation and have a direct signal on one side of the plane and a reflection on the other, the meter needle will choose one of the two paths, but both ICI LEDs will flicker. This allows the DFer to take steps to get out of the multipath.

Since were were so familiar with our own design, we also put a metering connection to the input of the XR2211. By using a dual trace scope and connecting one trace to that point and the other to the antenna switching voltage, we can watch the effect of turning the antennas. This is one way to see the difference between a "phase" type DF, and the "voltage averaging" type.

In each case, you will see the switching pulses equal to their rate. When the antennas are turned toward the target, minimum buzz will occur at the speaker. Also, a nearly straight line will appear across the scope, with blips at the switch points. As you rotate the antenna away from the target, the amplitude of the buzzing noise will increase, as will the amplitude on the scope. The increase in amplitude is what causes needle deflection on the voltage averaging type. On the phase type, you will note that the square waves will lead or lag each other, depending on the way you turn the antenna. Amplitude has no effect on the meter deflection (left/right indicator) with the phase type. This is very useful when jammer hunting. If the jammer goes from 1 watt to 100 watts, the phase type shows no difference. The voltage averaging type will change readings with changes in amplitude.

We have already covered battery substitution in the circuit description, and its benefits are obvious. Another switch allows substitution of the incoming detected audio from the receiver. By reading the DF's antenna switch rate with a counter, you can determine its frequency. Using a theoretical find of 100 cycles per second, if you put a 101 cycle signal to the audio input of a DF, you will cause the left/right needle to oscillate at the difference rate of one cycle per second. As you tune away from the proper frequency, the needle will oscillate faster until it can no longer move fast enough to indicate. As long as the needle moves back and forth about the same distance on each side, the DF is usually functioning. If both the plane DF and the internal DF will not work with the plane's receiver detected audio, but both function with the above test, you know that the signal coming from the receiver is the culprit.

We also have developed what we call "paste in" DF antennas. This is a switcher network, delay line, and flexible RG

174 (or fine wire) antennas. These can be taped (pasted) to the windshield (more properly, windscreen) and used as a substitute for the installed DF antennas.

As you can see, the tester should allow you to check nearly every part of a DF system. Space will not allow further detail in this article. You will note that we have provided for simultaneous hook-up to scope, meter, counter, etc. This allows you to look at waveforms, the effect of switching into a circuit (sometimes loading causes the detected audio to become so low that it is unusable), and an isolation resistor starts the DF functioning properly. Once you start playing with these things, you will learn a lot about how to properly use them. We believe that it should never take a trained DFer, with a working DF (of any kind), longer than an hour to find an ELT (assuming the DF is in ε plane) once the ELT is heard.

As an incentive to get more amateurs involved, I might mention that these types of DF units are very broad in their frequency response. You can use the same DF on the aircraft band, 2 meters, the marine/business band, 220 and 450. By building another set of cheap antennas, you could use the same DF electronics on 6, 10 and 11 meters. After speaking to the New Zealand equivalent of the FCC, when I was over there for NZART, they built about 45 of the HAPPY FLYERS DF units. I am told that they increased their apprehension of jammers and illegal CB operators by about a factor of five.

We hope you find this tester as useful as we have. For those of you who are interested, but not builders, or it you need more details, feel free to call Bud Kirsch, WB6MVE at night or on weekends at (415) 333-1916. You may drop him a line at 5131 Mission Street, San Francisco, CA 94112. My operation and recuperative period will have put me way behind and he has graciously agreed to help. The free DF loaner slide/sound show is still available from Paul Hower, WA6GDC, P.O. Box 2323, La Mesa, CA 92041. □

Try color coding

Norm Brooks, K6FO

Hooray! This case of tróuble will be easy to fix. Ha Ha! The good ol' smoke test points to the burned resistor, and it's burned to a crisp. Gotta bring out the ol' circuit diagram and see what the value should be — I'll never be able to tell from those ashes.

There it is — R21, and its 57,000 ohms. We ought to have one in the ol' resistor box.

Lessee now. The end stripe would be 5 — that's green, or is it blue? I always get 5 and 6 mixed up. The second stripe is 7 — that's one of those odd-ball colors. Either purple or violet, I think, but I'm not sure. And the third stripe would be 3 for the 000 part. Is it orange or yellow? I always get 3 and 4 mixed up too. Gee, I wish there were some easy way to remember the color code so I wouldn't have to look it up all the time. But then I only use it when I'm looking up resistors or capacitors, and that's not too often. No wonder I don't memorize it.

Does that sound like you? It did me too, until I came up with this. Why not use the color code on other things besides radio parts? On things you use almost every day. In my case I marked my nut driver set handles with stripes of paint, according to the color code. (See picture). I also use dots of colored paint to number terminal strips.

So you won't have to look it up again, here's the color code:

0 - Black	5 - Green
1 - Brown	6 - Blue
2 - Red	7 - Violet
3 - Orange	8 - Grey
4 - Yellow	9 - White

A color-coded nut driver set.

In the case of my nut driver set, the handle of the 7/16 socket has a violet stripe near the top, then a brown stripe and then a blue stripe. Leave a space between the stripes so the paint won't run together. When I look at the handle I see 7-1-6 and I know it's 7/16. Of course the ¼ handle has two stripes, brown and yellow for 1-4, etc.

I found paint works best on tool handles. I tried colored tapes, but they didn't hold up under sweaty working conditions. The tape got sticky and slipped off.

Where do you get the paints? For starters, collect small samples from your own or your neighbor's paint supplies. The colors don't have to be any exact shade. Empty nail polish bottles are ideal for storing the paint. They have built-in brushes, too. Then fill in the missing colors from the model builder's supply department of your favorite variety store.

Use your paints to mark *anything* that needs a number. Binding post terminals, tool sockets, open-end wrenches, etc. The more you see those colors, the easier it will be to memorize them. □

Contact Worldradio for hamfest prizes.

WITH THE HANDI-HAMS

Bruce L. Humphrys, KØHR

Starting the year right!

This month's column is being written by one of our Courage HANDI-HAM System staff members — Maureen Pranghofer, KFØI, System Student Coordinator. Maureen regularly contacts all of our students by phone and mail. Sometimes, she runs across a very interesting story — something out of the ordinary. I was as interested to hear what "Peanut brittle, fishhooks and Amateur Radio" have in common as I'm sure you are. So — read this little story. What a neat way to start the New Year!

Peanut brittle, fishhooks and Amateur Radio

Maureen Pranghofer, KFØI

"When my vertical antenna arrives, which should be any day, I'll pretty well be all set," said Milton Hall, KA5MJD of Plain Dealing, Louisiana. Like every other Novice, he can hardly wait until he makes that first QSO. Unlike other Novices who make those first wonderful contacts from dingy basement shacks, Milton will make his from his bedside.

Milton is quadriplegic. He is totally paralyzed from the neck down except for limited movements of his right arm. He has been a "quad" for the past 21 years — ever since he was involved in an automobile accident at the age of 15. This has not stopped him from having a full life. He is an avid reader, CB operator, and now — an amateur.

About three years ago, as Milton tells it, "I was just poppin' off — you know — saying I wanted to be a ham. I don't know if I was really convinced about it, but my brother and sister-in-law gave me a check for $100 to buy ham equipment, and then I had to back up my brag." And that's exactly what he did. "I got a hold of other hams through my CB, bought a "Tune in the World" and a key, and then read about the HANDI-HAM System in Worldradio." Milton has been a HANDI-HAM student for the past year. He just recently passed his Novice, and is now working toward his General.

Like all amateurs, he needed equipment, so about two-and-a-half years ago he began saving — saving all the money he received from the sale of candy and muffins his mother brought to the nursing home. "I'd sell peanut brittle, fudge and muffins, and after two-and-a-half years I had enough to buy a used Yaesu."

In order to operate his new rig, Milton has had the eyes of large fishhooks glued to the knobs and by sticking pencils into the knobs he can bat at them with his arm and maneuver them quite effectively.

Currently, the System is providing Milton with encouragement and a "Puff 'n' Sip" keyer which will enable him to more effectively send code. It's the motivation of Milton and his one-to-one — Val Marshall, K5WOD — which makes the System work. □

HANDI-HAM student Terry LeBlanc scans the ham bands while working for her Novice Class license. Terry has rheumatoid arthritis.

MILITARY AFFILIATE RADIO SYSTEM — MARS — US ARMY ★ NAVY-MARINE CORPS ★ AIR FORCE

Vern Hansen, AAA9W WB6UWQ

The following article entitled "Operation Tornado" appeared in the USAF MARS Communicator, October 1981 edition.

The brainchild of Captain Bruce Wallacky, commander, 2032CS, and Ed Enderle, AFF1P was a simulated tornado which struck Rickenbacker ANGB at 2230Z, 23 July. At 2300Z, the local mobile net 10HF07 was activated, utilizing the Columbus repeater OHX3. All traffic was handled via VHF except reports to the various headquarters involved on HF.

Text of original message read: "MARS exercise. Tornado has hit Rickenbacker ANGB, OH. Telecommunication center damaged. Five injured. Extent of injuries and damage being assessed. Numerous power and telephone lines down. Base isolated. Aircraft not hit. Control tower functioning. Damage to other ATC equipment being assessed. MARS exercise."

This message was transmitted to Harry Cook, AFA1IG on VHF who retransmitted it via HF to HQ AFCC/SCOTT AFB IL/XORCP and HQ SCD/OFFUTT AFB NE/DOCP.

As VHF mobiles reported in, they were sent to hospitals and other strategic spots as follows: Hank LaRoche, AFA1WD was sent to disaster site. Phil Will, AFA1PZ was sent to Base Headquarters to effect a link with strike zone. Les Peterson, AFB1EL went to Riverside Hospital. Tom Montei, AFB1BL went to the local telephone office to request emergency repairs to base equipment. James Enderle, AFA1LQ went to Mt. Carmel East Hospital. Andy Kastle, AFA1TT, went to Mercy Hospital and George Martini, AFA1ZG, went to Grant Hospital.

When it was ascertained which hospitals could more readily handle the casualties, the transportation began. The four less seriously injured were directed to Grant Hospital. The two seriously injured personnel were taken to the closest hospital, Mt. Carmel East, for initial treatment but were subsequently sent to Wright-Patterson AFB Hospital.

George Martini, AFA1ZG, having completed his hospital assignment, was sent to the Springfield ANGB OH to obtain mobile telecom equipment to be sent to Rickenbacker.

At 0001Z, the following message was sent to the affected headquarters: "MARS exercise. Situation at RANGB as of 0000Z. Six injured, two seriously. Two seriously injured transported to Wright-Patterson AFB Hospital. Others treated at local hospitals. Extensive damage to telecommunications center. Equipment inoperable. Ohio Bell notified to restore switchboard and priority circuits. Request mobile equipment to restore teletype service. All classified materials accounted for. TACAN repair being effected. All other ATC equipment operable. MARS exercise."

The two-hour exercise concluded with the following message: "MARS exercise. Situation at RANGB as of 0100Z, 24 July. Switchboard 50 percent restored. Two AUTOVON circuits restored. Telecom center functioning with mobile equipment. TACAN irreparable this location. Request mobile TACAN support. All follow-up action from this point will be submitted as SITREP. MARS exercise."

Beware of battery

Virginia Shirer, KAØADV

Sometimes we take familiar things, that usually give little trouble, for granted and don't realize their potential threat. One such item is the automobile storage battery. It is a bomb and can explode when the hydrogen and oxygen it continually forms is ignited.

This happened twice in the last year to one local amateur. It occurred in two different vehicles — both in normal operating condition. In both cases, the batteries went off the moment the starter switch was closed. *DO NOT* hover over the battery while a helper is operating the starter. Shrapnel accompanied by sulphuric acid can cause hideous injuries. — *Douglas County ARC, Lawrence, KS* □

Converter IRL – FSK 500, FSK 1000 KANTRONICS – Field Day 2, Mini-Reader CURTIS – KB4900

MACROTRONICS – M80, M83, Terminall, M800, M830, Ritty Riter, CA650, TA650, A6500, FSD1, M65, M650, CM650, TM650,

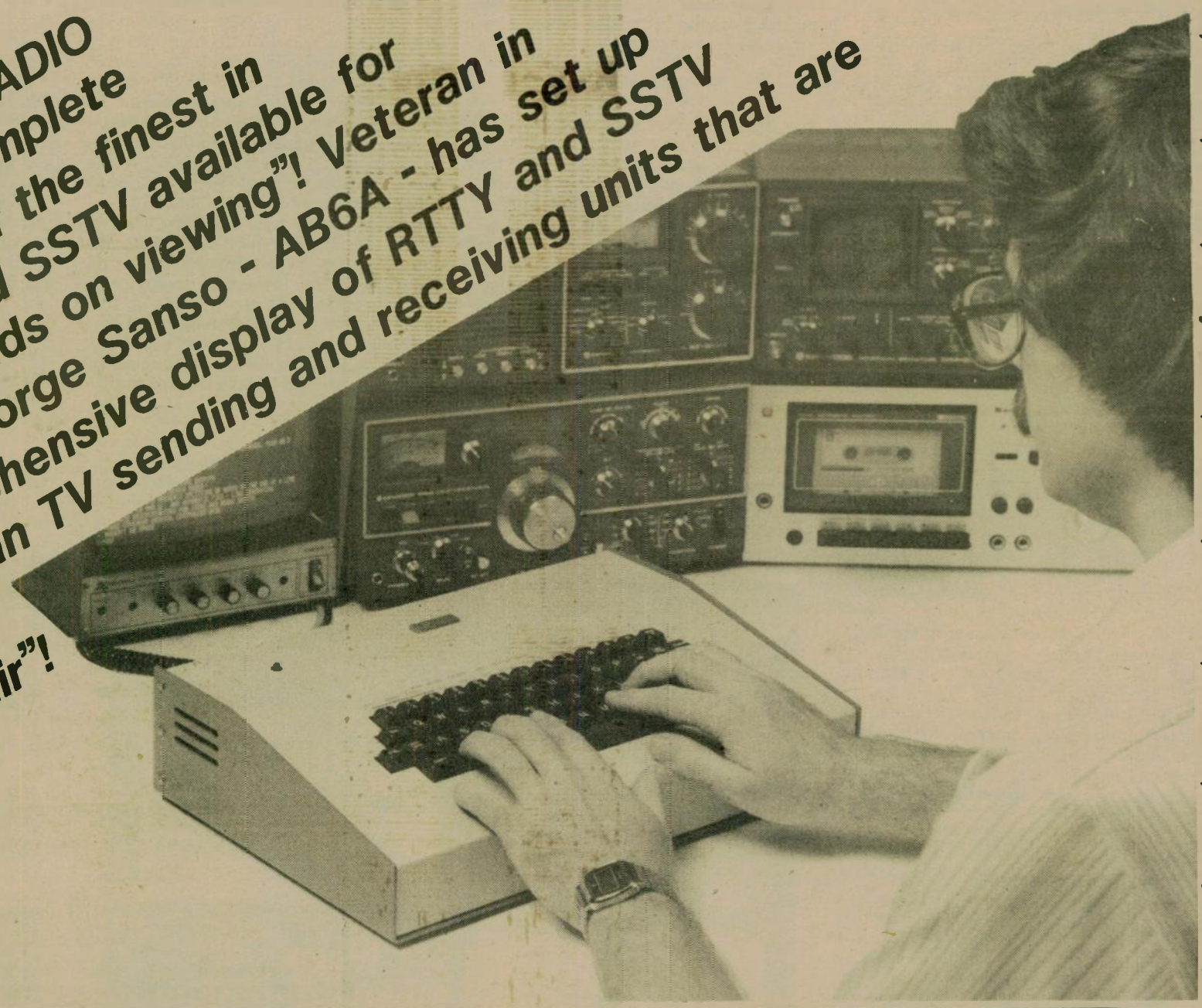
DS3100ASR, CT2100, DS2050KSR, ESM914, TR930, MPI88G, ST6000, ST5000 ROBOT – 800 Superterminal, SSTV Scan

HENRY RADIO

CELEBRATES ANOTHER

FIRST!

Now HENRY RADIO has a complete display of the finest in RTTY and SSTV available for your "hands on viewing"! Veteran in RTTY George Sanso - AB6A - has set up a comprehensive display of RTTY and SSTV Slow-Scan TV sending and receiving units that are actually "on the air"!



HENRY RADIO

2050 S. BUNDY DRIVE
LOS ANGELES, CA 90025

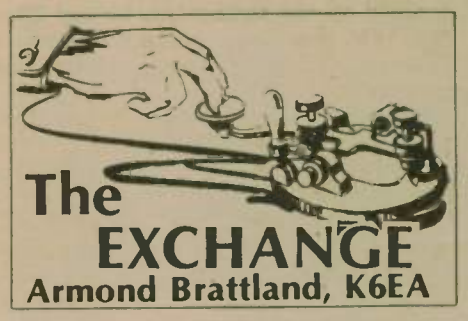
(213) 820-1234
toll free outside CA (800) 421-6631

931 N. EUCLID
ANAHEIM, CA 92801
(714) 772-9200

Call or Write!

HAL

HAL



Due to a shortage of space for *dated* feature articles that could not be held up any longer, "something had to give" last month; therefore, this is now material from the December and January columns, plus revisions. If the abrupt cut-off caused you to wonder about my health, don't worry — I'm fine!

There is still time for an "ARL 61" (Wishing you a very Merry Christmas and a Happy New Year). Since this is written at Thanksgiving time, during the start of the heavy traffic season — just think of all the "glass-arms" such numbered radiograms have saved, and be thankful!

Special thanks to those who have written letters to this column, or to **Worldradio** about this column. Also to those who feel their cause has been helped by what has been written here. You have been most generous and gracious with your kind words — although not requested, they were appreciated and encouraging. In one instance, I received a "Certificate of Appreciation." It is all nicely printed and suitable for my "memory book." I did not know such group gave such, but it is deeply cherished. During the years I've been writing for **Worldradio**, if there have been times we disagreed, I am both grateful and thankful we have disagreed as friends!

NIN — The National International Net (for written traffic)

Prospects should brighten during 1982. First, QSTs will be sent on about 21,150 kHz at 2300Z starting 15 January 1982. This will give all amateurs, *including novices,* a calling frequency for the purpose of handling written traffic *on a daily basis.* The suggested procedure is to call "NIN" de (your call) then indicate traffic by sending "QTC" (giving the number of pieces of traffic and destination of each). To designate that you will take traffic, merely call "NIN" de (your call) then "QRU" and give your QTH. There has been much publicity given to such form of operation; however, letters indicate several expected net control stations, and not hearing any, these amateurs concluded the net was not operating. *To get results, you must make calls.*

You may be sure it took a number of years to build up the "hit and bounce" concept of operation to the point as used by ARTS (Amateur Radio Telegraph Society) and "hit and bounce" nets on 40/CW. It is now a very smooth operation, but remember years ago, they also had problems convincing traffic handlers that such form of operation could ever succeed. The consolidation of such "hit and bounce" nets on 40/CW should help spread their efficient form of operation to other bands. Since such "old pros" realize how important it is for the future of traffic handling to start Novices out in traffic handling as early as possible, NIN welcomes their help!

Second, to keep NIN on the air and to avoid the conditions on 15 meters during the spring and summer, operations will be moved to 7125 kHz about the middle of March 1982. Such change will be announced on 21,150 kHz later on. Walt Green, N5CRU and others have made such suggestions. It will permit many active NIN stations to keep in touch with each other and give the serious-minded Novices a chance to break into traffic handling. The only question not settled about such switch from 15 meters in March to 7125 kHz, is the time of operation. Don Bowman, WD0HND in Iowa, has been faithfully hanging onto the NIN frequency on 15 meters, also Ken Hand, WB2EUF of New York, but the skip is too long; the switch to 7125 during the summer will solve that if a suitable time is picked. Perhaps before the time comes to make such change, some good advice will be forthcoming from others, including the "hit and bouncers"?

The third brighter hope for NIN — more amateurs and Novices heard from, and increasing awareness of the need for traffic handling and including Novices. With this in mind, starting in February, a paragraph within or near the Traffic column, headed: National International Net, NIN/21,150-2300Z will carry information about the net activities; the information will no longer be buried in a column. During the spring and summer months, that time and frequency will be given.

What can you do to help this cause? Please write: RFD C7, Box 260, Bemidji, MN 56601, or 1135 Magnolia Ave., Long Beach, CA 90813. Kindly give me your telephone number, including area code and full address. You may be answered by radiogram.

Let's give the Novice a fair shake — traffic-wise!

It has been suggested that NIN move to the General bands. We've taken on that subject before. Actually, it might be easier to establish nets on the General bands, but what about those who feel the Novice deserves an opportunity to handle traffic? If you take a cross-section of humanity — or amateurs — a close examination will reveal certain differences in their attitudes, especially concerning the giving of public service.

It is glibly said, "Service is the finest tradition of Amateur Radio," but how are you going to take in the Novices who wish to make a contribution in that direction without setting up that opportunity on the Novice bands? And speaking of "fair shakes," do traffic handlers feel that their public service facet gets as much publicity as such good service deserves? Does anyone wish to address this subject matter in this column?

How about sending it via Amateur Radiogram?

A cartoonist, depicting the future trend for our post office system, pictured an envelope with a pocket to hold "folding money." Historically, back in the days of the "Pony Express," only the affluent or those with important business could afford such service. As means of travel improved, the National Post Office came into being, with a flair for "service" — the penny postcard was born. Flowery language from statesmen told of its virtues; everyone could afford to "write home." It followed that the "radio kid down the alley" even printed his QSLs on penny postcards. Presently, "radio kids" can't afford to send many cards; ARRL should devise some other method of now verifying contacts for the numerous awards ARRL established — some of which were started back in the days of the penny card.

We amateurs have our own means of keeping in touch with families and friends — that much, the kid down the alley can afford. There is no reason not to make use of hamgrams; they travel across the country and even into some foreign countries at amazing speed. But what can we say in a radiogram, and to whom can it be sent without violating rules? Can it only be used for simple greetings; is the rule different between amateurs than for the general public? It is a subject upon which many words, often very vague ones, have been written. This writer has requested that specific examples be given in answers, instead of merely words and further confusion. Some of the answers will follow next month.

Lung cancer claims another good friend and CW operator

Learning that neighbor Arthur Vandersluis, W0KFF had succumbed to lung cancer, made it rough for me in piecing this column together. I've kept in touch with Art since he was first licensed as a youngster; he failed to make it out of his 60s! Living less than an eighth of a mile away, he would walk right in, turn our "No Smoking" sign around, light up what we called a "coffin nail," and blow the smoke at me while putting on a big grin. He knew I had kicked the habit many years ago, when it almost shortened my life. Art was an early member of ARTS, the Society of Wireless Pioneers, Old-Old-Timers Club, Bemidji Radio Club, Elks and was a brother Mason and Shriner. Just a month ago, he signed our son's petition for Masonic degrees, and he was looking forward to attending on 4 November. Ruby, his wife for 46 years, survives; there were no children. Art kept many schedules on CW, and it is a sad duty having to report that he signed his call for the last time . . . his "golden fist" is still!

The Willis Van Norman family and their busy life

First meet Willis, K0KCF. I work him often on the Minnesota State Net on CW. We've been corresponding for years, and I know he is a busy man. However, he takes time to be the active president of the Rochester, Minnesota Radio Club. He is the manager for MSN-2, which meets on CW daily at 10:00 p.m. and he often must go up to the regional nets to clear the traffic himself. When the Rochester Amateur Radio Club sponsored the ARRL Dakota Division Convention last fall, Willis served as chairman of the registration committee — likely Irene,

Willis Van Norman, K0JCF finishes a CW contact prior to taking off from the family landing strip. Hopefully, by the time this is printed, he will be flying up to Lake Bemidji, Minnesota for a look at an area that abounds in "airfields" — provided one owns a plane that is equipped to land on lakes.

KØQJX (his XYL) took time off from her librarian job to be "the committee."

Willis lives a complex life, as you will learn — even his regular job as the expert operator, programming the complicated microcomputer at the Mayo Clinic, calls for a dedicated professional. From brochures I've read about the DSR (the Dynamic Spatial Reconstructor), a three-dimensional imaging scanner, it contains banks of X-ray tubes to study body organs; the findings are harnessed to microcomputers to correlate the findings. It's amazing to learn that although the huge framework holding the intricate electronic assembly is made of aluminum, the framework weighs over 17 tons.

Willis received KNØJCF in 1957, but as soon as the rules permitted, got his Amateur Extra. Besides his traffic handling, he also has over 200 countries confirmed. But radio was not enough. In the early 1960s, he became interested in flying, and he now holds a commercial pilot's license with full instrument ratings. He owns an airplane equipped with both commercial and amateur gear, and as a certified flight and advanced ground instructor — besides teaching others — has taught his own family how to fly, as well as inspired and helped them obtain Amateur Radio licenses.

Home on the Van Norman Flying "V" Ranch, near St. Charles, Minnesota. Antennas on the family home do not show inverted "Vees" on 160, 80, 40 and 20 meters — all supported by the mast on the opposite end, away from the beam. The trim aircraft tied down on the concrete pad at the end of the landing strip is the Cessna 172 Van Norman Special, licensed as (N4VN-special).

During his "spare time" he studied and obtained teacher's certificates for teaching chemistry, biology, physics and German. He has also been teaching evening civil defense classes and part time at the Rochester Junior College. While continuing his regular job at the Mayo Clinic, he instructed in a private ground school, and whenever time permitted he has been a flight instructor. He told me his earnings began to top the expense of flying, so to keep his family together and so they could have their own airport, they bought a 160-acre farm near Saint Charles, just 20 miles from the medical city of Rochester, Minnesota.

After buying the farm, they rented enough additional land to farm 360 acres for a period of three years. Actually, for almost six years, while driving tractors and working to pay for the farm and buy an airplane, the family did very little flying. Also during such time, the entire family pitched in to build their farmhouse, and then during the cold winter nights they had time to operate on the amateur bands. Now the children of the family do most of the farm work — raising corn, soybeans, beef cattle and black walnut trees. They build kitchen cabinets and other furnishings for their home from the trees that do not produce well. For almost a mile along one side of their land, there is a fast-flowing river with trout and woods full of game during hunting season. Theirs is an interesting life.

Not entirely unique to flying farmer families, their plane — a Cessna 172/Van Norman Special — is tied down upon their own landing strip, which ends near the farmhouse. In acquiring the ratings for the family members, the plane has also been busy. It is flown everywhere they have the urge to travel; the family car seldom travels beyond Rochester, just 20 miles away. Should the weather conditions demand it, their landing strip is equipped and fully certified upon official maps for instrument landing, as "Van Norman Airport." When in the air, they keep in touch with home on all bands from 2 meters through 160 meters.

The combined Van Norman family holds memberships in the International Flying Farmers (IFF), which Willis describes as a "great family organization." Incidentally, the IFF held one of their big conventions here at Bemidji, Minnesota some years ago; the radio amateurs then living here numbered only three, including this writer as WØEA, and handled all the radiograms to and from the IFF members, evening having a special Flying Farmers radiogram printed.

All five Van Norman family members are also ARRL members. Willis and son Eric belong to ERA (Experimental Aircraft Association) and HAPPY that devotes much time to search and rescue operations. As expected, since women usually acquire the property, Irene holds a membership in AOPA (Aircraft Owners and Operators).

With such capacity for service, drive and ambition for his family's success, is it any wonder that Willis has been listed in "Who's Who of the Upper Midwest" for the past four years? □

TRAFFIC

Chuck Clark, K4ZN
Assistant Director
Roanoke Division, ARRL

That unlisted number

Telephone numbers are important. While many traffic handlers pride themselves on being able to deliver what others term undeliverable, to decipher addresses that appear hopelessly garbled, we must admit sadly that there are others who won't even go to the trouble to look up a number in the phone book. And you don't usually know which type of operator will be called upon to deliver your message.

So, to insure that the latter type will make an attempt to deliver it, and to enable the former type to save time and skills for traffic that really needs special attention, amateurs should include telephone numbers in all messages as a regular procedure. In a volunteer activity like ours, we have little control over who participates. There is no regular auditing of performances by our operators, no weeding out of the imcompetent and lazy. So give your message everything that can help it reach its destination.

You can get the number of any telephone in the United States and Canada by dialing the area code plus 555-1212. Usually the operator asks first, "What city?" You give the name of the city, then the name of the party whose number you wish. In some cases the operator will switch you to another operator, particularly when a given town is served by an independent phone company, but usually the same operator will give you the number in a matter of a few seconds.

"Why can't the delivering station do it?" As things stand at the moment, it is better for the originator to do it. In many places there is a charge for calling Directory Assistance within the area covered by the local phone book, as a way to make people look up the numbers themselves. But you can call from the other side of the country to Directory Assistance free of charge. Second, you can give the number to the originator of the messages for use on future traffic. The third reason is the one already mentioned, the operator at the other end might be too lazy to take the trouble.

If you try to get numbers for all your traffic, it probably won't be long before you are told, "The party has an unpublished number." For various reasons, many people do not want their names, addresses or phone numbers to be available to the public, so they ask not to be listed. While there is some saving to the phone company in not having the name printed in the directory, the additional cost entailed in the special handling such requests requires more than offsets the saving, with the result that the phone company charges extra for unpublished or unlisted numbers. But many people feel the privacy is worth it.

What should you do if you find that the addressee of a message has an unlisted number? First, don't take it out on the operator who certainly is not to blame for the number's being unlisted. If you haven't asked the originator for the number, do so. But the originator may not know it either and may have no idea how to find it. What then?

In most cases, most amateurs would say they are sorry but they can't accept it with no phone number, and in many cases that's the best way to handle it. But it can happen that Amateur Radio is being asked to make contact with someone, and it is precisely the unlisted phone number that has brought the originator of the message to ask, "Do you think there's any chance you can get this through?" It may be worth a try. Send it along without the phone number and say a prayer.

Perhaps the receiving operator will have some connections that will make it possible to find the addressee's phone number. Perhaps the addressee lives just down the street. Or maybe the receiving station can contact a mobile on VHF who happens to be in the addressee's neighborhood. Incidentally, it could be of some value to use VHF mobiles to deliver routine traffic occasionally and thereby to work out a regular procedure for doing so. It could be a lifesaver in times of emergency when local phone circuits are out.

Of course, if you do accept the traffic, be sure to tell the originator of the problem — that the odds are quite high that the traffic will not reach its destination.

Moving off

In traffic net operations, it is common for net control to ask pairs of stations to move off net frequency to pass traffic, as a way to clear it more rapidly. But sometimes the result is just the opposite: trying to get people together on other frequencies ties up the net frequency longer than it would take to pass the traffic there.

There seem to be two principal causes of this — not paying attention and not knowing how to do it. If you're following the action on the net, you will probably anticipate the instructions from net control, you will know who has traffic that will be given to you, and you will know who has been sent where. But if net control says, "K4FTB, go down 5 and give your South Carolina to K4ZN," and I'm reading the paper or something, I'll probably not hear anything except the K4ZN, and so won't know what I'm supposed to do. I can ask for a repeat, which will take that much more time, or I can bluff and tune around in the hope of hearing someone calling me, and this can well be a bigger time-waster yet.

Not knowing how to move off is the other problem. First of all, it should be clear who is to pick the frequency and do the first calling. Normally, it is the station that is to receive the traffic. If two-way traffic is involved, the stations should mutually agree (or be told by NCS) who is to do the calling. The reason the receiving station should do the calling is that its operator is the one who will have to copy through the interference and so should be the one to pick the exact spot.

The frequency named by net control is not meant to be exact. It really means, pick the nearest clear spot to the designated frequency and call there. If NCS says down 5 and you find three stations already there while down 8 is clear, don't go back to net and explain the situation to net control. If you're the one who is supposed to call, go down 8 and make a call, a little longer than usual so that the other station can find you. If you're the other station, tune around until you hear someone calling you. If you go back to net, you'll probably have to wait two or three minutes before you'll have a chance to say anything anyway, and meanwhile you could have passed the traffic.

Always remember that when net control directs you to pass traffic, the other details are secondary, are for your guidance. The important thing is to get the traffic passed. Some traffic handlers don't hesitate even to move to another band if conditions make it advisable, and do it without checking with net control: "You're too weak here for traffic. Let's try 20." That's acceptable on some nets, discouraged on others; in some cases it expedites things, in others it causes confusion, as net control doesn't know who is where. So in this matter, follow the practice of the net you're working. But in any case, try to find a sport and pass the traffic. Don't go back to the net unless it's really hopeless.

The experienced traffic handler is recognized at once, particularly when on voice, by an efficient and expeditious moving off when directed to do so. No hesitation, discussion, uncertainty. "Let's see now. Where do you want to go?" "I can go anywhere. You pick the spot." "Well, let's look around 25 and down." "Who will call?" "You call me." "No, you had better call me, my receiver dial calibration is off." An experienced traffic handler would have answered, "Twenty-five and down, you call me," and moved off.

In most cases you are expected to return to the net when you have passed your traffic. This is almost universally true on CW nets, and generally true on voice nets as well. And so, unless net control has already told you there is nothing further for you, you should return to the net when you have sent or received the traffic. But not too quickly. Remain where you are a few seconds after signing with the other station. Net control may have sent someone else to receive traffic from you or to give you some. I usually make the service notation on the messages just handled, recording the station, date, time, sent or received. Then, if no one calls, return to the net frequency. At a suitable moment, make your presence known to NCS. On CW, send the suffix of your call; on voice, something like, "K4ZN back." Net control should

acknowledge. And maybe breathe a sigh of relief. It contributes to shortened life expectancy of net controllers to find out that the station you were counting on to take some traffic has just vanished from the net, and you have already excused anyone else who could have taken it.

Things are looking up

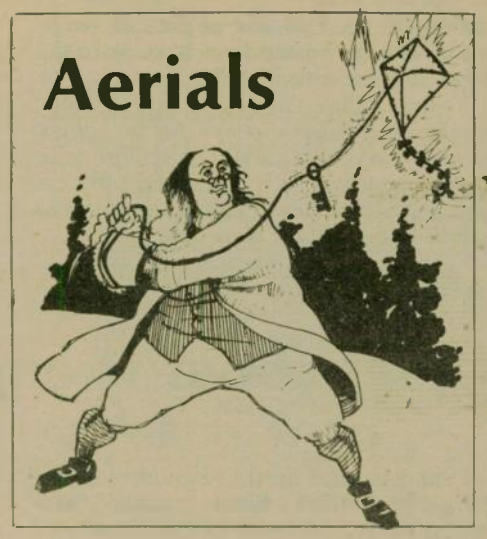
Last month we mentioned briefly a study made by some FCC staffers that recommended several highly desirable changes in amateur matters. If even some of these changes are put into effect, they will contribute greatly to Amateur Radio's future progress. And progress has always been the name of the game: from spark to CW to AM to SSB to FM to satellite, to packet switching, with side trips to RTTY and TV. It's what we amateurs have always maintained — Amateur Radio thrives on freedom.

One point that the new people at FCC are considering is still the no-code license, but it has been reported that it's being looked at from a different angle. Exactly what the new angle is, I haven't heard yet. Anyone who has read several of these columns will have no doubt where I stand on CW: about 80 percent of my operating is in that mode, and other modes are mainly supplementary, making it possible to have contacts that I wouldn't otherwise have. So I'm not in favor of anything that would tend to eliminate CW. Yet, I think a no-code amateur license might be for the good of Amateur Radio, if, for instance, it encouraged the use of bands not now being used.

Suppose the FCC were to open the bands above 1 GHz to holders of a license with no code test, but with a technical examination like that for General. They could be permitted the use of any mode permitted to amateurs on these frequencies, CW included (maybe they would learn by experience CW's value in weak-signal work and learn the code and then upgrade their licenses). I predict there would be 100,000 such licensees in a year or so — an important addition to our numbers in terms of clout, a valuable resource for the nation in terms of skilled personnel, a means of increasing occupancy of our microwave bands, and a stimulus to manufacturers to produce equipment for those bands and thereby helping to reduce the price of microwave gear for everybody, including commercial and government users. It might even help relieve the congestion on 27 MHz as CBers move to the wide open spaces available to us.

While I'm about it, I might add another suggestion on how to populate those frequencies. Many of the broadcasters in the 1920s were amateurs. It was not unusual to hear music played on the amateur bands back then. Yes, it was usually strictly ham, but then often the commercial broadcast stations weren't much better. But we didn't have the room to accommodate broadcasting amateurs, and the size of their audience certainly did not justify letting them use up our precious spectrum, so the authorities soon put a stop to it, making the rule which we still have as 97.113.

With all the room we have in the microwave region, however, perhaps we should think of allowing broadcasting there. I personally wouldn't expect to be doing any of it, nor to be listening to it (or watching it), but maybe some amateurs would. And perhaps they might make a significant contribution to the art as amateurs have in other fields — even in broadcasting. It's just an idea, but I wonder if any readers have any feelings pro or con.



Kurt N. Sterba

Hams in California have an advantage over those of us who live in other parts of the country. Many of them work for very scientific companies — Eimac, Hewlett-Packard, Hughes, JPL, Lockheed, Raytheon, etc. They get to take a lot of fancy test equipment home with them. They take antennas very seriously out there.

Armed with time domain reflectometers, they squeeze every last dB out of their Yagis and quads. Who ever said that one dB doesn't make a difference? Why, didn't you hear all those BIG signals coming out of California during the CQ WW SSB contest? You know they were that loud because they really had peaked-up those antennas so much better than the rest of us. That's the only reason I could think of, and I'm sure that is the only reason you could think of, too.

Into the mailbag: Al Faries, KX6MY disagreed with our judgment on the Zepp antenna, and in the spirit of the Fairness Doctrine we grant him more than equal space or equal time for his most eloquent defense.

"The Zepp is an excellent voltage-fed antenna which can be analyzed easily by mathematical methods. It operates well at all frequencies above its self-resonant frequency when used with tuned feeders, and exhibits exactly the same pattern and impedance characteristics as other long-wire types. At all frequencies above its resonant frequency, it exhibits gain over a dipole. When used with a proper matching stub and non-resonant line (half-wave shorted stub at the operating frequency), it is an excellent single-frequency device with about a 5 percent bandwidth capability. It has been used by tens of thousands of amateurs, and indeed one is still in use at KX6MY for 40 and 80. I worked some 60-odd counties with one before WWII, using 100 watts of hard-earned RF on 40, 20 and 10, and later used to work ON4AU on schedule on 80 meters with a 360-foot-long Zepp. During the last CQ DX CW contest, 166,000 points were garnered at KX6MY with 5 watts on 80, 40, 20, 15 and 10 with this antenna."

OK, Al, as Voltaire said . . . Seriously, we certainly welcome your input on how to improve the output of radiated energy. If you have a pet antenna, a technique, a theory, an argument, you will get a chance to climb up on the soapbox here.

For a moment we'll leave the antenna proper to talk about putting power into it. Signals would be much cleaner on the air if more amateurs would follow this procedure: When tuning up your rig with the key down, run power up until you reach the peak and then back it off to where the needle falls off just a bit. The "needle" could be on the rig's meter or an external SWR bridge or wattmeter.

This is also applicable to linear amplifiers. Let's say that your amplifier peaks out at 600 watts output. (That is all you should expect at 1,000 watts input.) Back the drive down to where you are putting out only 500. First, you will by far lessen the chance of distortion, splatter, buckshot, etc. Your tube life will be extended, the power bill will drop a bit, and the station on the other end will never hear the difference.

Considering that you would have to go to 1,000 watts output to see a 3dB increase at the other end (from 500 output), you can see just what insignificance 100 watts or so is at those power levels. To put it another way, if it takes 500 watts to move up half an "S" unit, or 250 watts for one-quarter of an "S" unit, what matters 100 watts?

Backing the power down may be one of the few things you can do to "get something for nothing." At the price of big bottles these days, you should give them all the nursing you can.

One of the biggest bargains around is the big Johnson kW matchbox. If you can latch on to one at a decent price (haunt those garage sales and flea markets!), you

have a real prize. A tuner, even in the coax-to-coax systems, can really squash harmonics. Plus, the closer the match your TVI filter sees, the better it will operate.

Now comes a super tip for the CW ops. If you are running a separate receiver and transmitter, it may well be worth your effort to put a tuner in front of the receiver.

Yes, you heard right — in front of the receiver. Many of the receivers are not the perfect 50-ohm inputs you would expect. Not only do they vary widely from band to band, they vary across the *same* band.

By getting the best match possible, you will enhance weak signal reception. And here is a way to measure and to have a standard. Get one of those little International Crystal oscillators and a crystal for a specific frequency. Powered by a 9-volt battery, it will radiate a signal. Use a 50-ohm resistor across the output. To drag the signal down, reduce the voltage. Then run all the controls of the tuner to get the loudest signal from your little signal substitute. You could use your little oscillator to adjust your antenna for best received signal. It would be useful in designing an antenna in scaled down conditions.

The tuner will aid the signal-to-noise ratio. You may find considerable improvement. Also, since the tuner is a good filter, out-of-band trash will be sharply attenuated.

Carrying this a step farther, if you are so inclined, your receiver could be peaked up, tweaking the proper things to do the best job on that little signal.

Back to the radiators. Word is spreading fast about how good the Butternut vertical is. It's built on quite a different principle than what is usually associated with shortened antennas. The difference is apparent where it counts — at the other end.

Very interested article on page 60 of the July 1981 issue of **Ham Radio Magazine**. It's about the W8JK antenna and has lots of food for thought. Points out that such is a good antenna for those who cannot get their antenna up very high. While it must be fed with open wire, which discourages some, there is a solution.

If you were going to operate an antenna on the same frequency all the time (MARS or 14.002 or whatever), you could get away with a neat stunt — assuming you've put up the W8JK to get some gain to compensate for your low height and don't want to use open wire. Now, here is what you do . . .

With your noise-bridge or grid-dipper, cut your coax feedline (matters not what impedance) to exactly a half-wave (or multiple thereof) at your operating frequency. Put one end on the antenna and the other end at your tuner. Here's what happens: For all intents and purposes the feedline disappears, and what you are seeing at the tuner is exactly what the antenna is. Run your tuner and match the antenna, simple as that.

I know that the paragraph above will set some teeth grinding, fists will clench and some faces go red. Fine, scream all you want. Rant and rave! But the fact of the matter is if you disagree with the above, you are wrong. Simple as that. Sorry.

Back to talking with reasonable folks. Many amateurs do not put up a dipole for 80/75 because it won't fit on their lot. Since that band can be a lot of fun, it's a pity to miss it when the solution is so simple.

In the center-fed half-wave dipole, after you get out about an eighth-wave from either side, you can do all kinds of things with the wire and not see a great deal of deterioration.

You can hang the remaining part down, go sideways, whatever, including winding it up if you wish.

For example, Vanguard makes a long insulator that has grooves. Neatly you could wind up some of the wire in that. A rule of thumb is that it takes about 10 feet wrapped up to equal 5 feet strung out. Run the coiled-up part of the antenna out as far as you can towards the end. After the coil, hang about 2 more feet so as to have something to get the fine trim on.

Don't forget to have a coil in each leg and even-steven lengths on both sides of the center. This same ideal can be used on 40, or 160, or wherever you want to get more antenna into less space.

Restricted area antennas can be a real challenge in these days of mobile homes, condos and pesky laws in neighborhoods. Since many amateurs face such problems, any input you have regarding solutions would find an eager audience.

There is a book on the market about antennas for apartments. Have any of you read that book? If so, write and tell us what you think about it.

The alternate conductor of this column will lend her illuminating presence next month. Thanks to the QRPer who wrote in. Any questions will be answered. The answers will be correct.

(The author of this column goes by the Mark Twain of Kurt N. Sterba to protect his mailbox from chaff. The window to his QTH can be reached through Worldradio. They will forward the mail.) □

Upset about wrong information

Dear "Kurt",

I am disturbed by the amount of misinformation which floats around ham circles, and I get downright upset when I see it in print. In a recent letter to you, a reader addressed the subject of velocity factor in antennas. He gives examples of antennas which must be shortened to resonate, to support his contention that a dielectric coating on the surface of the radiator reduces the velocity of movement of the current along it. He has confused the creation of an electromagnetic field by an antenna with the propagation of waves down a transmission line.

Any transmission line acts more like a

waveguide, at amateur frequencies, than like a pair of discrete conductors. In coaxial cable, the fields are propagated entirely within the dielectric, so the velocity of propagation must be reduced by the factor which is numerically equal to the reciprocal of the square root of the dielectric constant; this factor is the well-known *velocity factor* (v.f.). (The same thing happens when a beam of light enters a dielectric medium, and in this case the ability of the medium to slow the light waves down is called its *refractive index*.)

As most amateurs know, the v.f. of solid polyethylene dielectric coax is 0.66, which means that the velocity of propagation of fields within the cable is 0.66 times the speed of light. 300 ohm twinlead also has solid polyethylene dielectric, but its v.f. is 0.82. Does this mean that the polyethylene used in twinlead is somehow different than that used in coax? No, all it means is that, in coax, the fields are created and propagated *entirely* within the dielectric medium, while in twinlead, the fields are only *partially* within the dielectric web and partly in air. Narrower spacing of such line, as in 75 ohm twinlead, results in a lower v.f. (0.72) because a greater proportion of the fields is then within the dielectric.

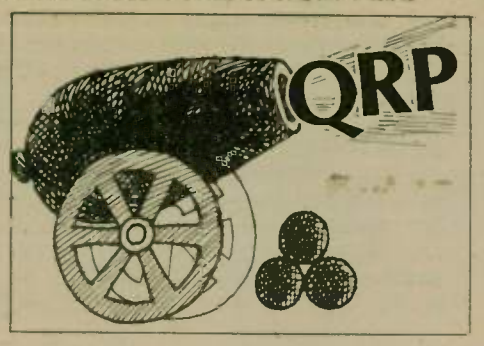
Any antenna which is an effective radiator will have wide spacing between its halves, and even if the radiating elements are coated with a dielectric, the vast majority of the medium between the antenna halves will be air. The fields between the antenna halves will thus be created almost entirely in air, and therefore the dielectric coating on the antenna elements will have no significant effect on the antenna dimensions.

To test the above reasoning, I constructed a coax-fed inverted vee antenna for 145 mHz, using bare #20 wire. I carefully pruned the elements until I had an SWR of less than 1.1:1. I ended up with elements 18.7 inches long, instead of the calculated 19.3 inches, but this is normal for Vee antennas. I then replaced the bare wire elements with polyethylene-covered wires (from RG-58), being very careful to make them exactly the same length as the bare wires. Polyethylene has a low v.f., and the thickness is equivalent to more than one inch of polyethylene at 7 MHz, so if there is any effect, it should have been very noticeable in this experiment. Within the limit of reproducibility of my SWR meter, there was *no* change in SWR between the bare wire elements and the thick polyethylene-insulated ones.

I have not measured a fiberglass CB whip, and I didn't check with Shakespeare about their fiberglass 40-meter antennas. I did look in the Radio Shack catalog, though, and they list *both* their stainless steel and fiberglass CB whips as 102 inches, which is just about right if you allow 2 inches for the spring at the base. The fact that antennas often do not resonate at their calculated lengths should be an accepted fact of life on 160, 80, and 40 meters, since they are almost never installed in ideal surroundings — at least one half-wavelength above ground and preferably at least one wavelength from any conductors of appreciable size. If any unloaded fiberglass antenna resonates at a length shorter than expected, I suspect it is being influenced by nearby objects and/or its imbedded conductor is of relatively large diameter (e.g., a foil cylinder); it is a well-known fact that large-diameter antenna elements need to be shorter than wire elements.

If both halves of an antenna were imbedded in a solid sphere of dielectric material, at least one half-wavelength in diameter, I might agree that the dielectric would have a pronounced effect on the antenna dimensions. In the real world, however, this simply is not the case.

With 73,
GARY E. MYERS, K9CZB
Naperville, Illinois □



What could be more challenging than QRP? Here, one can be little David up against the Goliaths, and win too. **Worldradio** *wants to chronicle the activities of the purists.*

Send in reports of what you have done. (Worked 1,000 miles with an International Crystal OX Oscillator?) Such will be of interest and encouragement to others.

The space is yours to, well, brag a little? Or to instruct and possibly inspire others. To work another station with less power than a flashlight uses is indeed something to be proud of.

What we're looking for doesn't have to be anything particularly exotic. After all, one man's everyday is another man's exotic. The very fact that you can maintain a sked with QRP is noteworthy.

Share your QRP adventures. Draw others into the fold. After all, the more people who will listen for the peanut whistles, the more contacts will be made.

Herbert Williamson, K7LYT

The QRP column in the November issue was very interesting. Ever since I obtained my license in 1936, I have always operated with low power, using from just a couple of watts to possible 100 watts. This was on both CW and phone. Never thought this was called QRP!

Several years ago, I decided to upgrade my equipment and build a Heathkit SB-104 transceiver for Single Sideband. The manufacturer says high-power output about 100 watts and low-power output of 1 watt. So, after talking to several stations that were using very low power, I decided to see what might be possible to do with 1 watt (QRP) using SSB. On 21 October 1979 I received the 1,000-mile-per-watt Award for working KH6ILA in Maui with 1 watt output. On 29 April 1980, I worked JM1LSQ and JI1LYR within 10 minutes of each other on 15 meters, using the 1 watt (low power) of SB-104. Have also worked Australia with 1 watt.

To date, I have worked and confirmed 49 states with 1 watt or less — all SSB operation and using all bands. Included with this — using an ICOM IC-551 on 6 meters with the power turned all the way down for less than 1 watt output, was able to contact and have confirmed contact with several East Coast stations. (I still need the state of Maine for my 50th state.)

My antennas are: inverted "V"s for 80 and 40 meters, up 35 feet; mini-quad, HQ-1 for 20, 15 and 10 meters, up 40 feet; and tri-Yagi (**QST**, June 1980) for 6 meters, up 35 feet.

The property of our QTH is small, so I am limited to antenna heights because of not having sufficient room to guy higher masts. I do belong to the QRP Amateur Radio Club International, #4328. My operating experiences have not been very exotic, but thought I would drop you a line about some of my experiences.

Triple Crowns of QRP

Submitted by Fred Bonavita, W5QJM

The Triple Crowns of QRP — a new award — will be instituted in 1982 by QRP Amateur Radio Club International (QRP ARCI).

The QRP Amateur Radio Club International's Triple Crowns of QRP trophy. ***(Photo by Martin Bowyer, WD8DWQ)***

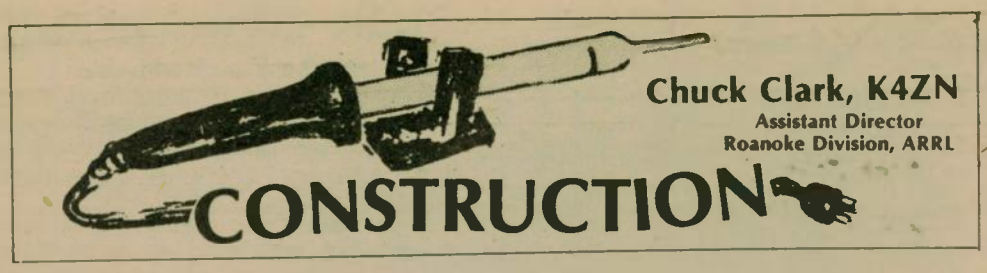
The triple crowns are three trophies for the leading scorers in the three categories of the club's annual spring and fall QSO parties, which are open to members and non-members alike. And special certificates will go to the runners-up, say Thom Davis, K8IF, the club president, and William Dickerson, WA2JOC, the contest chair.

Dickerson and Davis say the engraved trophies will be awarded the QRP operators whose combined scores from the spring SSB QSO party and the fall CW competition top those of other entrants. Trophies will be awarded in these categories: 1) the top U.S. or Canadian QRP station, 2) the leading non-W/VE QRP station and 3) the front running Novice or Technician QRP station (based on results of the fall CW contest only).

To be eligible for one of the triple crowns, operators must enter both QSO parties (except for Novices and Technicians) because the awards will be based on their combined scores. Winners will be announced in the January 1983 issue of *QRP Quarterly*, the club publication, which will also publish worldwide results.

The Triple Crowns of QRP will be awarded in addition to the awards issued for individual performances in the fall and spring QSO parties, whose dates will be announced later, Davis and Dickerson say. Those contests will continue to cite first and second places overall and top winners from each state, province, and country. □

Please
send **NEWS** and **PICTURES** to
Worldradio



Chuck Clark, K4ZN
Assistant Director
Roanoke Division, ARRL

Phone patches

Amateurs are able to perform an important public service by enabling people to use their stations to contact one another. This service has proved invaluable to military personnel, explorers and seafarers, making their separation from family easier to endure. On many occasions, it has even been the means of saving lives.

We have been making phone patches ever since we have been able to use voice in our radio communications — since the 1920s. For most of that period, it has been technically illegal (it still is in Canada and in most other countries), but the authorities here never took any action against it because it hasn't hurt anyone and is a public service.

About 12 years ago, the FCC decided that telephone companies must allow customers to connect their own equipment to telephone lines, with suitable safeguards so that it does not impair service. From then on, phone patching became legal, but also more expensive. The legally required interconnection network, called the QKT voice coupler, is actually not necessary for protection purposes, as there is no danger that amateur phone patches will impair telephone service in any way that the coupler can prevent, but the FCC and the telephone company say you must have it. And it costs nothing to wrap wires around screws, but the FCC requires modular plugs that cost several dollars each.

The telephone

Figure 1 is a simplified schematic of a telephone. When the phone is on the hook, S-1 is open and there is no DC path through the circuit. An alternating current, about 50 to 100 volts at 15 or 20 hertz, is applied to the line to cause the phone to ring. This passes through G-1 and the ringer.

When you lift the phone off the hook, S-1 closes, providing DC continuity through the transmitter T, the primary of the induction coil I (we would probably call it a transformer), and this DC energizes a relay at the central office to signal that the phone is in use.

The transmitter T is a single-button carbon microphone. A capsule containing fine carbon dust is mechanically connected to a diaphragm. Sound waves pressing against the diaphragm serve alternately to compress and to release the pressure on the carbon grains, thereby changing the DC resistance of the carbon in step with the audio wave. The induction coil I matches the low impedance of the transmitter, about 50 ohms, to the higher impedance of the line, about 900 ohms.

Capacitor C-2 blocks the flow of DC through the primary of the induction coil I and the receiver R. Receiver R is much like one of the units on a radio headset.

If the phone has a rotary dial, S-2 will close as soon as the dial is moved, shorting the phone to prevent noise from the dial pulsing. As the dial returns, S-3 breaks the circuit once for each digit dialed, at a governed rate of 10 pulses per second. If a tone pad (Touch Tone is the Bell System's trademark) is used, the line is not broken, but a pair of audio tones is sent when a button is pressed.

Actual telephone instruments aren't quite as simple. The receiver and transmitter are connected to the induction coil in such a way that you hear your own voice as you talk, but somewhat weaker than the other party's. By experiment, telephone makers have found that this level causes the users to talk just loud enough for best operation. Some telephones include limiter circuits to reduce volume of loud sounds. And some have more complicated hook switches and dial switches than those shown in *Figure 1.*

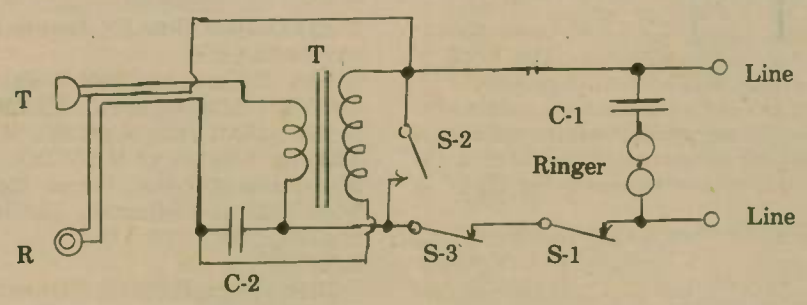


Figure 1

Two-bit phone patch

About the simplest circuit that can be used to connect an amateur station to the telephone line is shown in *Figure 2.* Resistors R-1 and R-2 provide the 900 ohm load to match the phone line, and R-3 provides a 5 ohm load for the speaker output. There is no isolation between talking and listening circuits, however, so the operator will have to switch manually from transmit to receive, using the push-to-talk button. This circuit was described on page 69 of June 1978 **Worldradio,** and is hard to beat for simplicity. For the amateur who only occasionally runs a phone patch, it may be all that is needed.

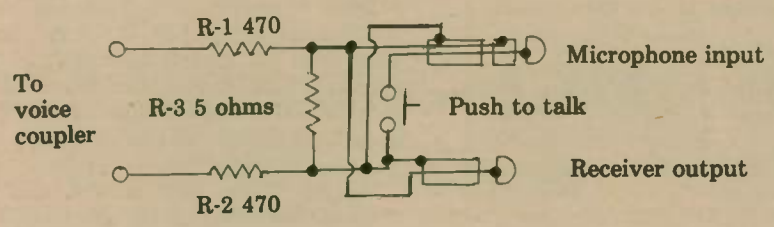


Figure 2

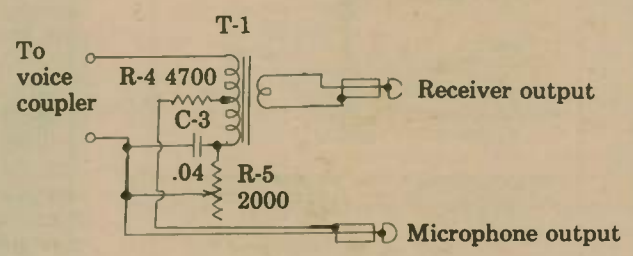


Figure 3

VOX operation

To eliminate the need for manual switching, use the circuit shown in *Figure 3.* T-1 is a transistor output transformer, such as Radio Shack 273-1380. The combination of C-3 and R-5 form what is called a *balancing network,* to provide an impedance equal to that of the telephone line. Then the two sides of the transformer winding, the line, and the balancing network form the four arms of a bridge — or what telephone people call a *hybrid.* It allows energy from the receiver output to pass to the phone line, but prevents it from entering the microphone input. Energy coming from the phone line, however, does reach the microphone input. In this way, incoming and outgoing energy are separated so that you can use the VOX on your transceiver to do the switching automatically.

R-4 is provided to isolate the center tap of T-1 from ground. Telephone lines must always be isolated from ground, both for audio and for DC, otherwise there will be noise problems; frequently the switching and ringing functions will be impaired too.

It is assumed you will be using a voice coupler between your patch and the phone line. If you don't for any reason, you will have to isolate the patch from the line for DC. All that is needed is a 2 microfarad capacitor in series with each line.

2600 hertz ringoff

One problem you may encounter if you use the patch on long-distance calls ("long or short hauls") is having the connection suddenly broken because someone has decided to tune up 2600 hertz away from your carrier frequency. The phone companies use this frequency to signal the end of the contact, so if you make many patches that involve long-distance calls, it will pay to add a 2600 hertz filter to the circuit. *Figure 4* shows a suitable one, a series-tuned circuit using an 88 millihenry toroid and a .04 microfarad capacitor, which offers a very low impedance to 2600

hertz, but a high impedance at other frequencies.

Also shown in *Figure 4* are a pair of 2 microfarad capacitors connected as mentioned in the preceding paragraph, when needed to isolate the patch from the phone line for DC.

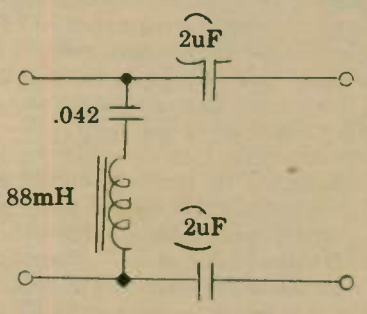


Figure 4

Dealing with the telephone company

Only general suggestions can be given here, as there are thousands of telephone companies to deal with, and no two will be exactly alike. In one case you may be dealing with another radio amateur and have no trouble at all. Or you may encounter hostility, if the representative happens to have a negative opinion of Amateur Radio. More often, you will have to do a lot of explaining because it may be the first time the representative has heard of such a thing.

Ask other local amateurs who have phone patches. They can usually help.

It's best to avoid using expressions like *phone patch*, as they don't form part of the telephone industry's official vocabulary. Ask instead for a "QKT voice coupler." If the representative doesn't know what that is, you might suggest checking their *Technical Reference Publication 42101*. You may have to be a bit persistent, but eventually you will find somebody who understands what you want. The telephone industry is so vast that nobody can know everything about it. But bear in mind that, at least in the United States, you aren't asking a favor. You have a right to connect your rig to the phone line according to FCC regulations.

Using the patch

This topic belongs to operating rather than construction, but a few words will be added here to round out the discussion. Don't abuse it. Tying up valuable frequencies in our crowded bands just to save the cost of a long-distance call is not appreciated by other amateurs, and endangers phone patching for everybody. Remember, when regulators regulate, they come down hard and usually knock out a lot of good things along with the bad. Don't make patches to countries where we don't have third-party agreements, or allow your guests to conduct communications that are not allowed by those agreements. You, the control operator, are responsible.

It's best to keep the dial tone, ringing tone, busy signal, and conversations with the operator and with the called party off the air. Such things would come under the heading of superfluous communication. If this is the first time for this particular patchee, explain to him or her what it's all about before you connect the phone line to your rig. Explain that you can't listen and talk at the same time, that the other party won't hear if you interrupt in the middle of a sentence. If manual switching is involved, mention that, and ask the party to say "over" when finished speaking so that you can switch from transmit to receive. And assure him or her that it's all legal; it's being done in accordance with FCC regulations.

Finally, don't forget to record the names of all third parties involved, and a brief description of what was discussed, or else make a recording of the conversation and keep it with your station records. This is one bit of log keeping that is still required. □

Send your news to Worldradio at the same time you send it to other amateur publications and see who prints it first. We get the news out before anyone else.

Holocaust

(continued from page 4)

WD6GDB volunteered to take his mobile to fill the need.

On the first afternoon, the two Jims had put their "telephone tree" plan into action, a sort of chain-calling system of reaching other volunteers in a hurry. One of the respondents, reached at work, was Len Drayton, WA6LAU — EC for Van Nuys — who agreed to come directly from his work at midnight to relieve the two. He operated till dawn.

As the fires spread, so did the need for help. Requests came from many sides. The official in charge of Civilian Defense communication for Los Angeles, Mr. Mike Regan, needed to talk with his counterpart in the Hidden Hills area. This was accomplished via a RACES (Radio Amateur Communication Emergency Service) group there which had been holding a "Halloween Watch."

When telephone circuits from Oat Mountain were cut off, patches were handled on 220 MHz through Paul Jorgensen, WD6DYY on Contractor's Point.

Equal work was being accomplished from the fire's start, several miles to the west and north, by the Ventura ARES whose area was first hit by brush fires; then the heavily populated Simi Valley was threatened. Ray Mote, W6RIC drove to the home of John English, WB6QKF to arrange for help to the Red Cross shelter being set up for evacuees. (The Ventura County Fire Department had requested the Red Cross to implement provisions of the formal agreement which exists between them: to provide not only first aid teams but communications for them as well.)

Fortunately, 20 ARES operators had just completed a training class through the Incident Command System at the Sheriff's Academy only the weekend before.

As the thick smoke blew down into Simi Valley, these teams were busy tending to cuts, burns and washing out eyes of those affected.

Luckily, the structure loss was limited to two homes in Simi but here, too, an immediate damage survey was necessary. Ray Volkmar, KQ6I brought in volunteers from Thousand Oaks and the Camarillo area for this purpose. They were joined with CB operators who had been similarly trained.

A moment of humor happened when the operators, during the busy night of wind-whipped flames eating at dry brush, came upon a large group of fire engines. One shiny red one was neatly lettered — in huge white-on-red — *Tonka*.

In the Ventura Red Cross operation, rigs had been reworked by the amateurs to operate on the official frequency of 47.42 MHz, but it turned out that here, too, nearly all of the traffic was done on ham frequencies. The headquarters operation was led by Paul Ryan, WB6RVA. Much of the work was done on the Sulphur Mountain repeater, WR6AOX on both 2 meters and 220 MHz.

Ray was quick to congratulate all hands for a job well done and for their previous dedicated training "to be ready — because we seem to get hit with a good-size disaster every year or so."

As for the 1,000 fire fighters, their enormous effort was summed up by Arch McGregor, W6AGZ, who had spent the fearsome night watching the wild fires approach his home in Bell Canyon. After seeing so many fire companies with their scores of engines and the helicopters overhead, he remarked, "I'll never again complain about paying taxes!"

When the need for backup communications was finally over, the Amateur Radio operators quietly packed up their gear and went home. It was a Halloween they hope will never be repeated.

Also participating during the long hours were the following, many of whom are ECs: Rich Anderson, N6AHI; Roger Armstrong, WD6EVT; Bob Bond, WD6BCN; Rose Borses, KA6ITO; Mel Borses, WB6VHS; Dick Brinkman, N6AYV; Steve Britis, WA6FGW; Bob Burns, N6ZH; Ben Caplan, WA6MRY; Jim Cass, AA6K.

Bee English, WD6EZY; Billy English, KA6OXO; Ron Fish, NF6D; Gerry Forrest, K6JJJ; Paul Gagnon, N6MA (RACES officer); Gerry Gross, WA6POZ; Richard Harmison, W6HWK; Don Holdsworth, WA6INT; Bill Hopkins, WA6CWB; Russ Hopkins, WB6YDZ; Dick Hoolihan, W6AFF; Dudley Hutchinson, WA6ARU.

Gerv Kyle, KA6BPH; Walt Kalberg, W6TSV; Mike Kosty, KD6SI; Dale Lewis, AJ6U; John MacLean, WD6BPF; Richard MacLean, KA6FDG; Duncan McDonnell, K6LHA; Joanne McDonnell, WA6QKC; Don Munding, K6CAB; Mike Murray, WD6ADW; Joe Nardo, KA6EUS.

Clint Pierce, K6UEF; Richard Ravich, WD6FIE; Bob Raynor, W6LUY; Mel Roberts, W6OC; Jennifer Roe, WA6OHX; Peter Rogers, N6DDA; Fred Rollyson, WB6CMO; Richard Russell, AC6M.

Ralph Sellers, W6TUQ; Dennis Smith, KA6GSE; Olin Smith, WD6GRS; Ken Snapp, K6MHY; Vic Souleles, W6MYE; Ray Sparks, KA6NXW; Jeff Stern, WA6LWV; Vern Story, W6RMI; Paul Strauss, WD6EBY; Ted Taylor, WA6LBS; John Walker, WB6MHF; Vic Walker, KR6D; Bob Witters, K6VGA; Gene Wiseman, W6RPS; and Rochelle Yohai, N6BEU.

Our apologies to those who worked hard but whose calls may be missing. Congratulations to all! □

When it became radio

Somewhere in the year of 1922, the full force of entertainment broadcasting by radio telephony began to make a solid impact upon the American public. No longer were the majority of those listening to such broadcasts amateurs of wireless telephony. Now, most were citizens who wanted to hear the wonders of those signals borne by the airways. To hear them, some bought manufactured receivers; many bought parts and built their own receivers. All were a part of "Citizen Radio."

QST, the official organ of the American Radio Relay League, Inc., expanded its scope somewhat to include a bit for these newcomers. After all, many of them were true amateurs, although their interest did not go beyond building and using receiving equipment. So, looking at the front cover of the July 1922 issue of QST, one sees: "Devoted Exclusively to CITIZEN RADIO." Citizen radio, not ham radio. The word "ham" appears only once in the issue, either in text or advertisements. The sole appearance is in a quotation from a book being reviewed. All other references are to "Amateur Radio" or "citizen radio."

Let's prowl through its pages, observing first what advertisers thought readers might have as paramount interest. The inside front cover is taken by a company selling broadcast receivers . . . no particular make is mentioned. The next page tells about the Radio Audion Company's Model RAC-3, manufactured under DeForest patents only for use as an amplifier; after 7 November 1922, it'll be legal to use it as a detector also. It uses 4V at 0.8A on its filament and from 2 to 22V on its plate.

Skipping along, we see advertisements for Eveready "A" and "B" batteries, Electrose insulators, Atwater Kent radio parts (no complete sets yet!), Burgess "B" batteries, Acme transformers, Weston meters, Brandes headphones, General Radio parts, ESCO motor-generators, Federal transformers for a rectified AC power supply, Willard storage batteries, Westinghouse storage batteries, Murdock headphones, Amateur Radio Callbook, and a host of less familiar names.

Now, let's see what manufactured radio receivers were offered to its readers, deleting those made by backyard shops. Clapp-Eastham shows a regenerative receiver, one tube, for $40. Tuska wants only $35 for its one-tube regenerative receiver. Grebe's very dignified presentation mentions no vulgar prices! Paragon (made by Adams-Morgan) takes a page to tell of the achievements of its justly-famous receivers from 1915 through 1921. William B. Duck sells its one-tube type Q receiver for $35. DeForest presents a receiver with a separate two-tube AF amplifier. Crosley mentions only its Harko one-tube receiver at $20, but takes four more pages to list parts, including their book-type variable capacitor. Not one of these companies sells radio receivers today!

Ah, but the technical aspects are of supreme importance! The lead article introduces super-regeneration to radio amateurs. Just announced at the June meeting of the Institute of Radio Engineers, Edwin H. Armstrong's great invention was destined to shape the course of radio receiver design for years to come. Here, in simple language, it was unveiled to radio amateurs. In four-and-a-half pages, K. B. Warner — QST editor and no mean engineer in his own right — lays out the principles whereby the process of regeneration can be carried far beyond the point normally resulting in oscillation! Radio amateurs, familiar with the vast advantage regeneration offers in sensitivity and selectivity, were thrilled over the prospects of exploring a new technique. It never rivaled the simple regenerative circuit, though, for the reception of continuous-wave radiotelegraphy; however, for reception of radiotelephony, the gain and sensitivity was sensational . . . but, alas, at the expense of selectivity!

(As a personal aside, my brother and I built a one-tube super-regenerative receiver using a loop antenna. It gave loudspeaker reception of stations 1,000 miles away! This was not unusual performance for super-regenerative receivers.)

The next article is on the Beverage antenna — a superior antenna for reception under difficult conditions. The material is still relevant in 1981 — relevant and valuable. The same can hardly be said of the following article, although it is an excellent treatise on amplitude modulation, a subject not well understood by even experienced and knowledgeable radio amateurs in the year 1922. Several other less technical articles, a description of stations operated by well-known radio amateurs, and a discussion of pending legislation pertaining to regulation of radio stations fill most of the remaining pages. Of course, there's Club News, an editorial, Calls Heard, and many letters from readers.

Not a great deal different from an 1981 issue of QST, is it? Ah, but there are differences. About half of the advertisements address wireless amateurs. Wireless appears in the names of firms. Although QST had adopted "radio," the world was slow to adapt to a new nomenclature. But by mid-1922, the die had been cast. It was to be "radio" henceforth. □

Store fuel safely

I recently had the experience of refueling a portable generator under poor lighting conditions. In the process, I overfilled the tank and spilled some gasoline, which could have been disastrous.

Since that smooth move, it has occurred to me that premeasuring the fuel in another container would prevent spilling it. By either consulting the operator's manual or a little experimenting, one should be able to arrive at a precise amount needed to refill the tank.

If the tank is small, an empty outboard-motor oil bottle is ideal. The bottles are graduated in ounces, pints and liters, so it is easy to make an accurate measurement. I would not store the fuel in those bottles, but use them only as a measure when needed. The measuring can be done away from the hot engine in good ventilation, thus preventing the potential of a dangerous situation.

— MARC News, No. Mankato, MN □

CW interface

The COMMSOFT CODEM, a universal CW interface for personal computers, is now available for radio amateurs. The CODEM provides an easy way to get your Morse code software on the air. Converting received CW audio to RS232 or TTL signal levels and RS232 or TTL signal levels to transmitter keying, the CODEM doubles as a code practice oscillator and CW regenerator.

A sharp 800 Hz bandpass filter, AM detector and low pass filter are designed into the CODEM to provide outstanding noise and QRM rejection. CW can be monitored using an internal 2-inch speaker or with an external high impedance earphone. Front panel sensitivity, tone and volume controls are provided. The CODEM comes with a comprehensive manual which includes operating details and connection instructions. The CODEM requires an external 9VDC power supply.

The price of the CODEM is $124.95. The 9VDC power supply is $9.95. Add $5 for shipping and handling. California residents add applicable sales tax. VISA and Master Card orders accepted. COMMSOFT, 665 Maybell Avenue, Palo Alto, CA 94306 (415) 493-2184. □

Talking clock

Radio Shack, a division of Tandy Corporation, is coming to the aid of persons with weak or impaired vision by introducing a new clock that talks. The new talking VoxClock™(63-902) from Radio Shack uses the latest speech synthesis technology to actually *tell* the time in a clear, easy-to-understand voice. It is available now for $59.95 at Radio Shack stores and participating dealers.

VoxClock will remain silent until its time button is pressed, or it can be set to automatically announce the time on the hour. Its electronic voice announces the hour and minute, followed by "a.m." or "p.m."

Unlike conventional clocks, VoxClock has no display; it converts time directly into speech. Quartz-controlled timekeeping assures accuracy.

For persons with weak or impaired vision, VoxClock provides a sensible and convenient way to keep a schedule without discomfort or distraction.

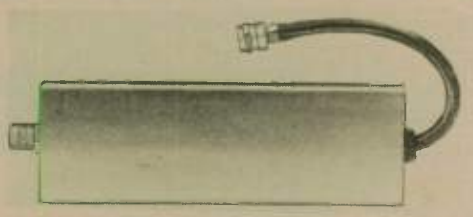
VoxClock comes in a handsome and functional desktop cube, just 2⅜ by 2⅞ by 2⅞ inches. The sides are in a simulated walnut grain finish, the top in brushed aluminum with chromed edges. Three "AA" cells (not included) are required for operation.

Radio Shack is well-established as a leader in bringing technological advances from the laboratory to the living room. Now VoxClock offers a uniquely appropriate use of electronics in solving the special needs of those with visual difficulties, while providing a unique "conversation piece" for all. □

Interference filter

Radio Shack, a division of Tandy Corporation, now offers a filter designed to prevent interference to TV sets, FM receivers and video cassette recorders from CB, ham and AM broadcast transmitters. The Archer® TV/FM/VCR Interference Filter (15-580) is available for $8.95 at Radio Shack stores and participating dealers.

This advanced nine-element high-pass LC filter installs easily at the 75-ohm coaxial input connections of TV, FM or VCR. □



3kW tuner with roller inductor

The new MFJ-989 "Versa Tuner V" uses a roller inductor with a 3-digit turn counter and a spinner knob for precise inductance control to get SWR right on down to minimum.

This new tuner has a big 3kW PEP rating that you won't outgrow and a smaller, more compact size to match those new smaller rigs.

For convenience, the MFJ-989 gives you several products in the same compact cabinet. First, of course, it's a 3kW antenna tuner — roller inductor and all — that matches coax, balanced line, and random wire from 1.8-30 MHz. Second, it's a six-position antenna switch (two coax lines, through the tuner or direct, random/balanced line, and dummy load). Third, it contains a 300 watt, 50 ohm non-inductive dummy load. Fourth, it's a wattmeter using lighted meter with 2 percent accuracy. This wattmeter reads both forward and reflected power on two scales (200 watts and 2000 watts) plus it reads SWR directly. Finally, it has a built-in 4:1 balun for balanced line.

It's amazing that all these features can fit into such a small package (just 10¾"W × 4½"H × 14⅛"D). The deluxe aluminum low-profile cabinet has a sub-chassis for RFI protection (requires 12 volts for lighted meter). It has a black front panel with raised brushed aluminum lettering, and the cabinet has a black finish. There is also a bail to raise the front for easy viewing.

If ordered from MFJ, there is a 30-day money back period. If you are not satisfied, you may return it within 30 days for a full refund (less shipping). MFJ also provides a one year limited warranty.

The MFJ-989 is available from MFJ for $279.95 plus $10 shipping and handling per unit.

To order, call toll free 800-647-1800 or mail order with check or money order to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. □

CW transceive program

MFJ introduces a CW transceive program complete with hardware interface for the Radio Shack TRS-80 Model I and Model III computers.

It lets you send CW on your keyboard and receive CW on your display screen and features a tri-split screen for received messages, transmit buffer, and programmable message index.

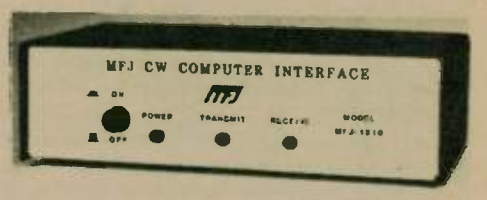
A huge 3,295-character (with a 16K machine) text buffer makes sending CW effortless even if you "hunt and peck."

You can preload the text buffer while receiving and then transmit when ready. There are 10 199-character programmable message memories with an on-screen message index. You can repeat and combine these messages together as needed. Speed is adjustable from 12 to 55 wpm. For group code practice, you can store up to 2,200 characters.

On receive, there is an exclusive keyboard adjustable "Fist Fixer" with an on-screen analog indicator. This alters the computer decision-making process and improves copy of poorly sent CW. The program automatically receives up to 100 wpm and lets you store up to five screens full of received CW for logging at a more convenient time. When the transmit buffer is empty, the mode changes automatically back to receive.

The hardware interface plugs between the transceiver and computer. No modification is needed to the rig or computer, and nothing else is needed.

Optimized RTTY techniques are used in the



hardware interface. It features an automatic noise limiter, a narrow four-pole active bandpass filter, an active low-pass post detection filter and a tracking comparator.

It has high voltage keying circuits that will key virtually any tube or solid-state transmitter. There are LEDs that aid in tuning, indicate a transmit condition and a power "ON" condition. The interface requires 9-18VDC or 110VAC with optional MFJ-1312 AC adapter, $9.95. An all-aluminum cabinet is used for RF shielding and measures 6 by 1¾ by 3 inches.

The program and interface requires the Radio Shack TRS-80 Model I or Model III with at least 16K of RAM.

The program is supplied on cassette tape and is disk compatible.

MFJ provides a 30-day money back trial period. If you are not satisfied, you may return it within 30 days for a full refund (less shipping). MFJ also provides a one year unconditional hardware guarantee.

The MFJ-1210 (for the Model I) and the MFJ-1212 (for the Model III) is available from MFJ Enterprises, Inc. for $99.95 plus $4 shipping and handling for each unit.

To order, call toll-free 800-647-1800 and charge VISA or Master Charge or mail order to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. □

2M FM mobile transceiver

Trio-Kenwood Communications, Compton, California has just introduced a new 2-meter FM mobile transceiver, the model TR-7730. Very compact in design, the TR-7730 has an RF output power of 25 watts, with HI/LO power switch, five memories, memory scan,

automatic band scan, UP/DOWN manual scan on the microphone, 4-digit LED frequency display, S/RF bar meter, ±600 kHz offset switch, and LED indicators for "BUSY", "ON-AIR", and "REPEATER." Optional accessories include the MC-46 16-button autopatch microphone, SP-40 remote speaker, and KPS-7 power supply for fixed station operation.

For additional information, contact Trio-Kenwood Communications, P.O. Box 7065, Compton, CA 90224. □

Portable RTTY/CW terminal

HAL Communications Corporation is pleased to announce the new CWR-685A TELEREADER portable RTTY/CW terminal. The CWR-685A is a compact electronic communications terminal designed for reception and transmission of Baudot and ASCII Radio Teleprinter (RTTY) signals as well as Morse code (CW) signals. The CWR-685A includes a built-in green phospher CRT display screen and RTTY and Morse demodulators.

The very small size of the CWR-685A makes it particularly ideal for camper, boat and other portable installations where space for equipment is limited. Since the terminal operates from 12VDC, it may be easily used in locations where AC power is not readily available.

The CWR-685A comes with a separate full but detachable keyboard. Without the keyboard, it is a convenient and small receive-only terminal; attach the keyboard and add transmitting capabilities. The screen of the CWR-685A is formatted in 20 lines of 32 characters per line; a total of four different screen pages may be selected.

The internal RTTY demodulator allows selection of all three standard shifts (170, 425, 850) for either the "High Tones" (U.S. standard) or "Low Tones" (IARU standard). Transmit AFSK tones match the receiver demodulator combination selected. Other transmit features include up to 15 lines of pretype on-screen buffer, automatic transmit/receive control (KOS), and a total of 6-64 character programable HERE IS messages. A parallel ASCII printer output is provided for connection to a receive printer.

For more information, write to HAL Communications Corporation, Box 365, Urbana, IL 61801. □

Small keyer, big job

A rugged, low-priced keyer from Curtis Electro Devices promises to be the tiny, no-frills unit CW buffs have been waiting for. Although only 1.5 inches square, 3 inches deep and 3.5 oz. in weight, the "Lil' Bugger" — as it's called — offers many of the features found on full-sized keyers, plus a few of its own. The front panel contains only a thumbwheel speed control. Sidetone pitch, volume and weighting are adjustable internally via small trimmers. The tungsten output relay will easily key any amateur transmitter including the really tough cases such as old shipboard transmitters.

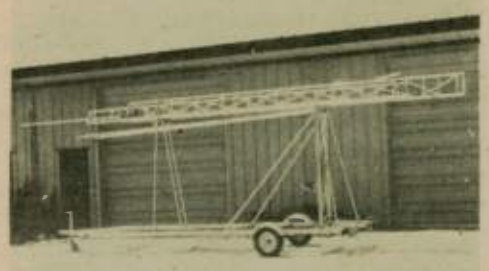
Jacks are provided for the keyline, sidetone output and an external AC adaptor although the case contains a compartment for an ordinary 9V transistor radio battery.

The standard Model K5 is equipped with the Curtis 8044 chip. A second version of the unit (Model K5B), uses the new Curtis 8044B IC which provides the squeeze keying characteristics of the Ten-Tec, Heath, Nye and Accukeyer. In these models, a squeeze released during a dot will automatically produce a following dash. Similarly, a squeeze released during a dash will produce a following dot. The standard 8044 produces nothing after a squeeze release. Squeeze key operators are divided into two groups depending on how they learned; the K5 series accomodates both. Non-squeeze operators can easily use either version.

The small size of the K5, plus the three lugged leads provided for paddle key with double-sided mounting tape. It is ideal for QRP, Field Day, DXpeditions or regular station use. Provision for a straight key is also made.

Both the K5 and K5B are prices at $39.95 plus shipping, and are available from stocking dealers or direct from the factory.

For more detailed information, contact Curtis Electro Devices, Inc., Box 4090, Mountain View, CA 94040 or telephone (415) 494-7223. □



Steel trailer

For those special situations that require communications tower mobility, Aluma Tower Company introduces an all steel trailer for transporting and erecting any Aluma Tower Co. aluminum or steel tower. Ideal for mobile demonstration work, civil defense, remote signal testing and many other situations, the tower trailer combination is easily towed. Once in place, the tower is tilted up and cranked into position. The trailer acts as a secure base.

For more information, contact Aluma Tower Co., 1639 Old Dixie Highway, Box 2806, Vero Beach, FL 32960. □

2M mobile VHF transceiver

ICOM is proud to announce the arrival of the IC-290A 2-meter mobile VHF transceiver. The IC-290A is priced at $549, including the HM8 touchtone mic as standard.

The IC-290A includes the following features: five memories plus two VFOs; priority channel; programmable offsets; 5 kHz or 1 kHz tuning; full scanning capability; and FM/USB/LSB/CW capabilities.

The compact size of the IC-290A is another excellent feature: 6-11/16″ (W) x 2-1/2″ (H) x 8-5/8″ (D).

For more information or to order, contact ICOM, 2112-116th Ave. NE, Bellevue, WA 98004; (206) 454-8155; Telex: 152210. □

POWER-CHARGER™

Mobile amateurs can operate and recharge their hand-held radios anytime with the new HT POWER-CHARGER™ from Valor Enterprises. They simply insert the HT POWER-CHARGER™ into the lighter socket and attach the mating plug into the radio. Charge hand-held radios in less than an hour, and use them for transmitting and receiving while driving.

The HT POWER-CHARGER™ is not just a dropping resistor and diode, but a pair of silicon transistors in a variable current regulator that is self-adjusting depending on the battery state of charge.

Mobile amateurs will appreciate the convenient package — all circuitry is enclosed in the plug with no box dangling on the cord. And the HT POWER-CHARGER™ features a built-in LED to indicate lighter socket function, with a 5-foot connecting cable and plug to mate with the radio.

The HT POWER-CHARGER™ comes in six models designed to fit most popular amateur hand-held radios.

Valor Enterprises adds the HT POWER-CHARGER™ to its wide spectrum of personal and amateur communications products and accessories. For a complete products catalog, call (513) 698-4195. Outside Ohio dial toll-free 1-800-543-2197. Valor Enterprises, Inc., 185 W. Hamilton Street, West Milton, OH 45383. □

SSTV Contest

A5 Magazine — an Amateur Television Magazine — is sponsoring a 36-hour SSTV contest on 13-14 February 1982. Contest hours will be from 1300 GMT on Saturday to 0100 GMT on Sunday. Frequencies will be all authorized and recognized SSTV operating frequencies HF bands.

The object of the contest is for operators to work as many SSTV operators in other states as possible. The emphasis, as in previous A5 Magazine SSTV Contests, is on quality — not just quantity.

Points: 100 points for each new state listed; 25 points per contact with 10 bonus points awarded for live exchanges of "mugshots," color two-way contacts, or 256 or 128 (1/2 speed) mode transmissions. Station calls and signal reports must be exchanged in video format by camera, keyboard or light-pen generators. Alaska and Hawaii contacts count a bonus factor of 500 points.

Prizes: 1st place winner receives a three-year subscription (or renewal) to A5 Magazine, a framed Specialized Communication Certificate, and a photo published on the front cover of A5 Magazine. 2nd and 3rd place winners will receive one-year subscriptions to A5 Magazine and certificates. All contestants will receive the gold certificates with submitted logs.

Logs: Submit actual or copies of contest log sheets by no later than 1 March 1982 to Contest Manager, A5 Magazine, P.O. Box H, Lowden, IA 52255. Official results will be published in the May/June issue of A5 Magazine. Winners attending the Dayton Ohio Hamvention will be awarded certificates at the regular ATV Forum meetings.

Please pass the word about this contest to all your SSTV contacts. Good luck! □

YL-OM Contest

The Phone portion of the YL-OM Contest starts on Saturday, 13 February 1982 at 1800 UTC, and ends Sunday, 14 February 1982 at 1800 UTC. The CW portion starts Saturday, 27 February 1982 at 1800 UTC, and ends Sunday, 28 February 1982 at 1800 UTC.

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

Procedure: OMs call "CQ YL" and YLs call "CQ OM."

Operation: All bands may be used. No cross-band operation. Net contacts and repeater contacts do not count. A station may be counted only once in each contest for credit.

Exchange: Station worked, QSO number, RS or RST, ARRL Section or country. Entries in log must also show time, band, date, and transmitter power. (Please know your ARRL Section. A section list is available for SASE to YLRL vice president.)

Scoring: A. Phone and CW will be scored as separate contests. Submit separate logs for each contest. B. One point is earned for each station worked, YL to OM or OM to YL. C. Multiply the number of QSOs by the total number of different ARRL Sections and countries worked. D. Contestants running 150 watts or less on CW and 300 watts PEP or less on SSB, at all times, may multiply the results of (C) by 1.25 (low-power multiplier).

Logs: All logs must show ARRL section or country to qualify for awards. 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 and be postmarked by 15 March 1982 and received no later than 5 April 1982, or they will be disqualified. *Please send logs to:* Sandra Heyn, WA6WZN, 962 Cheyenne Street, Costa Mesa, CA 92626.

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

Awards: 1st place Phone: YL Cup, OM Cup; 1st place CW: YL Cup, OM Cup. 2nd and 3rd place YL and OM winners in each contest will receive certificates. The winner of the phone contest cup is also eligible to win the CW cup. Certificates will be awarded to the high YL and OM Phone and YL and OM CW winners of each U.S. and VE call district and country. □

Florida

The Treasure Coast Hamfest will be held at the Vero Beach Community Center on 20 February 1982. There will be prizes, tailgating and drawings. A QCWA luncheon will be held.

Talk-in on 146.13/73, 146.52/52, 146.04/64 and 222.34/223.94.

Tickets are $2 in advance, $2.50 at the door.

For information write Hamfest, P.O. Box 3088, Beach Station, Vero Beach, FL 32960. □

25th Annual QSO Parties

Prices going up! Cost of living going up! Interest going up! Don't break the chain! Let's have participation in the good old QSO Parties go up too!

Back in 1957, Stan Belliveau, W7AYO — in a moment of inspiration — started the first QSO Party. It was made into a real success by Dr. Spike, W7OS and Charles Emigh, W7ER. This is to be a fun Party. There will be plaques for the top Phone and top CW scores. Certificates will be given for the second, third, fourth and fifth runners up in both the Phone and CW Parties. Standings and scores will be published in QCWA News, Summer 1982 issue, but remember that the emphasis will be on fun and good fellowship.

PLEASE NOTE: There are two QSO Parties this year — the same as last year. The first Party for CW contestants; the second is for Phone contestants. They are on separate weekends.

REMEMBER — 0001 UTC Saturday begins at 7:01 p.m. EST on Friday.

The 25th annual QCWA Party for CW will be held 13-14 February 1982. The CW Party will begin at 0001 UTC, Saturday, 13 February 1982 and will end at 2400 UTC, Sunday, 14 February 1982. Now is the time to start limbering up your fist and getting ready for the party!

The 25th Annual QCWA QSO Party for Phone will be held 13-14 March 1982. The Phone Party will begin at 0001 UTC, Saturday, 13 March 1982 and will end at 2400 UTC, Sunday, 14 March 1982.

Official rules

Contacts: Each contact made with another QCWA member will count as a single point. Contacts with the same station on more than one band can be scored only once. Contacts made with captive stations, such as when operating in local nets, are not valid.

Multiplier: This QCWA QSO Party has two multipliers. Each Chapter is a multiplier of one; each DX station is a multiplier of two. DX stations are defined as Europe, Africa, South America, Asia and Oceania. Example: You make a total of 40 contacts (both U.S. and foreign), which include 10 Chapters and six DX stations. You then have a multiplier of 10 Chapters plus 12 DX stations, equaling 22 multiplier. Forty contacts multiplied by 22 equals 880 score. Contacts within your own country count only as Chapters.

Frequencies: *Any authorized amateur frequency is permissible.* The following suggested frequencies have been selected to minimize interference to others: CW — 3530 - 3560, 7030 - 7060, 14030 - 14060, 21040 - 21070, 28040 - 28070 kHz; Phone — 3900 - 3930, 7230 - 7260, 14280 - 14310, 21350 - 21380, 28600 - 28630 kHz.

The above frequencies are selected as a starting place. When pileups occur, don't be afraid to go either side of these frequencies. Again — any authorized amateur frequency is permissible and should be used to cut down on the pileups and QRM.

Exchanges: A valid QSO must contain the following minimum information exchanged between both parties: a) QSO number; b) operator's name; c) Chapter identification (official number or name). Members not affiliated with a Chapter should use "AL".

Logs: It is the responsibility of each contestant to provide a legible log — no carbon copies — and to list all claimed contacts. The total contacts for each page should be recorded at the bottom of each page; the total contacts for the Party should be recorded in the box at the top right of the first page of the log. Log sheets will not be returned. Make sure you have correct postage when you mail your logs.

Send your logs no later than 31 March 1982 to: Pine Tree Chapter #134, Glenn Baxter, K1MAN, Long Pond Lodge, Belgrade Lakes, ME 04918.

Separate logs and scores must be submitted for both the CW and Phone Parties. Logs must be postmarked no later than 31 March 1982. It is suggested that the CW Party logs be submitted soon after the CW Party, although it is not required.

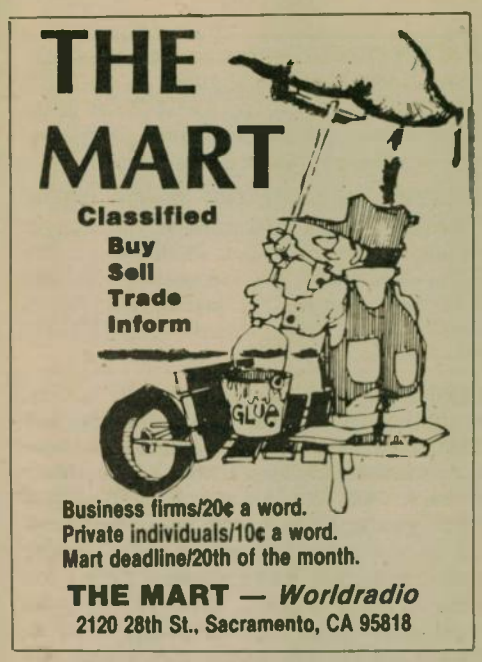
The following information should be entered in your log for each QSO Party: Time (UTC), his/her call, your QSO number, his/her QSO number, his/her name, his/her Chapter No. or name, and his/her state or country.

Work as many QCWA members as you can and then apply for the several Special QCWA Certificates which you may have qualified for in the QCWA QSO Parties: Worked 50 States Certificate; Worked 60 Chapters Certificate; Worked 100 Members Certificate; and Worked 500 Members Certificate.

As old-timers, it is most desirable to establish a record for courteous treatment to all amateurs. Use the good operating procedures you have always used, give the other guy a break, and enjoy the QSO Parties.

The decision of the Pine Tree Chapter of QCWA will be final with respect to scores and rules. In event of errors or a disagreement, keep all details off the air and write either to Pine Tree Chapter or to Headquarters. □

Share your knowledge with your fellow amateur and Worldradio reader



Business firms/20¢ a word.
Private individuals/10¢ a word.
Mart deadline/20th of the month.

THE MART — *Worldradio*
2120 28th St., Sacramento, CA 95818

WORLDRADIO ON CASSETTES — **Worldradio** for blind amateurs on cassettes. To receive this free service send $3.00 (one-time only contribution for tapes) with your name, address and call to George Hickin, W4GH, Box 7453, Macon, GA 31209.

RTTY JOURNAL, international news and information on RTTY. Ten issues per year $5.00. Outside USA please send SASE for rates. RTTY Journal, PO Box RY, Cardiff, CA 92007.

INTRODUCING: Beautiful natural **full color photo QSL cards**, made from your color negative or slide. From $235.00 for 3,000 cards minimum. Free samples, stamps appreciated. K2RPZ, Box 412, Dept. NCW, Rocky Point, NY 11778, (516) 744-6260.

MOBILE IGNITION SHIELDING, provides more range with no noise. Available most engines in assembled or kit forms, plus many other suppression accessories. Free literature. ESTES ENGINEERING, 930 Marine Drive, Port Angeles, WA 98362.

COLORFUL QSL'S — including Day-Glows and Woodgrains. Samples 50¢. (Refundable with order.) SPECIALTY PRINTING, Box 361, Duquesne, PA 15110.

TELETYPEWRITER gears, ribbons, manuals, parts, supplies and toroids. SASE list. Buy all unused parts, late machines. TYPETRONICS, Box 8873, Ft. Lauderdale, FL 33310 N4TT, ex-W4NYF.

AUTO-CALL KEEPS UP WITH THE LATEST Ham info from Washington, DC area. Subscription $5.00 a year, sample copies 75 cents. Address: AUTO-CALL, c/o W2GHK, 2417 Newton St., Vienna, Virginia, 22180.

REPLACE RUSTED ANTENNA BOLTS with stainless steel. Small quantities, FREE catalog. ELWICK, Dept. 430, 230 Woods Lane, Somerdale, NJ 08083.

GENERALIZE YOURSELF THE EASY WAY! Revolutionary new word method to learn radio code by Russ Farnsworth. No books to read, no visual gimmicks to distract you — just listen and learn! Based on modern psychological techniques. This course will take you beyond 13 wpm in *less than half the time!* Album contains three 12" LPs, 2½ hours of instruction — $9.95; cassette — $10.95. CA add tax. MC and VISA. DANA, PO Box 161723, Sacramento, CA 95816.

EDITING A CLUB PAPER? Need one for your club? Interested in Amateur Radio public relations? Need some help? Amateur Radio News Service would like to hear from you. For info write Fran Norrick, WB9WPS, Route 6, Box 239, Kankakee, IL 60901.

U.S. QSL SERVICE — a domestic QSL bureau. SASE claims your cards free. Via USQS/KM7Z, PO 814, Mulino, OR 97042.

DISTINCTIVE QSLS — Largest selection, lowest prices, top quality photo and completely customized cards. Make your QSLs truly unique at the same cost as a standard card, and get a better return rate! Free samples, catalogue. Stamps appreciated. Stu, K2RPZ, Box 412, Rocky Point, NY 11778. (516) 744-6260.

NEED HELP FOR YOUR NOVICE OR GENERAL TICKET? Complete recorded audio-visual theory instruction. Easy, no electronic background necessary. Write for free information. **AMATEUR LICENSE**, P.O. Box 6015, Norfolk, VA 23508.

RUBBER STAMPS — 4 lines, $4.25 — fast service. **STAMPS & STUFF**, 324 Oneida N.W., Canton, OH 44708.

WYOMING AND UTAH RANCH LAND. Wild horses, antelope, deer. Near paved road. 10 acres — $60 down, $60/month. FREE information, maps, photographs. (Offer void in Calif.) Will trade equity for ham gear, home computer, test equipment, etc. Owner — Dr. Michael Gauthier, K6ICS, 9550 W. Gallatin Road, Downey, CA 90240.

AMATEUR RADIO STATION BELT BUCKLES, Western style, brass finished, call engraved. $12.00. ROYAL, Box 2174, Sandusky, OH 44870.

BEGINNERS' RTTY HANDBOOK still only $4.50. Bibliography of RTTY articles $1.00, both plus large SASE (41¢ stamp). RTTY JOURNAL, POB RY, Cardiff-by-the-Sea, CA 92007.

We have something different in a code practice tape for you. Our tape is composed of 100 *high frequency words* which constitute one-half (50%) of all writing. Why practice with low frequency words which you seldom use, or with code groups which you never use? Practice with the words you use one-half of the time. For information write to El Don Enterprises, PO Box 3404, Redondo Beach, CA 90277.

THE BEST HAM RADIO/PERSONAL COMPUTING INSIDER NEWSLETTER IN THE BUSINESS! Published twice a month: $18.00/year. Twice as many pages as HR Report! (Sample: FREE!) THE W5YI REPORT; PO Box #10101W; Dallas, TX 75207.

QSL CARDS $12.50/500. Free 400-illustration catalogue. BOWMAN, 743 Harvard, St. Louis, MO 63130.

The SOCIETY OF WIRELESS PIONEERS, Inc., invites all professional operators, active or retired, military or commercial, to join the world's largest organization of its kind. Many active nets. Write Box 530, Santa Rosa, CA 95402 for details or send $1 to pay postage on sample SPARKS JOURNAL.

EMBROIDERED EMBLEMS, customer designed club pins, medallions, trophies, ribbons. Highest quality, fastest delivery, lowest prices anywhere! Free info: NDI, Box 6665 L, Marietta, GA 30065.

BUYING OR SELLING? An ad in **Worldradio** makes it happen FASTER.

RIG TROUBLES GOT YOU DOWN? You stand a good chance of fixing it yourself. Get help with your own copy of "Owner Repair of Radio Equipment." Shipped postpaid for $8.95 from Frank Glass, K6RQ, 14910 LG Blvd, Los Gatos, CA, 95030.

AMATEUR RADIO AND TEST EQUIPMENT REPAIR calibration — experienced, licensed, reasonable. R. HALL, W6BSH, 1381 Taper Ct., San Jose, CA 95122, 408/292-6000.

COAX CONNECTORS: SO-239 and PL-259. Brand new. 10 for $6.50. LC ELECTRONICS, 10338 Sageplum, Houston, TX 77089.

SELL: COLLINS KWM-2, 516F-2, 312B-5, PM-2, 75S-3C, CC-3. Whole lot $995. W3ACE, A. Meyer, 4610 Reno Road, N.W., Washington, D.C. 20008. (202) 244-7737.

TRS-80 COLOR COMPUTER PROGRAMS and hardware: Morse code send-receive program and hardware interface $50, kit $40. RTTY send-receive program $25, FSK-AFSK interface kit for RTTY program $45, 32K memory upgrade instructions $4, 20 line I/O interface card for ROM pack slot $37, EPROM card for 2716-32 $15, EPROM programmer kit $25, Baudot printer patch to basic and hardware kit $25. Send SASE for info to Frank Lyman III, 12 Reservoir St., Cambridge, MA 02138.

"NEW! NEW! Plastic display holders now available for foreign or oversize QSL's. Seven oversize holders display 126 cards or seven standard size display 140 for $4.00 prepaid. State size wanted. K4NMT, Box 198W, Gallatin, TN 37066.

ELECTRON TUBES: Current and hard to find types. Special purpose, transmitting, receiving and cathode ray tubes. Send addressed stamped envelope for our free list. RUTAN ELECTRONIC SALES CO., 166 5th Ave., New York, NY 10010.

Contact Worldradio for hamfest prizes.

LEARN CODE THE EASY W6PHA WAY! — Former USAF code champ gives unique, simple system allowing all ages to learn quickly. No tapes, etc.! Booklet — $4.00 ppd. $2.00 discount coupon and catalog sheets for GLOBALMAN hand keys, electronic keyers, code practice oscillators, 100% money back guarantee! You can't lose! GLOBAL AMERICA CORP., Box 400WR, El Toro, CA 92630.

CDF ROTOR OWNERS — You need a "D-Lay-5"! This easy-to-install circuit protects the rotor from damage caused by accidental braking. Works with the Ham II, Ham III, Ham IV, and Tailtwister models. Provides a five-second safety factor in your rotor brake. Incredible value at $19.95 — Postage paid world wide. LANCE JOHNSON ENGINEERING, PO Box 7363, Kansas City, MO 64116.

WANTED . . . TUBES. All types high power microwave nixies or ? Pay cash or trade. WA6LHR, (415) 530-8840.

CUSTOM EMBROIDERED EMBLEMS, your design, low minimum. Free booklet design hints and guide. **EMBLEMS,** Dept. 87, Littleton, NH 03561.

SUBSCRIBE TO THE *DXers Magazine.* Gus Browning, W4BPD, editor. Only $15.00 per year. The DXers Magazine, Drawer DX, Cordova, SC 29039.

UNCLE SAM INVITES YOU TO DCA. The Defense Communications Agency is a worldwide communications network, providing communications for the military and other government agencies. We offer immediate openings for entry and professional level positions. Electronics engineers, communications specialists, computer scientists and specialists. Salary range $15,947-$35,033. Some overseas positions available in Germany, Japan, Korea. Send detailed resume or Standard Form 171 to Defense Communications Agency, Attention Code 37017, Washington, DC 20305. Call collect 202/692-2794.

CALL LETTER PLATE with walnut base, or metal wall plate — $6.95. 3-line rubber stamp — $3.00, additional lines $1.00 each. Call letter badge with name — $1.50. All postpaid. CA residents add 6% tax. MOORE GRAPHICS, K6SQJ, 2010 Vista Rd, Box 11, Pinon Hills, CA 92372.

CERTIFICATE FOR PROVEN TWO-WAY RADIO CONTACTS with amateurs in all 10 USA call areas. Award suitable to frame and proven achievements added on request. Send $2 (USA) or $3 (DX) to cover certificate cost. W6LS, 2814 Empire Ave., Burbank, CA 91504.

FREE QSL SAMPLES — Stamp appreciated. SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239.

SALE. AZDEN PCS 3000 $280.00. KDK $280.00. Free shipping USA. Add $2.00 for COD. Metal Detectors send for free catalog. CHUCK'S AMATEUR RADIO SUPPLY, P.O. Box 44, Madera, CA 93639. (209) 674-1435.

TELETYPE MACHINES and accessories, BARGAINS. SASE for list. GOODMAN, 5454 South Shore, Chicago, IL 60615.

HOSS-TRADER ED says "Big Sale! SHOP around for the BEST PRICE then telephone the Hoss last for the best deal." New Drake Model 700-E RTTY Terminal Board, Regular $1095.00, cash price $895.00. Drake Video-Monitor: $159.00. New Drake DC-4 Supply, $89.00. New Drake TR-7 Transceiver $1195.00. New Alpha 76-A Linear, regular $1865.00; cash $1489.00. SPECIAL New Dentron MLA-2500-B Linear, $795.00; New Alliance HD-73 rotor $95.00. New Astro-Swan 100-MXA 5-band solid-state transceiver, regular $699.00, Cash $469.00; New Icom IC-2A walkie-talkie $209.00. New Adzen PCS-3000 $285.00; New ICOM 720-A, $1139.00. Ham-4 rotor $149.00; Used 530-S, $575.00; Used ICOM 730-S $579.00. Icom 25-A 25-watt 2-meter transceiver: $299.00, used Kenwood 830-S $789.00. MOORY ELECTRONICS COMPANY, P.O. Box 506, DeWitt, AR 72042. (501) 946-2820.

DUPLEXER AND CAVITY DIGEST shows how you can build cavities, duplexers and helical resonators from common parts. Theory, construction, tuning, 50 thru 450 MHz. 85 illustrations, 100 big pages. $8.50 CASTLE PUBLISHING, Box 17778, Tucson, AZ 85731.

QSLs & RUBBER STAMPS — TOP QUALITY! State Outline, Straight Key, Space Shuttle QSLs and More! Sample Pack - 50¢ - EBBERT GRAPHICS, Dept. 1, Box 70, Westerville, OH 43081.

ELECTRONIC PARTS CATALOG. IC's, transistors. Send first class stamp to ALDELCO, 2789 Milburn Ave., Baldwin, NY 11510.

DE K3HAM: ICOM, Bird, Cushcraft, Beckman, Fluke, Larsen, Hustler, AEA, Antenna Specialists, Astron, Avanti, B&W, CDE, Amphenol, Belden, W2AU/W2VS, Sony, Fanon/Courier, Ham-Key, Vibroplex, Ameco, Callbook, Shure, LaRUE ELECTRONICS, 1112 Grandview Street, Scranton, PA 18509, (717) 343-2124.

COMPLETE QSL catalog. 32p, cuts, forms, type plus fifty samples. $1.00, refundable. UNADILLA PRESS, P.O. Box C, Unadilla, NY 13849.

RUBBER STAMPS FAST — 3 lines or 1" call only $3.00. Engraved name call badge, $2.50. W6LXW, 905 Pine Tree Lane, Aptos, CA 95003.

QSL MANAGERS FOR OVER 5000 DX STATIONS. A computer listing of active DX operators and their QSL Managers. Includes both stateside and foreign managers. Updated continuously, published monthly. Subscriptions in US/VE/XE-12 issues/$15; Overseas AIRMAIL-12 issues/$25(US$); 1 copy-$1.75 US/VE/XE, $2.80 overseas (US$). THE W6GO/K6HHD LIST, P.O. Box 700-B, Rio Linda, CA 95673.

CODE PROFICIENCY DRILLS are transmitted from WB31VO, BRASS POUNDERS ARC, each Saturday and Tuesday starting 0200Z on 3560 kcs. Each Saturday and Sunday starting 2000Z on 7060 kcs. Monday thru Friday starting 1930Z on 14060 kcs. Speed ranges from 20 to 60 WPM.

COLLINS 75S-3B RCVR near mint $475. Mike K6MBV, Bay Area (415) 531-5197 eves.

TOWERS — Stress calculations, building permits, Registered Civil Engineer; W6BFO, 7112 Deveron, Canoga Park, CA 91307, (213) 340-4411.

30-METER BAND CRYSTALS FT.-243 type holders only. Basic 5050 to 5075 kc. Double to 10.1/10.15 mc. Novice crystals for 80/40/15/10. Also 160 thru VHF/UHF. $5 ea. 5 for $20. E. TAYLOR, KE6IJ. (916) 756-7372, 2921 Loyola Dr., Davis, CA 95616.

MACK'S TUBES — new or used electronic tubes. Guaranteed. New tubes — 60% off list. Some "oldies". No COD. Send large SASE for list. MACK'S TUBES, 2565 Portola Dr., Suite 4, Santa Cruz, CA 95062.

PICTURE QSLs MADE FROM YOUR PHOTO-SLIDES. Get a better return; be distinctive. Price subject to discount. 250 B/W — $23.00. 1,000 full color — $77.00. Write for samples & prices. PICTURE CARDS, Box 5471, Amarillo, TX 79107. 806/383-8347.

SAROC 1982 CONVENTION to be held at Aladdin Hotel in Las Vegas, Nevada, 1-4 April 1982. Advance registration $17 per person postmarked before 1 March 1982. After 1 March 1982, $19 per person. Non-paying guests visiting SAROC exhibits to be issued ID badges good for admission to exhibit area, no charge. Extra drawing tickets for main drawing $1 ea., limit 10 per paid registration. Send check or money order to SAROC, P.O. Box 14217, Las Vegas, NV 89114. Refunds to be made after SAROC is over to those requesting same in writing and postmarked before 1 April 1982. SAROC Aladdin Hotel room rate $36 (plus room tax), per nite, single or double occupancy.

QSLS. QUALITY AND FAST SERVICE FOR 21 YEARS. Include call for free decal. Samples 50¢. Ray, K7HLR, Box 331, Clearfield, UT 84015.

FOR SALE — OUTSTANDING DX LOCATION. Spectacular view of San Francisco Bay from thousand-foot elevation. Many amenities — $260K. Ernie, WB2UOM, (415) 482-2444, or (415) 981-8890.

COAXPROBE — In-Line Coaxial RF probe for frequency counters and oscilliscopes. Monitor your transmitted signal directly from the coax line with the CoaxProbe RF Sampler. Don't use a capacitor pickoff that is frequency sensitive and may not provide enough isolation from transmitter voltages. The CoaxProbe uses a special method of coupling to provide 3000 volts of isolation for your test equipment. Just connect the CoaxProbe into your transmission line and connect your frequency counter or oscilliscope to the output to monitor frequency or waveform. Voltage output is about .3 to 1.8 volts RMS from 1 to 2000 watts. Insertion loss is less than .2 db so you can leave it inline while you operate. Use it between the transmitter and the dummy load to adjust frequency without transmitting over the air. Over 2000 sold in 3 years to satisfied amateurs through **Ham Radio, CQ** and **73,** so send $9.95 ($17.95 for 2) plus $1.50 shipping to EAGLE ELECTRONICS, P.O. Box 426G, Portage, MI 49081, for immediate delivery.

IC—22S OWNERS: Add digital frequency readout. Shows input/output frequency. EZ 4-wire hookup — no trace cutting required. Assembled and tested, ready to install in your enclosure. $39.95pp. TELSTAR, E. 16109 Longfellow, Spokane, WA 99216.

YAESU FT-207R ADJUSTABLE AUTO-RESUME SCAN PCB. Pre-set and/or change listening time to suit your need. Automatic scan restart on "BUSY" channel. Adjustable scan rate-4 to 10 secs. Scan Hold Feature- Simple installation. Instant scan restart on carrier drop — NO More Waiting. PCB built and tested. Scan like the new tranceivers. WAF-PCB-1 $29.95. ORZ SCAN INC., 11 Pleasant Drive, Rome, NY 13440.

ADVERTISERS' INDEX

WORLD TRAVELERS: send for your free sample copy of "International Travel News." PO Box 160568, Sacramento, CA 95816.

TELETYPE WANTED: New equipment or spare parts, top prices paid, any quantity. Send lists. Parts and supplies for all models for sale too. SASE for list. Van, W2DLT, TELEPRINTER CORPORATION, Box 217, Berkeley Heights, NJ 07922.

SEE WORLD'S FAIR while attending 1982 Knoxville Hamfest and ARRL Delta Division Convention, Memorial Day weekend (May 22-23). DX, computer, and technical forums; air-conditioned exhibit area; and large indoor/outdoor flea market make this Tennessee's largest hamfest. More information? (dealers, tickets, reservations) N4BAQ, 5833 Clinton Hwy., Suite 203, Knoxville, TN 37912.

RTTY FOR SALE: 35KSR (2), $295.00 ea.; 28RO compact/gearshift (2), $275.00 ea.; 28 keyboard typing reperf (3), $195.00 ea.; 34ASR (28ASR in 35ASR cabinet) (2), $495.00 ea.; 28 stand-alone TD (10), 100 wpm-$95.00 ea., 60 wpm-$117.00 ea.; Prices less packing and shipping. Send SASE for 5-page list and prices. Lawrence R. Pfleger — K9WJB, 2600 S. 14th Street, St. Cloud, MN 56301. (612) 255-9794.

NOTICE—Icom HT Trickle Charger adapter. Works both mobile and base. SASE for info. We manufacture. NARWID ELECTRONICS, 61 Bellot Road, Ringwood, NJ 07456.

HOSS-TRADER ED says, "Big Sale. SHOP Around for the BEST PRICE then telephone the Hoss last for the Best Deal." New Drake Model 7000-E RTTY Terminal, Regular $1095.00, Cash price $839.00. Drake Video Monitor: $139.00. New Drake TR-7 Transceiver, $1195.00. SPECIAL New Dentron Clipperton-L linear 2000 watts, $559.00; New Alliance HD-73 rotor, $95.00; New Astro-Swan 100-MXA 5 band Solid State Transceiver, Regular $699.00; Cash $449.00; New Icom IC-2A walkie talkie $209.00; Adzen PCS-3000; $269.00; New Icom 720-A, $1139.00; Ham-4 rotor $149.00; Used 530-S, $545.00; Used Icom 730-S, $579.00; Used Kenwood 830-S, $759.00; New Icom 25-A, $299.00; New Drake TR-5 transceiver, $995.00. MOORY ELECTRONICS COMPANY, P.O. BOX 506, DeWitt, AR 72042 (501) 946-2820.

BUMPERSTICKER WITH YOUR NAME AND CALL — $3.75 postpaid. WB2GMK, 43 E. Edsall Blvd., Palisades Park, NJ 07650. (201) 944-8334.

ROHN TOWERS — Wholesale direct to users — All products available — Write or call for price list — Also we are wholesale distributors for Antenna Specialists and Regency FM radios — HILL RADIO, P.O. Box 1405 — 2503 G E Rd., Bloomington, IL 61701, (309) 663-2141.

MICROWAVE DOWN CONVERTERS. Connects directly to TV or 60 MHz receiver. Receive 2.1-2.5 GHz. High gain, small size, low noise. Complete unit $175. Converter only, less cables and power supply, $75. Microwave projects info. included. Scott, KA6PKL, 947 Marin St., Manteca, CA 95336.

YAESU FT625RD, 6-mtr Xceiver, all mode, $400. (216) 821-6592.

Be first to know precisely when and where to work all the choice DX. Bi-weekly LI DX BULLETIN has: Hot DX news — time and frequency of each goodie — QSL info — propagation forecast — and more . . . Send business size SASE for free sample or $12 for 1-year domestic subscription to:

LONG ISLAND DX BULLETIN
PO Box 173, Huntington, NY 11743

THE PEANUT WHISTLE: International newsletter of news, reviews, information and opinion. Also, outlandish bargains on publications, software, equipment and accessories. QSL to David Hancock, KA2ETN, 11 Pine St., Hackensack, NJ 07601, for year's subscription.

AZDEN PCS-2000, 2-mtr fm Xcvr, all accessories. $200. (216) 821-6592.

DX PREFIX LISTING. Personalized and computer generated. Includes prefix — country — CQ and ITU zones — Long and short path distances and bearings — Checksquares for stations worked and confirmed. SASE sample. $6.95 + 1.50 shipping. Jon Presley, WDØEAO, R3 Box 117, Lebanon, MO 65536.

KENWOOD DFC-230, Freq Controller, For TS-130S. $175. (216) 821-6592.

HAMS FOR CHRIST—Reach other hams with a Gospel Tract sure to please. Clyde Stanfield, WA6HEG, 1570 N. Albright, Upland, CA 91786.

MURCH UT-2000A, Ultimate Xmatch, $70. (216) 821-6592.

SAVE MONEY, TIME: Decode Morse automatically using microelectronic circuitry. Now only $169 assembled. 5vDC. TELECRAFT LABORATORIES, Box 1185, E. Dennis, MA 02641.

WANTED: TEN-TEC model 544 transceiver. Must be excellent to mint. N6DW, Dale, 2955 Euclid Ave., Concord CA 94519. 415/685-7364.

FOR SALE: 75S3B "Winged". Improved receiving modifications. Mint condition. $400. W6UNF, Walter Biondi, 20 Everglade Dr., San Francisco, CA 94132. 415/564-6528.

MIRAGE B-3016, 2-mtr amplifier. 10W-160W. $175. (216) 821-6592.

D & V RADIO PARTS — Variable capacitors, chokes, toroids, etc. Reduced prices many items, stamp please. 12805 W. Sarle, Freeland, MI 48623.

COLLINS 75S-3, 32S-3 and 30L1, mint condition, estate sale. W6YO, (805) 725-8707, or 1416 7th Ave., Delano, CA 93215.

QSLs by W6BA — "Customized" $19.75 per 1000. Star Route 2, Box 241, 29 Palms, CA 92277.

MIRROR IN-THE-LID, and other pre-1946 television sets, picture tubes, parts, magazines wanted for substantial cash. Especially interested in any RCA "TRK", G.E. "HM", or Westinghouse "WRT" series set. Arnold Chase, 9 Rushleigh Road, West Hartford, CT 06117. (203) 521-5280.

SCANNER OWNERS! New 4th Edition! "TOP SECRET" REGISTRY OF GOVERNMENT RADIO FREQUENCIES by K2AES! Reveals 50,000 listings: FBI, Secret Service, FCC, Border, Immigration, NASA, BATF, Treasury, CIA, Customs, military, etc. Only $9.95 (add $1 for speedy First Class Mailing). CRB Research, Box 56-WR, Commack NY 11725. (Free brochure.)

HAVE RECOVERED AN AZDEN, believed stolen (from a vehicle?) north of San Francisco near the beginning of the summer. If you can supply me with serial number and information that matches, I'll be happy to return it to you. Grover Cleveland, WA6WJV, (916) 273-4913.

TRADE PANASONIC TECHNIQUES stereo receiver SA80 plus cassette tape deck M6, $300 value, for box or set of precision machinist tools from retired toolmaker or machinist. W5QJT, 6020 Isabella, El Paso, TX 79912. 915/581-3671.

SELL 3,000 asst'd new receiving tubes at $1.00 each. Send me your list of required types. W5QJT, 6020 Isabella, El Paso, TX 79912.

ICOM-701 Matching power supply, speaker and microphone, $655. Mint with original boxes. 1.8MHz/30MHz, 2/VFO's built in, Rf processor, etc. Dentron MT-3000A 3kW antenna tuner 1.8/30MHz, dual meters, built-in dummy load, long wire, coax direct, etc., $235. Want Drake MN-2000, TS-120S. Pohorence, 364 Kilpatrick Ave., Port St. Lucie, FL 33452. (305) 878-7296.

"VERTICAL USERS: NOVICE TO EXTRA" — A book about relative efficiencies of all types of installations. Compliments received from Hustler, Butternut, 73, Ham Radio, Worldradio, Bill Orr & Barry Goldwater. $3.95 + $1 postage/handling. DANRICK ENTERPRISES, 213 Dayton Ave., Clifton, NJ 07011.

VERTICAL FANS! The boys call it "Son of Vertical Users" but the book's real name is "Comments, Hints, Suggestions & Criticisms by Vertical Users." It's brand new and offers a ton of info for $3.95 + $1 postage/handling. DANRICK ENTERPRISES, 213 Dayton Ave., Clifton, NJ 07011.

QSLS. QUALITY AND FAST SERVICE FOR 22 YEARS. Include call for free decal. Samples 50¢. Ray, K7HLR, Box 331, Clearfield, UT 84015.

SOLID BRASS BELT BUCKLES. Name or call, one line-$7.50. Name and call, two lines-$8.50. Add .75 shipping. S. SLONIM, 320 Rose Street, Massapequa Park, NY 11762.

SELL: NEW IN BOX — Pierce-Gladding Catalina ship to shore-$180. Yaesu 227RA, mint-$235. Drake TR22C full-$100. Regency HR6 4 sets, 10 hrs-$140. Henry 8010 2m amp.-$80. Want-2m amp. SSB 500 Watt range. WA1ZUB, (617) 476-7600.

STANDOFF BRACKETS — assorted styles. Clamp to towers, screw to side of house, etc. Perfect for Ringo Rangers. Also custom made to solve your problems. Info — Box 9, Oaklawn, IL 60454. WD9IIX.

EMPLOYMENT

Classified ads for jobs wanted or positions offered will be run free of charge in Worldradio's MART.

TELETYPE TECHNICIAN: New York/New Jersey area. Commercial or military Model 28 depot level maintenance experience preferred. Bench and field positions available with stable growing company in business over 10 years. Top pay, growth potential and excellent company paid benefits including dental plan. Send resume or call to arrange interview. Van, W2DLT, Teleprinter Corporation of America, 550 Springfield Ave., Berkeley Hts., N.J. 07922. (201) 464-5310.

TELEVISION ENGINEERS — Immediate openings for experienced, qualified engineers for expanding state public television network operating 4 VHF and 15 UHF stations with studio facilities in Oklahoma City. OETA has excellent benefits, paid insurance and retirement. Send resume to: Assistant Director for Personnel, Oklahoma Educational Television Authority, P.O. Box 14190, Oklahoma City, OK 73113. Phone: (405) 848-8501, Instate Toll-Free (800) 522-9051, EEO/AA EMPLOYER.

EXCLUSIVE MICRO-80 DISTRIBUTORSHIPS being organized throughout the USA and Canada. Be your own boss, choose your own hours, unlimited earnings! Manufacturer prices, 100% product guarantee, international advertising. Experience volume business with area dealers, public school districts, government agencies and professional organizations. Send resume to MICRO-80 INC, W-2665 Busby Road, Oak Harbor, WA 98277.

WANTED — CAREER OVERSEAS — Asia preferred. L. Hamilton, KD6AU, P.O. Box CP165, Manhattan Beach, CA 90266.