Worldradio

December 1981 • Year 11, Issue 6 • 80¢

FCC amends station identification rules

PR Docket 80-136

The FCC has amended its rules governing Amateur Radio station identification so that radio operators will only have to identify their stations at the end of transmissions and every 10 minutes or less during a communication. In addition, the FCC deleted the requirement that operators identify the station with which they are communicating, except when international third-party messages are involved.

The Commission said the public interest will be served by relaxing the identification requirements because it will contribute to the most efficient use of spectrum in the Amateur Radio bands and will also benefit licensees. Since every Amateur Radio station will still be required to identify its own transmissions, the Commission said the amended rule will not adversely affect its monitoring activities or enforcement program.

The requirement that U.S. amateur stations engaging in international third-party traffic give the foreign station's call sign was retained so that FCC monitors could determine if the other station is in a country which has a third-party agreement with the United States. The Commission felt the retention of the requirement would discourage the exchange of third-party traffic with stations in countries where there is no agreement in effect.

The Commission also dismissed as moot a rulemaking petition filed by John M. Gebuhr requesting the identification time interval for transmissions lasting more than 10 minutes be increased from 10 to 15 minutes and that the rule requiring an amateur operator to give the call sign of the other station be deleted.

Action by the Commission 1 October 1981, by Report and Order and Order (FCC 81-461,462). Commissioners Fowler (Chairman), Quello, Washburn, Fogarty, Jones, Dawson and Rivera. □

New ERP output limitations?

PR Docket 81-697

The Commission has proposed raising the effective radiated power (ERP) output limitations for Amateur Radio repeater operations in the 6-meter band (between 52 and 54 MHz) to 100-800 watts and lowering ERP limitations for repeater operations in the 10-meter band (between 29.5 and 29.7 MHz) to 100-800 watts. Present limits are between 25 and 100 watts ERP and up to 1000 watts final amplifier input, respectively.

In proposing to amend Part 97 of the rules, the Commission stated that after studying electrical noise effects in the 6-meter band, it had concluded some adjustment was necessary in the ERP limitations to provide a reasonable community coverage area during mobile station operations, particularly in urban areas.

The Commission noted when it had authorized 10-meter repeater operation commensurate with other repeater operations, the number of such repeaters was relatively small and co-channel interference nonexistent. But today the increasing popularity of 10-meter operation has created a potential for serious co-channel interference.

Therefore, the ERP limits being proposed are a compromise between the competing objectives of providing reasonable community coverage, avoiding co-channel interference between adjacent communities and eliminating unnecessary complexity in the rules.

Comment and reply dates will be announced later.

Action by the Commission 30 September 1981, by Notice of Proposed Rulemaking (FCC 81-436). Commissioners Fowler (Chairman), Quello, Washburn, Fogarty, Jones, Dawson and Rivera. □

Philip Greentree, VK2DPN — the first person to win WAZ (Worked All Zones) Mobile — is shown here with his rig.

Australian wins the first WAZ Mobile

Ken J. McLachlan, VK3AH

Gaining the first WAZ (Working All Zones) Mobile is an achievement which enfolds a story you should have the opportunity of reading.

Philip Greentree, VK2DPN gained his VK Novice call VK2VUQ in February 1980, and as his profession involved him in driving some 40,000 miles per year along the lower north coast of VK2 (New South Wales), he was naturally interested in the concept of mobile DXing.

As VK Novices are restricted to 30 watts PEP output and the lower segments of 10, 15 and 80 meters, he operated a modified TS-120S with a helical whip on 10 meters and Australian-made SCALAR resonators for the 15- and 80-meter bands.

The two resonators were mounted on a common base and offset at 45 degrees to each other. This was attached to an aluminum tubular whip which was fed at a point above the rear of the mobile. This setup achieved DXCC — the first awarded to a VK with mobile endorsement.

Philip received his full call privileges in late 1980, and was able to complete DXCC single band on both 10 and 15 meters; and within five months, he had DXCC on 20 meters.

He upgraded to a Kenwood TS-130S and altered the duo-band whip by replacing the 80-meter resonator with 40 meters. The 20-meter whip replaced the 10-meter helical, which is now on the front fender, and this is used for local and short skip contacts.

The specially designed mobile antenna bases are made in New Zealand by B. G. Hutton, ZL3RJ and other hardware was designed by Don Howison, VK2DXH.

In August 1981, Philip received written confirmation from CQ's awards manager, saying he had been awarded the first ever WAZ Mobile. Now he only requires a card

(please turn to page 3)

Ford Special Event a success

Jay C. Abbott, KB8TC

The special event station W8FM, commemorating the opening of the Gerald R. Ford Museum in Grand Rapids, Michigan, was judged a success despite the loss of nine of the scheduled 25 hours the station was to be on the air. Sponsor of the station — the Woodland Amateur Radio Club — reported a total of 825 contacts were made. Among DX contacts were New Zealand, Ireland and Alaska. Forty-nine of the 50 states were included in the count.

At the time of this report, approximately 600 amateurs had sent their QSLs and would be receiving their certificates of contact as soon as confirmation was made and the call signs inscribed thereon.

Credit for establishing this special event station goes to three amateurs: Dan Ruiter, KC8KN; Doug Dykstra, WB8ZSI; and Bob Philipps, WB8ZAU. Cooperating in the adventure was the Amway Corporation, which obtained approval for the operation from Gerald Ford and also provided space for the station in the Grand Plaza Hotel — headquarters for the visiting dignitaries.

The Woodland Amateur Radio Club is especially grateful to George White, W8FM for permitting the use of his call sign which was so appropriate for the occasion.

Supporting the activities of the station were 17 Amateur Radio operators from western Michigan who volunteered to take shifts. Each operator had to be cleared through the Secret Service in order to gain admission to the hotel once the dignitaries, including the four heads of government — Mexico, Canada, France and the United States — had arrived. The antenna, incidentally was directly above President Reagan's suite.

Among the many obstacles which had to be overcome to put the station on the air was securing more than 200 feet of coaxial cable required to reach the roof top of the hotel from the operating site.

At the appointed time, the rig was fired up without a hitch. Everything pointed to a complete success. It was at 6:00 p.m. EDT that disaster struck the operators.

It seems the station was inadvertently located directly along the Secret Service designated route over which the heads of state would be traveling to and from dedication events. Orders were given to W8FM operators that they had 30 minutes to remove the equipment and be clear of the hotel.

(please turn to page 3)

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
David Tykol, WA6RVZ
Jack Schwartz, WA6TRZ
Norm Brooks, K6FO

December 1981 Vol. 11, No. 6

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.

Stolen

Shirley Rex, K8MZT

On 27 October between 5:05 and 7:50, somebody entered our place of business and walked off with a TRS80 Model 2 Serial 64019239 and the Line Printer 5 Serial 0w3005. If spotted, please call your local police and have them contact the Stark County Sheriff's Department, Ohio.

A radiogram to us would be most appreciated also. There were many things of value within easy access: $900 telephone Modem; several hundred dollars worth of disks and other software; six electronic calculators; three IBM typewriters; and two commercial two-way radios.

Would appreciate anything you can do. My husband's name is Charles J. Rex, K8MZS. □

••••••••••

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.

Say hello to Hawaiian school

Submitted by Emil Bruner, KH6HHM

McKinley High School Amateur Radio station (KH6NF) is trying to make contact with teenagers and young adults around the world. McKinley High School is the oldest public high school in the state of Hawaii; it is 116 years old this school year.

We are located in Honolulu, just minutes away from the famous Diamond Head Crater and Waikiki Beach. Our student population is just over 2,000 students and would rival the United Nations with our diversity of culture and national heritage.

The club station has been in operation since 1966, but this year we are making a special effort to contact other club stations and younger members of the Amateur Radio Society. We are inviting everyone to join us on the bands and make this year an outstanding one for the youth in Amateur Radio.

Our hours of operation will be from 1730Z to 1815Z; 0045Z to 0130Z Monday through Friday; 2000Z to 2130Z Monday, Wednesday and Friday. At present, we operate on 10 meters, 28.520 MHz ± QRM. If 10 meters closes up, we will operate 21.420 MHz or 14.320 MHz.

If you are unable to contact us because of poor band conditions, please drop a line to set up a schedule and we will do our best to have a QSO with you. Our address is McKinley High School Amateur Radio Station, 1039 S. King Street, Honolulu, HI 96814. Until we meet you on the air . . . aloha. □

Contact Worldradio for hamfest prizes.

Network to air 'Secure Communications'

Ed Piller, W2KPQ

Gene Hart, Technical Director of Fairchild Weston Systems, Inc., Syosset, New York, will present a talk on "Secure Communications" on Wednesday, 9 December 1981 at 8:30 p.m. over the IEEE/LIMARC (Institute of Electrical and Electronic Engineers/Long Island Mobile Amateur Radio Club) 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 IEEE and 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 "Spread Spectrum Communications" and "Direct Broadcast Satellites." Other information can be obtained by calling Ed Piller, W2KPQ, Net Director, at (516) 349-2484.

Slide show for rent

Tania Miller, WB9TKC

About a year and a half ago, 85 23-channel rigs were donated to the Marissa Amateur Radio Club (MARC). It became a club project to convert them to 10 meters FM. Seeing its popularity, Bob Heil, K9EID began to manufacture kits for the CB conversions, and wrote a book now available just about anywhere you buy ham gear — *The 10-meter FM Handbook*. Now he manufactures 10-meter FM transceivers and supplies all parts for kits, conversions, etc. Next, he put this slide show together; it is presently available to any radio club that wants to spark more interest in 10 meters FM. It was shown at this year's Hamvention in Dayton, Ohio, where Bob had the main forum.

Just write to Box 68, Marissa, IL 62257 for rental of the slide show.
—MARC Harmonics Newsletter □

CONTENTS

Pilgrim in Finland

Wayne Gingerich, W6EUF of Long Beach, California made his annual pilgrimage to Finland in July and operated as OJ0AM from Market Reef, 13-21 July. The Helsinki DX gang and amateurs from Turko, Finland were also in attendance and 16,400 QSOs were made on all bands — 160 through 10 meters.

The operators were: W6EUF; Miika Heikinheimo, OH2BAD; Martti Laine, OH2BH; Olli Rissanen, OH2BBM; Jorma Saloranta, OH2KI; Jukka Aller, OH1GL; SM5GMG; Turun Radioamatoorit ry, OH1AA; and OH0MA.

Conditions were very good on the upper bands and only fair on 40 and 80 to the USA.

W6EUF also operated portable OH0 Aland Islands, OH3, OH2, OH9 (Lapland above the Arctic Circle) where we journeyed to in a Piper Cherokee.

All QSLs are via OH2BAD in Helsinki. We hope for JW-JX in 1982. □

Australian

(continued from page 1)

from Bassiouni Ahmed Bassiouni, SU1BA to also obtain this honour on 28 MHz (10 meters). He only requires Zone 2 — a hard one for VKs — to repeat his WAZ Mobile achievement on 15 and 20 meters.

His DXCC stands at 226 worked mobile (206 confirmed) and needs 13 more zones to achieve the first ever CQ 150 Zone plateau, mobile.

His XYL, Mary Christine, and his young family support his activities. They know he has company with his rig when he is away from the QTH. □

Philip Greentree, VK2DPN stands next to his car, which is equipped with the antennas that helped him win WAZ (Worked All Zones) Mobile.

Ford Event

(continued form page 1)

Operations continued until the last possible moment, and then with the escort of two Secret Service men the amateurs were escorted to the door and told they could not return until 2:00 p.m. the following day.

For those operators who searched for W8FM during this downtime, the Woodland group offers this explanation. In view of world conditions as they are, they trust their fellow amateurs will understand.

Mail is still arriving from amateurs and is being processed as quickly as possible. The certificates of contact should be in the mail within a very short time. □

The special event station commemorating the dedication of the Gerald R. Ford Museum was not without help of the XYLs, as pictured here with Jody Steggerda, N8ALJ at the mike; Doug Dykstra, WB8ZSI is logging; Dan Ruiter, KC8KN is at her right; and George White, W8FM (right rear) lent his call sign of W8FM to the project. Picture was taken just three hours after station went on the air with more than 200 contacts in the log. ***(Photo by Jay Abbott, KB8TC)***

License revoked

FCC Administrative Law Judge Thomas B. Fitzpatrick has revoked the license of Armando M. Rodriguez of Hialeah, Florida for radio station WD4FPY in the Amateur Radio Service and suspended his Amateur Advanced Class operator license for term for willful and malicious interference with a repeater station's communications.

He also determined that Elio Mencia, Rodriguez' cousin and the licensee of Amateur station KA4DWA, was not guilty of similar interference and vacated an order to show cause why his license should not be revoked.

In early October 1979, Rafael M. Estevez — president of a Miami-based Amateur Radio group called the Sociedad Internacional De Radio Aficionados, Inc. (SIRA) — asked Southern Bell Telephone & Telegraph Company security to monitor SIRA's repeater station, due to interference which had been going on since May of that year.

Southern Bell determined that on 4, 16 and 19 October, telephone calls were made from Rodriguez' residence to the SIRA repeater, and on 27 October, calls were made from Mencia's home. Moreover, Estevez and two other SIRA control operators identified Rodriguez as the caller on several occasions.

As for Mencia's part, Judge Fitzpatrick pointed out that Rodriguez had been visiting his cousin on 27 October and had ready access to Mencia's telephone. Apparently, the comment heard by Estevez and attributed to Mencia, he said, was in the background and Mencia had not known about Rodriguez' call to SIRA. The judge added that since Mencia has been an employee of Southern Bell for over nine years, it was unlikely he would jeopardize his position by providing his cousin with an unlisted telephone number, even had he been able to obtain it.

The initial decision becomes effective in 50 days unless there is an appeal by one of the parties within 30 days or the Commission moves for review within that period. □

The 1982 Delta Division Convention

The 1982 Convention will be held in Knoxville, Tennessee as part of the 16th Annual Greater Knoxville Hamfest.

The hamfest will be held at the Bearden High School in Knoxville, the site of the 1981 hamfest. The dates are Memorial Day weekend, 22-23 May 1982. This will be during the World's Fair. Due to the World's Fair, early reservations are encouraged to assure lodging.

Information is available from the following sources: **Division Convention:** Ray Adams, N4BAQ, 5833 Clinton Highway, Suite 203, Knoxville, TN 37912. Day: 615-573-9799. Night: 615-687-5410. **Lodging:** Knoxvisit, 901 E. Vine, Knoxville, TN 37901. 615-971-1000 (Hotel/Motel). 615-971-4000 (Other). **World's Fair:** 1982 World's Fair, P.O. Box 1982, Knoxville, TN 37901. 615-971-1982. □

YLRL Convention

Mark your calendar and start feeding the piggy bank! The next YLRL convention is to be held in the Virginia suburbs of Washington, D.C., the weekend of 18-20 June 1982.

The Washington Area Young Ladies' Amateur Radio Club (WAYLARC) is sponsoring the convention with management assistance from the Northern Virginia Amateur Radio Council (NOVARC). Big plans are well under way. To get on the mailing list for update information, send an SASE to WAYLARCS YLRL Convention Committee, 2012 Rockingham Street, McLean, VA 22101. □

AACS alumni meet

The fifth annual Army Airways Communications System (AACS) alumni meeting was held in Tucson, Arizona 15-18 October 1981. The alumni include 83 Amateur Radio operators who were members of the AACS during World War II. Since 1961, the name has been changed to Air Force Communications Command (AFCC) with headquarters at Scott Air Force Base, Illinois.

The amateurs in this group of former air traffic controllers, air/ground and point-to-point operators formed an amateur net, which will meet every Friday on 21.397 MHz at 2000 UTC. All amateurs who were members of either AACS or AFCC are invited to join.

Those desiring to get on the membership roster should write to Peter Onnigian, W6QEU, 1236 40th Ave., Sacramento, CA 95822 with an SASE for further information. □

Pitcairn Island fuel fund

Dr. Charles M. Moser, W6HS
Anthony Cimildoro, W5TWG Tulsa, Oklahoma
Jim Foster Jr., K7ZFG Klamath Falls, Oregon
Dale Diehl, K5WUF Oklahoma City, Oklahoma
Bob Wilson, K1GVA Portland, Maine
Herb Williamson, K7LYT Renton, Washington
Dave Remont, KA5JWE Covington, Louisiana
Jack Kamm, WA9OHU Elmhurst, Illinois
Kirsti Jenkins-Smith, VK9NL Norfolk Island
Jack Schrader, WB1DPK Manchester, Maine
Ed Crowthers, WD8MQJ Hamilton, Ohio
R.S. Teaney, WD4JEQ Erlanger, Kentucky
Gerhard Jaeger, DF2RG Schwandorf, WEST GERMANY
Erwin Mattes, WB6ZUT Redondo Beach, California
Sam Farmer, KB9TN Palatine, Illinois
Tony Underwood, WA4IAI Powder Springs, GEORGIA
Harry Bruce, WA4GKT Madison, Tennessee
Arnold Geith, VE4IX Virden, Manitoba, CANADA
Julian Topolski, AA0I/5 Plano, Texas
Jim Minor, K7ELX St. Helens, Oregon
Robert Swann, WD6BSD Anaheim, California
Jerry Hamlow, KB9YP Bloomington, Illinois
Gary Schroeder, N8AOA Romulus, Michigan
Gerry Decker, K6BPY Mariposa, California
Jim Barnett, KA5KPO Garland, Texas
Deane Coats KA6AVC Sacramento, California
Fred Lucas, K1EFI Brookfield, Connecticut
Roy Hancock, WA6YMI West Sacramento, California
David Meacham, W6EMD Redwood City, California
Bill Folstadt, W5KUY Garland, Texas
Irene Morgan, WB7WQE Ferndale, Washington
Total $219.00 □

Book Review

DX IS!

Norm Brooks, K6FO

Nobody had a better grasp on what makes a DXer tick than Hugh Cassidy, WA6AUD, otherwise lovingly known as "Cass." From the late 1960s to July 1979, he published the *West Coast DX Bulletin*, which became regarded as the premier DX bulletin in the world. He had a weekly circulation of 3,200 subscribers worldwide.

As noted by the editors, "Cass had an insight of the forces that drive a DXer, and a splendid ability to communicate these qualities without becoming ponderous."

As you know, a DX bulletin tells its readers about which DX stations are currently active and the frequencies and times they may be found. It gives news of DXpeditions, propagation predictions and other things of interest to DXers. Cass went one step further. As stated by the editors, "He most often chose to express himself about current DX events through the mechanism of topical vignettes at the end of each bulletin. These vignettes usually consisted of a dialog between himself and one of the many 'local QRPers,' but sometimes he had to enlist the Old-Timer for support. In this way we were introduced to the Eternal Enigmas, the Mysteries of the Ages, and the knowledge that comes only to the True Believers.

"In such a setting, his characters were able to expound upon the DX problems of that day. He regularly took on such controversies as DXCC rules, list operations, Slim, and the pleasure/pain of receiving your DXCC 300 endorsement."

The editors have taken the best of these vignettes and compiled them in the book *"DX IS!"* They have combined them into 19 categories wich such intriguing titles as The True-Blue DXer, The One that Got Away, Slim and None, Harmony with the XYL, and Hugh and Cry.

If you are a DXer, you will be able to relate to many of the situations brought up in this anthology. If you're not a DXer, or are critical of DXers, you too will find plenty here to cause you to smile.

This book is a winner. You'll be glad you bought it.

DX IS! The Best of the West Coast DX Bulletin. Edited and published by Charles T. Allen, W5DV and James M. Allen, W6OGC. Price is $7.95 plus $1.50 shipping and handling; California residents add 48 cents. Order from W6OGC, 1200 Third Avenue, Suite 1200, San Diego, CA 92101. □

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 October 1981.

Radio District	Group A	Group B	Group C	Group D
0	KN0L	KC0IC	N0DCJ	KA0MIR
1	KF1O	KA1VK	N1BTW	KA1HTS
2	KQ2R	KC2HP	N2CXZ	KA2NRG
3	KF3C	KB3UV	N3CKS	KA3IDJ
4	NS4M	KE4AJ	N4FQI	KA4WHL
5	KU5B	KC5ZM	N5DXB	KA5MLV
6	NE6R	KE6HK	N6FHO	KA6RIC
7	KN7O	KC7IO	N7DFQ	KA7LNE
8	KR8I	KC8NG	N8DGV	KA8OBX
9	KJ9K	KC9HB	N9CQN	KA9LVR
N. Mariana Is.	AH0A	AH0AA	KH0AC	WH0AAE
Guam	AH2M	AH2AL	KH2AS	WH2ACY
Johnston Is.	AH3A	AH3AA	KH3AB	WH3AAB
Midway Is.			KH4AC	WH4AAF
Hawaii	NH6L	AH6DJ	KH6PG	WH6AQP
Amer. Samoa	AH8A	AH8AB	KH8AB	WH8AAM
Wake Wilkes Peale				WH9AAA
Alaska	WL7F	AL7DB	KL7QM	WL7ARS
Virgin Is.	KP2B	KP2AG	NP2AM	WP2ACV
Puerto Rico	NP4G	KP4ED	NP4DO	WP4CAC

Special Events

Pearl Harbor

A group of amateurs headed by Rex Gossett, KH6BD have decided to conduct a special event station in Hawaii.

It will be a two-day ham session on the air to commemorate the attack on Pearl Harbor 40 years ago. A special QSL card will be issued to all who establish two-way contact with KH6SP. The card will have a full color photo of the *USS Arizona* memorial along with descriptive captions. There will be no charge for this card, and all that is required is a QSL card with the information on the contact. They will also respond to all SWL cards.

The operating times will be: Friday 5 December 1981, 0200Z through Sunday 7 December 1981, 0800Z. Frequencies: 20 meters — CW at 14040; SSB at 14295. 15 meters — CW at 21040; SSB at 21370.

For QSL information, write to: KH6SP, NAVSUBASE, Honolulu, HI 96860. □

Fort Christmas

The Fort Christmas, Florida special event station will be operated by the Coronado Wireless Association on Saturday, 19 December 1981 from 1500 to 2400 UTC and Sunday, 20 December 1981 from 1300 to 2200 UTC.

Listen for Duane Van Winkle, K4HML on 7281, 14281, and 21381 kHz on CW, up 60 from the low end. For information, write to Duane Van Winkle, K4HML, P.O. Box 1, Edgewater, FL 32032. □

·DXpeditions·

Bethlehem DXpedition

The Triple States Radio Amateur Club will operate from Bethlehem, West Virginia from 17 December to 21 December from 1400 to 2300 UTC daily. Operating frequencies for WD8DDL/8 will be 7.275, 14.325, 21.425 and 28.550 MHz on SSB, and 7.110, 14.075, 21.110 and 28.110 MHz on CW.

A special holiday season card will be sent to all contacts. Send an SASE to TSRAC, 26 Maple Lane, Bethlehem, Wheeling, WV 26003. □

Rare Montego Bay

Randy Rowe, N0TG and Joe Markowski, N0WL, will be operating /6Y0 10-17 December from Montego Bay, Jamaica. This is only the second time this special prefix has been issued. Operation will be on all bands, usual frequencies, with lots of CW.

QLS via N0BZE, 12484 Sealane Drive, Florissant, MO 63033. Include SASE. □

Don't be bashful!
Write something for
Worldradio

The Rig That Filters The Crowd

TEN-TEC OMNI-C

OMNI-C has what it takes to filter the crowds. To narrow the Amateur Radio world right down to the particular signal you want. The selectivity, sensitivity, dynamic range and operational features you need to cut any crowd down to size.

Tailored i-f response. OMNI is equipped with the potential for ***seven*** response curves to handle any listening situation.

Standard filters include an excellent 8-pole 2.4 kHz crystal ladder filter and, in addition, a 150 Hz active audio cw filter with three ranges (450, 300, 150 Hz).

Optional filters include 1.8 kHz 8-pole crystal ladder ssb filter, 500 Hz 8-pole cw filter, and 250 Hz 6-pole cw filter.

Front panel switches put any optional filter in series with the standard filter for up to ***16 poles of filtering*** for near ultimate skirt selectivity.

Four i-f response curves for ssb and three for cw. That's response tailoring, that's crowd control.

Optimized sensitivity and dynamic range. The OMNI sensitivity range of 0.3 μV typical (slightly less on 160 & 80M) combines with a 90 dB dynamic range to provide an ideal balance that will handle any situation from copying a weak signal half way 'round the world to keeping the next-door kilowatt from muscling in. And a PIN diode switched 18 dB attenuator is included for extra insurance against overload.

More crowd-handling features—and all standard equipment.

Built-in notch filter. To drop out unwanted signals or carriers. Tunable from 200 Hz to 3.5 kHz, with a 50 dB notch depth.

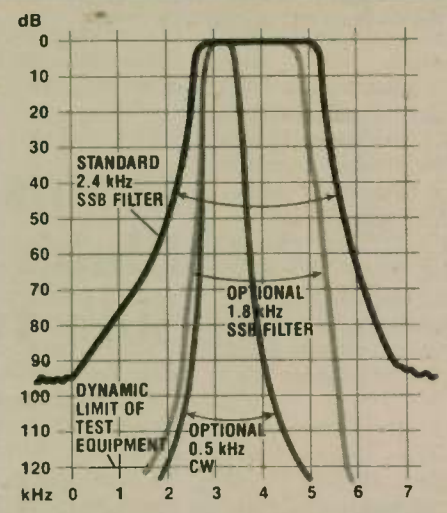
3-mode, 2-range offset tuning. To put you where the others aren't and where the elusive DX is. Move just the OMNI receiver, or just the transmitter section, or the entire transceiver, ±500 Hz or ±4 kHz. For complete freedom of frequency movement to get away from the crowds.

Built-in noise blanker for those times when your noise-generating neighbor is crowding your receiver. Filtered to handle the big signals easily.

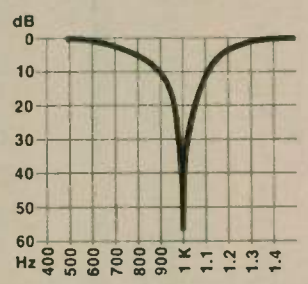
2-speed break-in. When QRM or QRN is heavy, switch to "Slow." Use "Fast" for instant, full break-in for enjoyable rag-chews or stalking DX.

OMNI-C features stand out in any crowd.

All solid-state—from the pioneer, Ten-Tec.



OMNI/SERIES C I-F RESPONSES WITH STANDARD AND OPTIONAL FILTERS.



NOTCH FILTER PERFORMANCE ADJUSTED TO 1 kHz POINT.

All 9 hf bands—only crystals are needed for 18 and 24.5 MHz bands.

Broadband design for instant band change without tune-up or danger of damage to the final amplifier. Another Ten-Tec *original*.

"Hang" AGC for smoother action.

WWV reception on the 10 MHz band.

Digital readout in two colors, red for the 5 significant places, green for the 6th digit (100 Hz). Instant recognition.

Separate receiving antenna capability. Switch receiver to a common antenna for transceive or separate receive-only antenna; the system also acts as receiving antenna by-pass with an instant break-in linear amplifier or transverter.

"S"/SWR meter, electronically switched.

200 watts input, all bands, with 50-ohm load. 5 year pro-rata warranty.

100% duty cycle on all bands up to 20 minutes. Full RTTY and SSTV power.

Built-in VOX and PTT with front panel controls.

Built-in phone patch jacks for easy interface.

Built-in zero-beat switch for spotting the exact frequency of a DX station.

Built-in adjustable sidetone volume and pitch.

Adjustable threshold ALC, optimum power for driving a linear. Provides means of working into a high SWR.

Front panel control of linear or antenna. The rear panel bandswitch terminals control relays or circuits in step with front panel bandswitch.

Automatic sideband selection plus reverse.

Low distortion audio, less than 2%; a Ten-Tec trademark.

Clean signal, exceeding FCC requirements.

High stability over wide temperature and voltage excursions.

Built-in speaker, compression-loaded; in bottom of cabinet.

Plug-in circuit boards for fast easy service.

12-14V dc power for easy mobile use.

Full complement of accessories:
Model 280 Dual Primary AC Power Supply, $169; Model 255 Deluxe Power Supply/Speaker Combo, $199; Model 243 Remote VFO, $189; Model 215 PC Microphone, $29.50; Model 214/234 Microphone/Speech processor, $39/$139; Model 645 Dual Paddle Keyer, $85; Model 670 Single Paddle Keyer, $39; Model 227 Antenna Tuner, $79; Filters $55 ea.

Made in the U.S.A.

Model 546 OMNI-C transceiver $1289

Get out of the crowds with OMNI-C. See your TEN-TEC dealer or write for details.

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

ARRL BOD focuses on clubs

The meeting of the ARRL Board of Directors in Hartford, Connecticut, 10 and 11 September 1981, was highlighted by acceptance and initial implementation of the recommendations contained in the Long Range Planning Committee Phase Two (LRPC) report. In response to the LRPC report, plans are to be developed for a higher level of ARRL club affiliation, providing greater advance recognition and motivation for clubs with effective programs to protect, promote and advance Amateur Radio at the local level.

Endorsed in principle were the concept of an ARRL Section Manager with broader responsibilities than the present Section Communications Manager position, creation of steering committees to assist directors at the division level, and reorganization of ARRL advisory committees to have one member from each division. Options for providing a more continuous ARRL presence in Washington, D.C., are to be studied. A program for training and certification of amateurs in emergency communications procedures and techniques is to be developed. Material to assist local groups in planning public service operating events is to be published. To encourage technical activity by amateurs, simple contruction projects for club use are to be developed and articles on equipment maintenance and repair are to be sought.

Several petitions and other filings with the FCC were ordered. ARRL will petition FCC to extend General Class phone in the 75-meter band to 3860-4000 kHz, and to permit beacon stations to operate under automatic control. An earlier action directing that Extra Class phone privileges be sought at 7075-7100 kHz was reversed, so no such petition will be filed. Comments were authorized defending amateur interests in the further FCC inquiry into radio frequency interference, Docket 78-369.

In operating matters, after a date to be established by the ARRL Awards Committee, credits for single-mode DXCC will not be granted for cross-mode contacts. The band plan for 160 meters proposed in August **QST** was approved, with some clarifications. Efforts by the DX Advisory Committee to combat unethical operating and QSL practices were recognized, and continued efforts urged.

The ARRL Technical Excellence Award was given to Dave Geiser, WA2ANU for his article in July 1980 **QST**, with honorable mention to Roy Lewallen, W7EL, and to O. Villard, W6QYT, D. Muldrew, and F. Waxham, K7DS for their articles in August and October 1980 **QST**, respectively.

Several studies were ordered, including the possibility of reduced membership fees for students and the disabled and possible changes in the RST system of CW signal reporting. Complete details on these and other Board actions will appear in November **QST**. □

Morris Radio Club's 50th Year

Ron Robinson, WB2QLO

Congratulations and Hip! Hip! Hip! Hurrah to the Morris Radio Club of Morris Plains, New Jersey, in celebration of its 50th year as an affiliated radio club in the ARRL. On 15 June 1981, the Morris Radio Club received special recognition from the ARRL in the form of a certificate for being among the oldest radio clubs in the country.

The certificate was presented by George Diehl, W2IHA, Assistant Director in the Hudson Division. George mentioned many of the changes in electronics that have taken place over the 50 years of the club. George said, "You people have had the opportunity to observe science's greatest achievements." George himself first got involved with Amateur Radio back in 1920. He brought in a few objects out of yesteryear: 1930 **QST** 25¢ tubes 201A, 199ux, 200A.

According to Ed Weed, K2BO — one of the oldest members of the club — the club first began in 1919, although no formal records. Ed said, "I joined up in 1923 or so (did they really have radios back then?). The group met informally over the years. Rich Taylor, N2AUG, president, and Ron Robinson, WB2QLO, vice president said, "It's an honor to reside over the club during this year with the club receiving such an award." Ron, WB2QLO said that a special thanks should be given to the charter members for their dedication, loyalty and accomplishments over the years.

In 1945 a nucleus of Amateur Radio operators including Guernsy Day, W2OYH; Art Lince, W2DAE; Bayman McWhan, W2GAX; and Ed Weed, K2BO founded the Morris Radio Club. Tom McCann, K2CM took the reins as the group's first president.

During the ensuing years, various locations within Morris County were used to conduct meetings, including Red Cross headquarters, the Morristown Trust Company, the National Guard Armory, Jersey Central Power and Light Company, and the QTH of Ron Levy, K2AIO. In 1978, the club moved to its present location — the Morris Plains Boro School.

The Morris Radio Club has always been a community-minded group. It can be proud of its design, construction and installation of the first air traffic control system at Morristown Municipal Airport. Over the years, the club has also provided radio communications for volunteer Morris County firemen during pumping drills, Halloween patrols and soap box derbies. The Morris Radio Club is an avid Field Day participant.

Most recently, — using the call K2AZ — the club placed first in the second call area, under Class 7A, and fourth place nationwide. Other recent activities have included Amateur Radio demonstrations at St. Clare's Hospital's Harvest Festival and at the Second Annual Heritage Celebration on the Green in Morristown. Our new mobile communications van has added a new dimension to our portable operating capabilities.

Recently the club instituted Novice and General Class study courses for all interested in obtaining an Amateur Radio license. These classes run 10 weeks and are given twice yearly at the Boro School, no charge. To date, well over 100 amateurs have obtained their ticket or upgraded from club-sponsored instruction. Many of these amateurs have matriculated into the club's membership.

Our individual members' interests encompass nearly every facet of Amateur Radio activity — from fighting the fierce 20-meter QRM in hope of snagging that rare DX QSL to chasing OSCAR 8 through the hemisphere. □

Lincoln ARC busy all year

Submitted by Mary Rea

Lincoln Amateur Radio Club operators joined radio amateurs throughout North America on their annual 24-hour Field Day, which started at 1:00 p.m. on Saturday, 27 June, near NW 48th St. and Hwy. 34.

Designed to test emergency preparedness, the exercise put up to six stations on the air simultaneously using emergency power only. These units, working around the clock, made as many contacts as possible with similar installations in the United States and Canada — about 1,156 contacts, according to Dr. Jerry Kohn, president of the Lincoln club. "We computer tabulated the logs," he said.

About 40 radio amateurs participated in the event, said Kohn, adding that four stations ran continuously and two ran intermittently. Two modes were used, including voice and Morse code.

Developing skills and equipment

A premium was placed on skills and equipment developed to meet the challenge of emergency preparedness and acquaint the public with the capabilities of Amateur Radio.

Power for the operation was supplied by a gasoline-driven generator owned by the Lancaster County Chapter of the American Red Cross. Other equipment was club-owned or loaned by area amateurs.

A number of local amateur operators were pressed into service about a year ago when tornadoes struck Grand Island. They relayed hundreds of messages between victims and inquiring relatives worldwide. The efficiency and promptness of such service, provided without charge, was enhanced by the practice gained in Field Day exercises.

The Lincoln club president said, "It was a good Field Day," adding that members picked up a few ideas, too, including better ways to put up and tear down towers.

How did it compare to other Field Days?

Hotter this year

"I can tell you this, it was hotter," he said with a chuckle. He added the turnout was slightly smaller because of the hot weather and the wind, but the enthusiasm shared by members was no less.

The Lincoln Amateur Radio Club, Inc., one of the city's largest service clubs, with over 300 members, regularly provides emergency communications services for the city and county. Members are on call for 15 of the 21 assigned tornado spotters points not covered by law enforcement officers.

In addition, they operate stations at the National Weather Service, Civil Defense Headquarters, the Red Cross Chapter House and weather radar installations.

Members participated in disaster drills, such as the 1 June exercise at Southeast Community College, and 8800 "O," and serve on Red Cross disaster teams and on the Civil Defense staff. They also provide communications for marathons, bike-a-thons, walk-a-thons, and citywide charity sales events.

This year, they participated in a display of emergency equipment at Havelock's Good Old Days on 16 May and in the General Aviation Open-House at the Airport on 14 June.

—Lincoln Sun, NE □

Building 549 again in use

The Marin Amateur Radio Club and the DOD (Department of Defense) Housing Facility in Novato, California have established a Memorandum of Understanding which assigns Building 549, the former USAF MARS radio station site at Hamilton Field, to the Marin Amateur Radio Club. The club plans to refurbish the building, use it for meetings, classrooms, emergency communications equipment storage and as a site for Amateur Radio stations. The club will provide radio operating facilities to the Novato Fire District and emergency radio communications support to the DOD Housing Facility.

The Marin Amateur Radio Club is an association of Amateur Radio operators and people interested in Amateur Radio. It provides emergency radio communications to the County and to the American Red Cross, support communications for community activities, and conducts Amateur Radio licensing classes for the public. □

Morse Telegraph Club meets again

Dr. W.C. Hess, President, Morse Telegraph Club

The Southern California Chapter of the Morse Telegraph Club held its usual huge annual meeting at the Brookside Club in Pasadena on Saturday 25 April, where over 100 happy celebrants of Professor Morse's birthday once again gathered to honor his memory, in addition to enjoying a day of fun for themselves.

While the Morse Telegraph Club has always been open to membership to retired or active professional wireless operators, for many years its membership consisted almost 100 percent of telegraphers who used the American Morse Code in their work. This situation started to change in 1971 when the Board of Directors of the Morse Club had the fact called to their attention that Amateur Radio operators are also skilled in telegraphy, and in fact, have a license from the government to prove it.

Realizing that approximately half of the members of the Southern California Chapter are Amateur Radio operators, Dr. Hess, W6CK — Chapter President for the past nine years — commissioned Chapter Vice President A. Kenneth Johnson, W6FU to construct a radiotelegraph line to be used at the chapter meetings with two mythical stations "P I" (Pitcairn Island) and "F I" (Fiji Island), so that amateurs at future chapter meetings will have a circuit available where they can try their "fist" using International Morse Code.

Doors opened at the meeting at 10:00 a.m. with all circuits in full operation. Introduction of celebrities included Mr. Walter E. Girardin, who during his career with Western Union, rose from messenger boy to president of that company; Mr. Samuel F. B. Morse III, great-grandson of Professor Morse; Mr. Henry Giles, president of the Retired Western Union Employees Association of Southern California; and Mr. Ray E. Meyers, W6MLZ, world-famous amateur who has recently been elected to the Amateur Radio Hall of Fame.

Following luncheon, the same musical group which had "brought down the house" at the 1980 meeting again performed, much to the delight of the audience. After a short intermission, Bob Jensen, W6VGQ, retired after 38 years with NBC as an audio engineer, presented a wonderful slide show detailing the history of radio and television from their earliest origins to the present. He was assisted by his wife, Lenore Kingston Jensen, W6NAZ, an actress. She formerly performed on NBC radio and television, and is currently involved in publicity work for the American Radio Relay League.

George H. Trivett, 95½ was the oldest member in attendance. He was accompanied by his wife Anne and their sons who came all the way from the state of Washington to bring their parents to the meeting. Mr. Trivett, Sr. looks and act as if he could run the 100-yard dash in about 10 seconds and is "sharp as a tack" mentally.

Bert F. Ayers, W6CL and Ray A. Furlong, W6QIL, president and vice president, respectively, for the Southern California Chapter of the Quarter Century Wireless Association were awarded plaques at the meeting in recognition of their services in recruiting new members for our chapter, even to the extent of paying the dues of such new members.

Chapter members, keeping in mind the old adage that there is no point whatsoever in changing an arrangement that is working well, re-elected the present chapter officers for a period of two years.

Following a drawing for many door prizes, the meeting was brought to a conclusion during the rendition of the song "Auld Lang Syne" while everyone joined hands in the manner used at farewell parties aboard ships.

Pictured above at the 1981 meeting of the Southern California Chapter of the Morse Telegraph Club on 25 April are (left to right): Mr. Ray E. Meyers, W6MLZ, world-famous Amateur Radio operator who was recently named to Amateur Radio's Hall of Fame; Mr. Samuel F. B. Morse III, W6FZZ, great-grandson of the inventor of the telegraph; Mr. Henry Giles, president of the Retired Western Union Employees Association; Dr. W. C. Hess, W6CK, president of the Morse Club for Southern California; and Mr. Walter E. Girardin, who rose from messenger boy to president of the Western Union Telegraph Company. *(Photo credit Bob Jensen, W6VGQ)*

Readers of **Worldradio** may join the Morse Telegraph Club (MTC) by sending $5 dues to Dr. Hess, P.O. Box 19-M, Pasadena, CA 91102, which will result in their receiving MTC's fine, quarterly slick-paper publication **Dots and Dashes**. While it is not mandatory, new members may — if they wish — include in their letters to Dr. Hess a separate sheet of paper with their "history," such as where and when they learned to telegraph, their occupations and anything else of interest. A few lines will suffice, but more may be submitted if desired. Such histories will be published in **Dots and Dashes**.

MTC will celebrate its 40th anniversary next year. □

Pennsylvania XYL active club member

Jane Johnson, K3RIH

Every Amateur Radio club should have an Ann White. This active lady, WB3HVE, does nothing half-heartedly. When she volunteers, the job gets done.

Three area clubs are lucky enough to have her for a member. They are the Delaware County Amateur Radio Association, the Philmont Radio Club and the Mid-Atlantic Radio Club.

When a banquet is a success, you can bet Ann organized it. When refreshments are needed, Ann will be there. When there is a hamfest, HVE will be cooking and serving her funnel cakes. The night before the picnic, it will be Ann and hubby Jerry, WB3FPU, icing the soft drinks. When the club decides to get personalized jackets, it will be that special lady patiently writing down names and sizes.

She became an amateur in 1977 and only one of her four children have succumbed to the Amateur Radio bug. That's 15-year-old daughter Carol, who is KA3ELG. Her brothers Brian, Charles and Dave enjoy the social aspects of the hobby but have not actively joined it.

Ann White, WB3HVE and her boss, pharmacist Bob Wasserman, WB3CND.

The Whites are active in the clubs and Jerry contributes through his computer interest. When Ann is net control on one of the nets, she reads from one of the printouts provided by her computer-oriented husband.

Radio is a spare time activity for Ann, and when you see the rest of her schedule one wonders how she does so much. Ann works five days a week in the Sproul Pharmacy in Springfield, Pennsylvania, close to her Prospect Park home. She works for pharmacist Bob Wasserman, WB3CND.

Bob calls Ann a tremendous worker. "During a family illness last year, Ann came to work in the store," he said. "I was really in a bind and she came in and was an angel of mercy. Her heart is bigger than anyone I know." He added fondly, "She is not an employee, she is a friend."

Sproul Pharmacy is perhaps the only drugstore in town where Amateur Radio is monitored all day and where both druggist and clerk run for the mike to answer a call.

Evenings, Ann works giving liquid embroidery parties and she has made many attractive things herself.

She enjoys learning new things and is currently going to "Ham" school to upgrade her skills. She is also taking typing and piano lessons.

Every Wednesday evening, WB3HVE has a code practice session on the air.

During the summer months, the Whites take off in their camper for the weekend and their QSOs can be heard from their favorite campsite talking to friends back home.

Lucky radio club to have such a member. People depend on this willing and capable lady, and she never lets them down. □

• People reaching People •
Amateur Radio is what Worldradio is all about.

Lisa Beam sits at the station in Shriners Hospital.

Lisa kept busy at hospital station

Mac Owens, W7AMR

Lisa Beam is a ham — Amateur Radio operator, that is. Her call is KA7IPS, Novice Class. She is 12 years old and has had her call for a year.

Lisa was admitted to the Portland Unit of Shriners Hospital for Crippled Children in May, for foot problems. The day she was admitted, she had to pay a visit to the hospital Amateur Radio station before she even unpacked her bags.

On the Sunday morning net, Lisa became acquainted with many members of the Northwest Shrine Amateur Radio Club (meets Sunday 0900 PDST 3925, and Wednesday 1930 PDST 14.280) through contact on the air over the club station at the hospital. The photo, taken at that time, shows she was well on the way to recovery.

On International Shrine Hospital Day, 17 May, Lisa had the chance to personally meet many of the amateurs whom she had met on the air, as the Shrine Amateur Radio Club had their semi-annual meeting at that time.

The Club had its dinner on Saturday evening, 16 May, at the Air Base Officers Club, Portland International Airport. Shriner amateurs from all over the Northwest met to program the future activities of their stations at the Portland and Spokane units.

On Sunday, 17 May they toured the Portland Unit Hospital and operated the hospital Amateur Radio station. There they met and became acquainted with Lisa.

The Club voted to make Lisa an honorary member of the club and promised her that if she got her General Class license, she would receive equipment for a complete ham station from the Northwest Shrine Amateur Radio Club.

In addition to the club's business meeting and visit to the hospital, many messages were sent out and received for the patients. The friends and relatives all look forward to these Sunday morning messages. □

The hearing on the proposed suspension and revocation of the licenses of W1GM and K4MME will be 24 November at Washington, D.C. Licensees Morin and Boucher have been interfering with the operation of the Maritime Mobile Net. See "Highlights," the July 1981 issue of *Auto-call* — pages 8-9, and the August issue of **Worldradio** — page 10, for the details of FCC's suspension and revocation proceedings. Unfortunately, some reports (e.g. *HR Report* 06/26/81 and **Worldradio** 10/81/page 2) use the term "suspend*ed*" prematurely! Section 303(m)(2) of the Communications Act of 1934 states:

"No order of suspension of any operator's license shall take effect until 15 days notice in writing thereof, stating the cause for the *proposed* (emphasis added) suspension, has been given to the operator licensee who may make written application to the Commission at any time within said 15 days for a hearing upon such order. The notice to the operator licensee shall not be effective until actually received by him, and from that time he shall have 5 days in which to mail the said application.

"In the event that physical conditions prevent mailing of the application at the expiration of the 15-day period, the application shall then be mailed as soon as possible thereafter, accompanied by a satisfactory explanation of the delay. Upon receipt by the Commission of such application for hearing, said order of suspension shall be held in abeyance until the conclusion of the hearing which shall be conducted under such rules as the Commission may prescribe.

"Upon the conclusion of said hearing, the Commission may affirm, modify or revoke said order of suspension."

It should be obvious that failure to request a hearing by the deadline results in the suspension becoming effective 15 days after receipt of the order of suspension. When the Commission proposes to revoke a *station* license, it issues an order to show cause why an order of revocation should not be issued, and calls upon the licensee to appear at a hearing at a stated place and time. If the licensee waives a hearing, (or after a hearing if the licensee doesn't waive the hearing), the Commission may then determine that an order of revocation should be issued and does so specifying an effective date and the reasons for revocation. For more details, see Section 312(c)(d) of the Communications Act of 1934.

•

"Deregulation of Amateur and Personal Services" is included in "A Working Paper" recently released by FCC's Office of Plans and Policy. Expansion of the Personal Radio Service toward more mobile business type usage occupies the bulk of the report. However, reduction of code requirements, increased privileges for Technicians and encouragement of more experimentation are some of the ideas relating to the Amateur Service presented in the document. As an example, they speculate that: " . . . a 'digital class' or similar license which could allow competent licensees to operate on VHF amateur bands without passing Morse code tests may be desirable."

•

Streamline Gettysburg and get the licenses out faster is an expressed goal of new Private Radio Bureau Chief Jim McKinney.

•

Henry M. Rivera is the latest FCC Commissioner to take office. This fills out the last vacancy of the total of seven commissioners permitted by the Communications Act. Mr. Rivera has been a member of an Albuquerque, New Mexico law firm, and is experienced in regulatory law.

•

10, 18 and 24 MHz Amateur Band beacon operation has been authorized by FCC. Bob Haviland, W4MB of Daytona Beach, Florida has been authorized to operate at 3 watts, using his experimental station call sign KK2XJM. According to *HR Report* (09/11/81), Bob expected to start on 10 MHz in mid-October. 30 watts may be used later if there is no resulting interference to other services in the bands.

•

FCC listened to views of the public on communications policy in an open meeting which was held at Washington, D.C. on 7 October. Persons wishing to participate were required to furnish a brief outline of subjects they wished to present to FCC's Director of Public Affairs.

•

Senator Goldwater thinks the plain language rules changes " . . . have been stopped for the time being, and I think when we get better acquainted with the new head of the FCC we can forget all about them." This is a quote from the Senator's letter to the licensee of KAØJYZ, reported in the 11 September 1981 issue of *HR Report*.

•

QST's report on FCC's RFI Report and Further Notice of Inquiry in the September issue of the magazine, pages 9 and 58, is quite extensive, *very* revealing, and recommended reading. On page 10 of the same issue of **QST** is a report of several FCC actions against cable TV companies for causing interference on amateur and aviation frequencies!

•

The ARRL has filed opposition comments to FCC's proposed deletion of 25 MHz and 80 MHz from the 1215-1300 and 2300-2450 MHz amateur bands. The window for filing comments was only 32 days after the 7 August 1981 release date. This is from FCC's Third Notice of Inquiry on implementation of WARC '79, Docket 80-739. (*HR Report* 09/11/81) □

New digital codes

Docket 20777; PR Docket 81-699

In response to a rulemaking petition by the American Radio Relay League (ARRL), the Commission (FCC) is proposing to amend Part 97 of its rules to permit the use of new and experimental digital processes by Amateur Radio operators.

Currently, the only digital codes authorized for amateur use are ASCII (American Standard Code for Information Interchange) and the Baudot code. Such limitations may be discouraging the kind of innovation in the Amateur Radio Service the Commission has explicitly sought to encourage. For example, in 1976 the FCC began a rulemaking in Docket 20777 to deregulate Amateur Radio by eliminating emission type restrictions. Because of comments filed in that proceeding, the Commission decided not to relax emission requirements but did authorize amateurs to use the ASCII code.

Because Docket 20777 is dated, the Commission is terminating that proceeding and associating ARRL's request with a new digital coding proceeding.

The FCC proposed authorizing the use of any digital code in the transmission of Amateur Radio communications on frequencies above 50 MHz for domestic communications only. The frequency limitation is intended to protect operations in other countries from possible interference

...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) 12

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!

from the transmission of nonstandard codes.

Stations would still be required to identify themselves using conventional voice or telegraphy and would be required to maintain a record of the codes used and provide that record to the FCC on request. At any time, the FCC could restrict or prohibit the use of codes other than ASCII or Baudot by certain stations. These provisions are intended for monitoring and enforcement purposes.

The FCC further proposes to authorize an additional emission mode for ASCII in certain bands, increase ASCII sending speeds in certain bands and clarify requirements by replacing the term "baud" with "bits per second."

In a related matter, the FCC denied a rulemaking petition requesting amendment of Part 97 by replacing the table of authorized emission types with a table of authorized bandwidths. This petition is being dismissed because it is inconsistent with the FCC's findings in Docket 20777.

Action by the Commission 1 October 1981, by Fourth Report and Order and Notice of Proposed Rulemaking (FCC 81-458 and 81-459). Commissioners Fowler (Chairman), Quello, Washburn, Fogarty, Jones, Dawson and Rivera. ☐

Briem's new call

Talk-show host, Ray Briem, of KABC Los Angeles has upgraded and now sports N6FFT. He was spotlighted in "Who's Who in Amateur Radio," **Worldradio**, September 1981.

Ray's determined to stay off phone until he is comfortable at 13 wpm, so look for him on 15-meter CW, afternoons and early evenings.

Meanwhile, he's working the world and sharing his enthusiasm for Amateur Radio with his callers-in, continuing to create untold good will for our service. ☐

USQS is now free!

Laryl Myers, N7BMY (now KM7Z)

U.S. QSL Service, Inc. is now a *non-profit corporation* and no longer charges any handling fees! For the last two years. USQS has offered a QSL Bureau for USA/Canadian amateurs to QSL each other. Our idea was that it would be very helpful to have one central bureau to which everyone could send U.S./Canadian-bound QSLs. The problems of not having a recent Callbook, a new address for an amateur who has moved, no address for someone with a new call sign or QTH, the new amateur who is not yet in the book, the cost of postage for each card to be mailed, etc. were our targets. Knowing it would take a bit of money to get the service known, we set up the bureau with a charge of 25 cents for each 20 QSLs. Actually this didn't begin to cover the expenses, but it helped.

Now, after two years of operation, the ball is starting to really roll. We wish to thank all who have given us a chance, and those who patiently wait for their SASEs to be returned. The idea was to get SASEs back with several cards, but in the beginning of any business you have to expect things to be light. Well, in our past year we have become aware of a need for a change. It bothered some people to say "QSL via N7BMY" or "QSL via USQS" and then have their contact learn that the service requested a handling charge. Hopefully now the system will operate as we had intended and it will benefit all on a greater scale. *THERE IS NOW NO CHARGE FOR USING THE USQS BUREAU.* We are, in effect, offering to be the QSL manager for handling card purposes for all of the USA/Canada. We are often asked how we can find the time to do this — and for free, no less. A lot of time and thought has gone into this system, and we would not offer unless we felt it was well worth the effort.

We cannot accept outgoing DX cards unless they have an SASE on file. Some do, such as Hawaii, Puerto Rico, Alaska, so if you are told "QSL via USQS (N7BMY or KM7Z)" please do.

We do welcome incoming DX cards. Many stations have been sending cards into the United States through USQS, and this is fine. We have ads in the Callbook, so the DX stations are aware of us also.

The service is open to all — no limits or restrictions. We do ask that, due to the time involved, you help us out by pre-sorting your outgoing QSLs by area (Ø-9) and then alphabetically by suffix. It is a time-saver for us, and also helps us to decide on the proper call if your handwriting is less than perfect!

Please keep SASEs on file with us. We do not destroy cards at any time, and will get them delivered as soon as possible. We sell SASEs for our file, four for $1. Even though the Postal Service has raised its rates, we will still put SASEs on file at four per $1.

Please understand if we must raise that SASE rate. If you would, please specify if you want your SASE returned with a certain number of cards. Also, remember to include any previous calls so we can cross-file for your incoming QSLs.

Please print plainly! Your writing is easy for you to read, but remember that it is new to us. Some people forget that we don't know if your "U" has a tail, or if your "V" will always be pointed. Do you dot your "I" or does your "L" always have a corner? Sometimes we even wonder about the "W", "N" and the "M"! Anyway, please make sure you do your best so we can do the best for you.

The USQS system is the result of hard work by yours truly, Laryl Myers. I have received many nice letters of appreciation and encouragement, and enjoy opening the mail every day and reading the notes. I would like to say a big THANK YOU to all who have encouraged my efforts. I plan to keep up the hard work; hopefully with the new status, things will be busier than ever. The service is registered as "U.S. QSL Service, Inc." I have suggested that when using the service it would be simpler to say "QSL via N7BMY." That is my old call sign and has a special listing for best results. Well, I now have a new call sign — KM7Z. Both calls will be used in reference to the bureau so that people will be able to look it up easier. The 1982 Callbook will also have special listing and an ad in the back — "Where to Buy" section. The long-range plan is for more advertising, funds permitting.

Your help in letting others know about USQS is appreciated. It would be great if we could send radiograms to let people know about the bureau; however . . . *it is prohibited to use Amateur Radio for third-party traffic that would in any way benefit another.* I have had several conversations with the FCC Engineer of Rules and Regulations in Washington, D.C., and regretfully I must state that traffic such as that is illegal. Many say it is only a question of "business," but according to the FCC, "There need be no commercial aspect to the venture to classify it as business." By business they simply mean getting something accomplished, such as getting QSL cards forwarded. Any further questions should be directed to the FCC *directly. Please do not go to sources that are not the authority* regarding traffic of this type. I have learned that the ARRL has stated that traffic of this type is legal. I was told by the FCC that if the ARRL members would ask for themselves, they would learn they are mistaken. I have been advised to file a formal complaint against anyone if I feel rules are being violated. I have not done any filing of complaints. I feel each of us is responsible for his/her own stations and for knowing the rules to operate by.

I hope I have answered some of the frequently asked questions. I welcome any comments and suggestions that would make the USQS system more beneficial. I have a good station here and would like to meet you on the air. I am a CW fanatic but can work SSB, all bands. Please do not set any sked hoping to discuss the Service if it will be interpreted as business. I have been warned by the FCC against talking about the Bureau on the air because it gets close to advertising.

I enjoy meeting everyone, I hunt counties and prefixes (even work on the 5 band WAS CW). This station is now under call KM7Z, and also in residence is KN7B! So you prefix hunters, how about that!

P.S. Sorry, but it's next to impossible to get KN7B on SSB; he is an ole CW man!! Anyone still awake and who has read this far, can reach us via Oregon Section Net (OSN). OSN runs twice daily at 0130Z and 0500Z, summer and 0230Z and 0600Z on 3.587 MHz.

Here's wishing you all the best for the upcoming holiday season. Hope to QSO with many of you soon. Tell your friends about us, it's your bureau!

Please remember that U.S. QSL Service, Inc. is now FREE. We of course welcome any donations that will be used to get the service in top operating shape. We need to do a lot of advertising and mailing of flyers to get the details out so everyone will know of the opportunity.

Very 73, and for the record, 88 because Laryl is a YL!! CU next month here in **Worldradio.** Happy Hamming! N7BMY now KM7Z. U.S. QSL Service, Inc., P.O. Box 814 Mulino, OR 97042-0814. □

tempo...

the first in synthesized portables gives you the broadest choice at the lowest price

...the new S-5

* The only synthesized hand-held offering 5 watts output. (Switchable for 1 or 5 watt operation)
* The same dependability as the time proven S-1. Circuitry that has been proven in more than a million hours of operation.
* Heavy duty battery pack.
* External microphone ca
* The S-5's exciting
* With touch to

CHECK WITH US OR YOUR TEMPO DEALER

SPECIFICATIONS

Frequency Coverage:	144 to
Channel Spacing:	Receive e transmit Simp ±600 kHz
Requirements:	9.6 VDC
Drain:	17 ma-standby 900 ma-transmit
Impedance:	50 ohms
	40 mm x 62 mmx 170 mm (1.6" x 2.5" x 6.7")
	17 oz.

...p antenna, ni-cad battery pack, charger.

OPTIONAL ACCESSORIES

12 Button touch tone pad (not installed): $39 • 16 Button touch tone pad (not installed): $48 • Tone burst generator: $29.95 • CTCSS sub-audible tone control: $29.95 • Rubber flex antenna: $8 • Leather holster: $16 • Cigarette lighter plug mobile charging unit: $6 • Matching 30 watt output 13.8 VCD power amplifier (S30): $89 • Matching 80 watt output power amplifier (S80): $149

TEMPO'S CHRISTMAS SPECIAL ...Factory reduced prices on the S-5, S-4 and S-2

Tempo S-2

...po is first again. This time with a superior quality synthesized 220 MHz hand ...d transceiver. With an S-2 in your car or pocket you can use 220 MHz repeaters ...roughout the U.S. It offers all the advanced engineering, premium quality components and exciting features of the S-1. The S-2 offers 1000 channels in an extremely lightweight but rugged case.

If you're not on 220 this is the perfect way to get started. With the addition of the S-25 (25W output) or S-75 (75W output) Tempo solid state amplifier it becomes a powerful mobile or base station. If you have a 220 MHz rig, the S-2 will add tremendous versatility. Its low price includes an external microphone capability, heavy duty ni-cad battery pack, charger, and telescoping whip antenna.

MERRY CHRISTMAS

TEMPO VHF & UHF SOLID STATE PO...

Boost your signal. . . give it the range and clarit... ...se station. VHF (135 to 175 MHz)

Drive Power	Output	Model No.	
2W	130W	130A02	
10W	130W	130A10	$189
30W	130W	130A30	$199
2W	80W	80A02	$169
10W	80W	80A10	$149
30W	80W	80A30	$159
2W	50W	50A02	$129
2W	30W	30A02	$ 89

UHF (400 to 512 MHz) models, lower power and FCC type accepted models also available.

HENRY RADIO 52 YEARS OF SERVICE

TOLL FREE ORDER NUMBER: (800) 421-6631
For all states except California.
Calif. residents please call collect on our regular numbers.

2050 S. Bundy Dr., Los Angeles, CA 90025 (213) 820-1234
931 N. Euclid, Anaheim, CA 92801 (714) 772-9200
Butler, Missouri 64730 (816) 679-3127

Henry Radio

Prices subject to change without notice.

AMATEUR RADIO IN PUBLIC SERVICE

Child given a chance for life

Submitted by Travis McKee, KA5FZF and Anthony Paladino, WA5ORS

A seriously ill Venezuelan girl had a chance for a new life in late July, thanks to Amateur Radio operators who relayed news of her story. Nine-year-old Dalia Carmona, from Maracaibo, Venezuela, was awaiting a kidney transplant that had been arranged by radio amateurs in the USA and her own country.

Dalia had undergone dialysis — the mechanical filtration of blood — but had already suffered blindness and other complications. Venezuelan doctors were not able to do anything more for the child, however, because Venezuelan law blocks organ transplants. So, on Sunday morning, 26 July, a plea for help was broadcast from South America to New Orleans, Louisiana on Amateur Radio bands. By that afternoon, the operators had arranged for the girl to travel to New Orleans and be admitted to a hospital.

Dr. John Bobear, the hospital's medical director, said Dalia would be put on dialysis there until a donor could be found.

Anthony Paladino WA5ORS — the New Orleans radio connection — stated that arrangements had been made to accommodate Dalia's mother and a possible donor. He said the girl has an 11-year-old sister willing to donate a kidney, but U.S. law prohibits minors from donating organs.

The girl's parents have been unable to volunteer their kidneys because of poor health, but other relatives were undergoing tests for tissue compatibility.

Paladino said the Venezuelans had raised $5,000 in donations, and by mid-afternoon of 30 July, Paladino learned that the plane carrying the child and her

Dalia Carmona of Venezuela

mother arrived safely at New Orleans International Airport.

"As amateurs, we value a person's life above all else," said Paladino. "One ham will bend over backward to help another ham. It is satisfying to know that out of all this, something good has happened."

Paladino, who is 63 years old, has been an amateur for more than 16 years. He starts each day by listening to operators on the IC Net and IMRA (International Mission Radio Association) — a radio band that relays information on people who need assistance.

He is a retired environmental inspector for a local parish, and says his work begins whenever there is an emergency situation in which he can be of some assistance. He has received recognition through letters of thanks, certificates and plaques for his humanitarian efforts. He's also noted for his work to missionaries of all denominations.

WA5ORS says he became interested in radio because he was semi-retired and needed something to fill the time. Presently, he and other Amateur Radio operators in the area hope to develop an exhibit for the 1984 world's fair in New Orleans. He says he needs help in getting an exhibit area and in doing electrical and cabinet work.

He says they hope to create a display of equipment that will be able to transmit to all parts of the world.

—The Times-Picayune, LA □

• • •

Share your knowledge with your fellow amateur and Worldradio reader . . .

Wireless mike in a pinch

Ken Bale, W7VCB

This idea was first tried when on vacation last summer. Here is what happened: A small community was having a 'fest some miles out of town in a farmer's field. Several hundred persons had arrived to witness the activities. A mobile public address (PA) system sound truck was on hand to cover the announcements of the many events.

A few minutes into the show, someone tripped on a long mike cable and ripped out a few vital wires. PANIC. The PA system operator was a non-technical fill-in and miles from home.

Amateur Radio to the rescue. As part of our vacation travel kit, we had in the car a 2-meter handi-talkie and a small portable transistor radio that could tune 144 MHz. An assortment of plugs and patch cords were found in the tool kit.

The distraught master of ceremonies was approached and an idea was discussed. The plan was to use the handi-talkie as a wireless mike, by broadcasting on low power with a simplex frequency to the little portable FM receiver. The audio output of the receiver was piped into the proper audio input of the PA system amplifier.

Gain controls were delicately adjusted to prevent feedback and the system worked beautifully. When there was a short break in the events, we took a piece of wire and shorted out the antenna to chassis ground to lower the sensitivity of the receiver. Further attenuation was attempted by tilting the handi-talkie to the horizontal.

To keep it all legal, your author trailed along beside the announcer. The nicads, fortunately, had been fully charged the night before and lasted easily through the period of dire need. □

Joy in serving

Jake Kovalchek Jr., AK2I

In the past few weeks, I have had the opportunity to experience emotions I never really had experienced before. Oh, I was aware of their existence and observed others in the throes of these human exultations, but I really never knew, personally, what the emotion felt like deep inside. I speak of willing service to others less fortunate, at the cost of personal sacrifice of your time and effort.

One of the elements of the Amateur Radio Operators' Code is: "The amateur's knowledge and his station are always ready for the service of his country and his community."

THINK about that statement — for what it really means is that you will never share the real joy of Amateur Radio until you have experienced the emotion of truly serving others. What a perfect opportunity we have for this practice in our hobby of Amateur Radio. If you take from Amateur Radio without giving of yourself, you will soon tire and drop from the ranks. You will become a listener.

Remember the exhilaration of satisfaction from running your first phone-patch? How about your QSO with someone really in need of companionship, someone who simply consumes your every word and returns again and again, then sadly signs, hopeful to re-sked. Will you ever forget the Novice, who endlessly thanked you for the first CW contact and the pride and self-satisfaction that pulsed through your veins — all experiences of giving of yourself? These are the very emotional bonds that help develop members into real PHIL-MONTERS!

If you have not experienced this pride of membership in Phil-Mont, then you haven't really been working at your hobby and you really haven't been enjoying it to its fullest. Don't despair, however. Get more involved by being willing to share of yourself and your knowledge. It's an emotion you will soon want to share with others . . . in or out of the ranks of PHIL-MONT!

— "Blurb" Philmont Mobile Radio Club □

A new way of talking

Bub Cowan, N6BEB

Perhaps some of you wondered what kind of traffic was being handled by Bill Herron, WA6JPB; Bub Cowan, N6BEB; Raphael Galvan, WB6KFM; and Pete XE2BC (Tijuana) during January and early February. Through the good auspices of WPSS (Western Public Service System) net and the above-mentioned amateurs, a Mexican national — Jose Delgado Martinez — was reunited with his family after 18 months in a Galt, California hospital following a major automobile accident. Jose had been paralyzed and unable to move or speak since the accident of 6 August 1979.

Raphael WB6KFM and his wife, a nurse at the hospital where Jose is a patient, devised a method of basic communication with Jose using an oscillator. Raphael and his wife were successful in determining an address in Tijuana where it was believed some acquaintance of Joses's might reside. N6BEB (Bub in Cerritos) was successful via 2 meters in enlisting the aid of a Tijuana amateur — XE2BC (Pete), who agreed to visit the address in an effort to locate family members of Jose. After repeated attempts, Pete was successful in contacting an aunt of Jose's, and through her made contact with Jose's parents in Guadalajara. Information regarding Jose's medical condition was passed to the parents, and they began the journey to Tijuana with hopes of proceeding on to Sacramento to visit their son.

With Pete XE2BC assisting the parents in their efforts to obtain travel approvals, and coordinating their travel and expected arrival information with Bill WA6JPB and Raphael WB6KFM, Mr. and Mrs. Martinez arrived in Sacramento on 15 February 1981. Raphael took them into his home to stay and was, of course, present during the heart-warming reunion at the hospital with Jose and his parents.

The end of the story? Unknown at this time. Jose will probably not be able to return to Mexico with his parents as yet, due to lack of medical facilities in their community. However, Raphael has begun teaching Jose code with the oscillator, and we expect he will soon be able to communicate his wants, needs and feelings to others. Let's chalk up another big assist to the Amateur Radio community, and to our WPSS net members — a well done!
—Western Public Service System Newsletter, Angwin, CA □

Dennis only a Menace

Chuck Clark, K4ZN

About 8:00 a.m. on Wednesday, 19 August, Coleman Rowland, W4TWW, Net Manager for the Trident Amateur Radio Club's 147.87/.27 repeater in Charleston, South Carolina, received a phone call from Richard B. Shenot, meteorologist in charge of the local U.S. Weather Service office, asking that the net be activated to collect date on Tropical Storm Dennis. At the time, Dennis was 100 miles to the south, packing 50-knot winds, and forecast to make landfall somewhere between Charleston, South Carolina and Savannah, Georgia with some possibility of intensifying to hurricane force.

At 8:15 a.m., Coleman asked Vince Ott, WD4NUN on the repeater to open the net and to act as net control, while he alerted other groups in the area and arranged for additional net control stations. By 8:40, he had arranged for Fred Lewis, WA4ZQE to go to the airport, and Fred had activated the club's amateur station in the Weather Service office, was on the air, and assumed net control.

Reports poured in. Section Traffic Manager Hunter Wood, W4ANK, using high power and a beam, relayed reports gathered through the repeater in Dillon, South Carolina with coverage as far as Charlotte, North Carolina. Hunter also relayed reports collected on the South Carolina Noontime Net on 7250 kHz. Amateurs were asked to report rainfall measurements, high winds, and to watch for funnel clouds (none were reported). In all, 66 stations took part.

A news crew from TV Channel 4 visited the Weather Service office during the morning, and the activities of Amateur Radio—clearly identified as such, not to be confused with the other service—received due recognition as part of the action at the Weather Service in the evening news broadcast.

Robbie Carnes, N4ETC relieved Fred, and had his baptism of fire as a net controller. It was his first attempt, but thanks to the help he received from all on the net, he soon was handling it like a real pro. Ed Garrett, N4BHQ was scheduled to relieve Robbie at 5:00 p.m., and others had been assigned watches through the night until at least 2:30 a.m., but at 4:58 the operation was terminated. Dennis had turned to skirt the coastline, had increased its forward speed and was no longer a menace to the South Carolina coast. The storm was to pass off Cape Hatteras the next day, attain hurricane force over the open ocean for a few hours, then eventually dissipate.

The Weather Service personnel were both delighted and impressed, greatly appreciating having abundant reliable data instantly at hand, enabling them to issue their warnings, advisories and statements with confidence.

As Dennis arrived at the same time as high tide, and in addition to the storm surge dumped 4 to 5 inches of rain on the coastal areas, flooding was a serious problem in some places, particularly for motorists. By 5:00 p.m., however, things were back to normal, and the area's amateurs felt it had been particularly useful as a dress rehearsal, and that they seemed ready to face a storm that doesn't merely pass by. □

Toledo amateurs help boy scouts

Stan Head, K8OI

The Toledo Area Council, Boy Scouts of America, recently ran a survey in Toledo, Ohio schools and found over 80 boys interested in joining a unit centered on Amateur Radio. A semi-defunct Explorer post needed a theme and a leader. A newly licensed amateur, Jim Tully, KA8HRB with scouting experience, has agreed to lead the post. The chairman of the Huntington Farms Community Center — Al Bryant, K8TCB — is glad to have the unit reorganized and will be on the scene to help the club station get on the air. The Kiwanis Clubs are always interested in the youth of this country and their West Toledo Club is lending their support to this unit.

Area amateurs donating their equipment and time are: Jim Tully, KA8HRB; Al Bryant, K8TCB; Jim Grubbs, W8GRT; Stan Head, K8OI; Ken Wilson, W9JLA; and Gary Johnson, WD8SDO.

Huntington Farms is providing the class/meeting/station room. Listen for K8TCB/8 and give the new amateur a contact.

•••

People reaching people.
Amateur Radio is what
Worldradio is all about.

APPLICATIONS FOR GENERAL MANAGER

ARRL

The present General Manager of the League is retiring in the spring of 1982, and the Board of Directors seeks a qualified replacement. Those wishing to submit their applications for this challenging post should do so prior to January 1, 1982. *Send your resumes and any supporting data to Ray Wangler, W5EDZ, Chairman of the ARRL Management & Finance Committee, 642 Beryl Drive, San Antonio, TX 78213.*

The General Manager, ARRL, is charged with managing and directing League operations under policies established by the Board of Directors. He employs and oversees the operations of a staff of 115, ensuring that they maintain professional standards. He maintains sound financial policies and procedures, involving an annual budget of six million dollars. He assists the president in representing the League with national and international government agencies and other Amateur Radio organizations, and serves as secretary of the International Amateur Radio Union. He is responsible for developing effective programs for the growth of the Amateur Radio population and of League membership, which currently stands at over 150,000. He is responsible for initiating plans, programs, and policies for the advancement of Amateur Radio which are presented to the Board for approval. He must monitor all aspects of the Amateur Radio service in order to advise and counsel the Board. He also serves as the Editor of QST.

A demonstrated knowledge of management skills, a wide-ranging interest in and knowledge of Amateur Radio and ARRL, and evidence of leadership will be in your favor.

Base Your VHF/UHF Station on ICOM

Enjoy local contacts and have the lure of far off DX on a band that is capable of worldwide communications on just a few watts. The **ICOM IC-551** (10W) and **IC-551D** (80W) series transceivers provide full 6 meter coverage in a multimode package. Talk to your ICOM dealer concerning options.

ICOM's 2 meter multimode transceiver, the **IC-251A**, provides the latest technology in communications on one of ham radio's most active bands. Have fun ragchewing with your friends, coordinate events or use the **IC-251A's** sideband capability as an Oscar link. Simplex SSB on 2 meter is growing - be there.

The **IC-451A** provides space age technology for space communications. Satellites, EME and local modes of communications are available by basing a system on ICOM's full featured 432 MHz transceiver.

2112 116th N.E., Bellevue, WA 98004 / 3331 Towerwood Drive, Dallas, TX 75234

ICOM

...Simply the Best

ICOM IC-730

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

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.

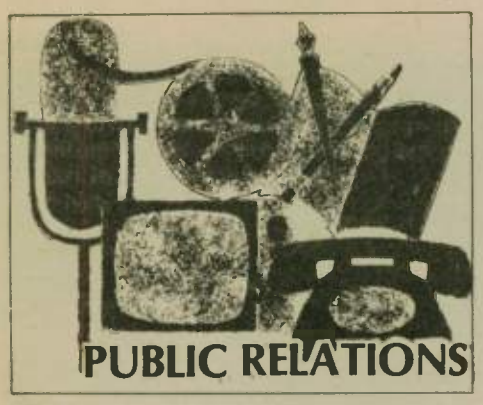
- Unique tuning speed selection for quick and precise QSY, choice of 1 KHz, 100 Hz or 10 Hz tuning.
- Electronic dial lock, deactivates tuning knob for lock on, stay on frequency operation.
- One memory per band, for storage of your favorite frequency on each band.
- Dual VFO system built in standard 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



Indiana grateful to these two

Here are two letters which were sent to Indiana amateurs when they were awarded the National Weather Service Public Service Award on 12 July at the Indianapolis Hamfest. George "Mel" Martin, K9PQP's letter is self-explanatory. Bruce Woodward, W9UMH, ARES Emergency Coordinator for Indiana, received his award for his role in supporting the establishment of "Wet Net." Reports from the Wet Net are made available to all the radio, TV and large newspapers in the state of Indiana on the Indiana NOAA Weather Wire teletype.

Dear Mel:

You, George Melvin Martin, K9PQP, are hereby presented with the National Weather Service Public Service Award.

This certificate is presented in recognition of the outstanding leadership you have displayed in the East Central Indiana Radio Amateur Civil Emergency Service.

This award specifically recognizes your efforts in providing tornado spotter training for East Central Indiana.

Largely through your efforts, 164 amateurs, firemen, law enforcement and Civil Defense personnel attended a tornado spotter training program in Rushville presented by the National Weather Service on 5 March 1981. This program had the largest attendance of all the spotter programs presented by Indianapolis this year.

The National Weather Service is proud to be able to recognize on behalf of all the citizens of East Central Indiana the public service provided by your dedication.

Sincerely,
John T. Curran
Meteorologist in Charge

Dear Bruce:

The National Weather Service at Indianapolis congratulates you on your Special Service Award for the establishment and promotion of rainfall reporting by Amateur Radio operators in Indiana. This daily reporting is referred to by amateurs as the "Wet Net".

Your statewide encouragement of the Indiana Wet Net has provided the National Weather Service with rainfall information never received before in sections of Indiana. As a direct result of this program, flood warnings were issued for the Tippecanoe River in April, May and June 1981. Flooding along the Tippecanoe River in June was the highest ever. The Wet Net also serves as the backbone for heavy rainfall reporting in the Wildcat Creek watershed above Kokomo. During June 1980, Kokomo experienced the highest flood since March 1913.

Presently, the Indianapolis office receives approximately 80 daily rainfall reports from the Indiana Wet Net and is still growing. The dedication shown by these individuals is truly remarkable.

The National Weather Service is proud to recognize your part in establishing and promoting the Wet Net.

Sincerely,
John T. Curran
Meteorologist in Charge □

Bicentennial oral history project

Ken Bale, W7VCB

During the bicentennial year, many people got involved in oral history projects all over America. Oral history is the audio-recording of persons and events to be stored for future use. One of my projects was to attempt to do a history of Amateur Radio in our county, by locating and interviewing all of the old-timers.

This turned out to be a wonderful experience, as now we have the actual recorded voices of our local radio pioneers telling how they got started in the radio hobby, and the way it was in the good old days. Now, five years later, this treasure is even more valuable as several of these old-timers are now Silent Keys.

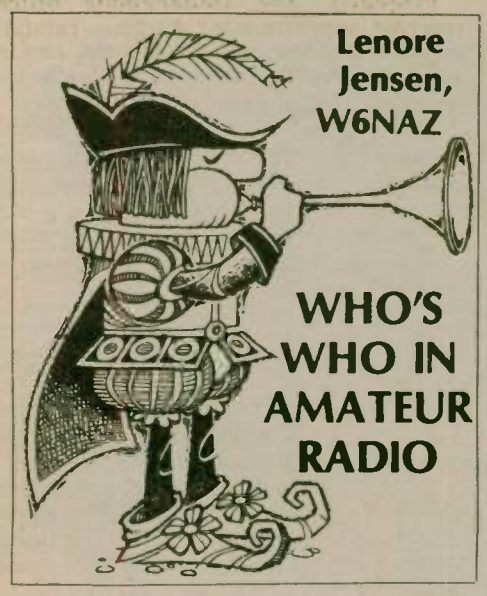
It would be great if this same type of project could be international and ongoing. A wealth of valuable information could be preserved.

Most radio operators are natural ragchewers, so interviewing is usually easy. A suggested method is as follows:

First, get a suitable recording device that will handle at least one hour or more. There are many fine cassette and open-reel type tape recorders on the market now.

Next, prepare in advance for the recording session by using a set of standard questions. We made a list, typed triple-spaced to leave room for comments or more questions. When the recording is completed, the interview sheet is filed away with the completed tape. Another nice souvenir is the QSL card of the amateur being interviewed.

The station log and QSL collections are exciting to show visitors to the shack, but some frosting on the cake is a collection of audio tapes from your most memorable QSOs. □



T-shirts bearing the words "One World, One Language" were distributed at a SEANET Convention in Penang by Saad Ali, VU2ST. The idea typifies this warm, dynamic individual who is apparently dedicated to the improvement of everything!

As founder of India's Federation of Amateur Radio Societies, he's enormously enthusiastic about Amateur Radio and determined to increase the number of licensed amateurs in his country.

He was caught for an interview at the home of Loyd Sigmon, W6LQ (a recipient of such a T-shirt at the convention). Saad and his wife, Sadia, were on a worldwide tour. He spoke freely about his activities.

"We have about 1,200 amateurs, of which a thousand belong to our Federation," he explained, going on to describe the difficulties of Indian amateurs obtaining equipment — even parts.

"Either we make our own or try to get them second-hand from someone else." Importing has been a serious problem. Although India has large electronic factories for making TV, hi-fi and military needs, there is practically nothing available for radio amateurs.

"However," he added, "my Federation has succeeded in getting our government to allow every licensed amateur to import $1,000 worth per year for his own use." Saad smiled as he recalled the effort. "Also," he said with obvious gratification, "after much effort we've managed to get the Department of Electronics to give us a grant for developing amateur equipment in India, so eventually we will *not* be dependent on imports!"

Across that huge country, the Federation has about 52 clubs, some large (as the sponsoring group in Bombay, the Radio and Electronics Society) and some small. Like here, small towns may have only one licensed operator, if that.

"But our membership is near 4,000! That includes SWLs and others interested in radio." Saad spoke with justifiable pride of the organization he founded 10 years ago; he also served as president during that time. Now, he's the Treasurer. M.V. Chauhan, VU2MV presides.

Saad's own attraction to radio, interestingly, started in Japan, where he was born and raised. "During school days," he recalls, "I was interested in putting together little bits of metal and making them come out with sound." But it was to be many a year before he was able to return to that early interest. By then he was in India.

His English is excellent, probably learned when he attended the English Mission School. Of course he's fluent in Japanese, having studied *in* that language at Kiryu College of Technology. Although he studied textiles — his father's business — he has never worked with them.

"I became diverted into electronics," he explained. Today, Saad is a successful businessman providing accessories for a company (which he started and ran for 15 years before selling it) called Vibronics. It deals in ultrasonic equipment for cleaning equipment of all sizes for aircraft, engineering, electronics, and the like.

But he'd much rather talk about Amateur Radio!

For instance, Saad wants to see his government revise its current rules for license privileges — rules which came into force two years ago.

"We have Grade Two, something like your Novice Class. Five wpm and the usual testing, allows one to operate CW on 40 and 80 meters. However, this grade also permits phone on 2 meters — even though there is very little now in India, due to shortage of transmitters."

"But we want Grade Two operators to be allowed on 20 meters. Here, that band is not crowded. (!!!!!) After all, it *is* a vast country." (When we expressed astonishment at an unpopulated "20", Saad assured us that not *all* of our 20-meter signals reach them.)

The next higher grade, One, is a sort of General ticket permitting operation on all bands. For SSTV and satellites, their Advanced Class is necessary.

His enthusiasm for Amateur Radio springs from a nature apparently given to very deep caring and concern. "In the old days, I was in jail for two and a half years," he casually remarked.

Seeing our slightly raised eyebrows, he smiled and went on. "Well, not exactly jail — a detention camp. You see, when I came back to India from Japan in 1939, I found the Indian striving for independence (which had been going on for more than 30 years) had become very intensively anti-British. I got involved. We were making speeches and doing propaganda work. When the Japanese war broke out, our agitation became even more intense: the police and government became more aggressive as well.

"Our stand was that, although we realized Japan was a danger, we could not fight in the war as long as we were slaves under the British. We told them to *first* make us independent and we would support them."

Saad Ali, VU2ST, and his wife Sadia, while visiting W6LQ. ***(Photo by Bob Jensen, W6VGQ)***

Saad continued, "As a result, in August of 1942 there was a very big round-up starting with Mahatma Gandhi down to 'small fry' like me. Probably 5,000 of us were detained for an indefinite period in large yards. But we were with friends and had certain privileges. We received letters and books, held discussions and classes."

A man of deep convictions, Saad's current social cause is environmental protection. "There are no environmental checks on the government nor on industry in our country. Our group is concerned with oil refineries, huge fertilizer plants and the like in Bombay. We have nuclear plants and we *should* be worrying about waste disposal!"

He considers the public service by Indian amateurs to be of highest importance in seeking official appreciation of their work. Of course, the valuable assistance provided during the great floods has been documented before.

Amateurs "saved the day" during a recent major auto race when all the officially planned communications broke down. The plan had been to use telephones between those in charge over the 6,000km course. Unfortunately, both the telephones and police wireless system broke down. So the amateurs stepped in, operating round-the-clock for the 10-day event. "On the final day," said Saad with obvious pride, "the chief organizers, in the presence of the Prime Minister, said the whole event would have collapsed without the amateurs!"

Despite such praise, VU2ST realized that even more preparation for emergency work was essential, so now there is an All-India net (0330Z) to provide training in traffic handling. And yes, they have good YL operators — about 20!

There is another, older ham organization — the Amateur Radio Society of India, based in Delhi, but currently not as active. It represents India in the IARU, (International Amateur Radio Union). Due to the rules that only one — the original — may belong, the Federation can not be a part of IARU. Saad has been advocating a change in the constitution of the international organization, explaining there are similar situations in other countries.

As for a QSL bureau, he proudly states his Federation has a very successful one.

Saad's wife, Sadia, accompanied him on their worldwide tour, and told of their children. Their two sons are not now in Amateur Radio. One specializes in animal behavior (monkeys) and has lectured at Harvard and the Smithsonian. But daughter Najma Ishradi is studying hard for her amateur license! Saad, of course, is very pleased.

Looking to the future, he expects expansion of all electronic industries in India. Television still remains black-and-white with one government-controlled channel in Bombay, as in other cities. Radio broadcasting, similarly, is not competitive.

As for Amateur Radio, he feels it is bound to expand. And with a leader such as VU2ST, we believe it.

With a vision of "One World, One Language," Amateur Radio could play a vital role in the dream of a brotherhood of man. □

OFF THE AIR

K2RA call is being bootlegged

This is the real K2RA and unfortunately for me, my K2RA call has been bootlegged on the air by some culprit named Jerry since 1978, mostly in contests and on the 20 and 10-meter SSB bands. His location is unknown.

Please publish my K2RA call on your hot list of bootlegged call signs. This guy "Jerry" is using up all of my envelope credits at the QSL bureau in the North Jersey DX Association QSL bureau, and that's how I found out about him. I have enough DX cards confirming his contacts made with my K2RA call for me to get DXCC!

I have notified the ARRL and the FCC.

Mention that he can pick up most of his cards with my call sign at this address (except for the ones I sent to the FCC). I will be glad to meet him.

Thank you.

D.M. RAGER JR., K2RA
104 Parkside Court
Buffalo, New York 14211 □

Young DXer shares info

I have been a ham for three and a half years. I'm a General Class licensee. I'm 17 years old and am a Life Member of the ARRL.

I'm a QSL manager for Roberto Zablah, YS3RZ in San Miguel, El Salvador. I enjoy DXing and CW. Most of my SSB QSOs are on 10 meters in the Spanish language. Learning Spanish has helped me work a lot of South and Central America DX without any problem of QSLing. I'm also a broadcast SWL.

Listed below are additions and corrections to the September 1981 issue.

On page 24, under "Third-party traffic agreements," the prefix for Uruguay is incorrect. **Worldradio** printed it as a ZP. The correct prefix is CX.

Additions: The article "16-year-old earns Extra" (page 32) about Brett Flathers, KJ0K isn't as surprising as the story of two amateurs who earned their Extras at 14 years old. I'm talking about Nomar Vizcarrondo, KP4DG and Nomar Colero, WP4BBM. What makes this even more surprising is that the Extra Class exam was given to them in a second language — English.

Do you think most American amateurs could pass the FCC Extra Class exam if it were given to them in Spanish, German, French or some other language besides English? I doubt it; I know I couldn't. So let's give credit where credit's due. WP4BBM and KP4DG deserve a word of praise.

Last of all, the new prefix for Belize (ex-VPI) is now V3. Those amateurs who worked the prefix V3A worked Belize on their first day of independence — 21 September 1981. Those amateurs qualify for a special QSL card.

73 and Best DX,
ULIS R. FLEMING, WB3LUI
Odenton, Maryland □

No need to regiment

Reference H.R. 2203, **Worldradio**, October '81, page 10, "Highlights."

Oh, how I shudder when I think of that period in history when neighbor snooped on neighbor for the Third Reich in Nazi Germany.

However, based on the concepts of freedom in a democracy with a constitutional form of government, the citizens thereof are doing an excellent job of self-government. In this respect, radio amateurs are second to none when it comes to self-discipline.

In a free society, it is not necessary to enact more laws to regiment.

Sincerely,
PAUL WILLIAMS, W6WEQ
Santa Cruz, California □

AZDEN user modifies PCS-3000

Jerry Murphy, K8YUW's article ("Attention! Azden PCS-3000 users," **Worldradio**, November 1981, page 6) was of interest, I'm sure, but when I made the modification on two AZDEN 3000s I went a little further.

J4 plug (reference): Remove the BLK wire from RØ and replace on K4. Remove the BRN wire from K1 and replace on R1. Remove the RED wire from K2 and replace on RØ. Leave the orange wire and gray wire as original.

This change causes loss of up and down band scan from mike, but replaces down button with *memory scan* and replaces up button with *memory address. I LOVE IT.*

The complete change can be made with no soldering or desoldering and can be finished in about 30 minutes.

CECIL JAMES, W6HUG
Barstow, California □

Christopher Meyers (right) recently received his Novice license, call KA2MSX. Meyers — a 4-H member for six years — has studied Morse code and radio techniques under the direction of Robert Westcott, W2MAS (center) and John Hughes, K2UJU (left), who are leaders of the 4-H Amateur Radio Club. *(Photo courtesy of Bridgeton Evening News)*

Any 4-H radio clubs?

I am writing you about my 4-H radio club, as I believe it is the only one in the United States. This is why I would like you to put it in your paper, in case there *are* any other 4-H Amateur Radio clubs, and if so, if we could set up a schedule with them.

The club is 12 years old (of course, not with the same boys). The club call K2UQK was my son's call. When we lost him in the Navy, I applied to the FCC for his call for the club.

I have a radio repair shop, and I have the Novice station set up in it. You can see all the tubes in the background of the picture.

I am the club's leader and have been an amateur for many years. My call is W2MAS; my name is Bob Westcott. The co-leader has also been an amateur for some years. His call is K2UJU; his name is John Hughes.

The boy in the picture is Chris Meyers and has just received his Novice license. His call is KA2MSX. Two other boys are ready to take their code tests: Kenneth and Richie Van Meter.

Thank you.

BOB WESTCOTT, W2MAS
Bridgeton, New Jersey □

Regrets over suspension

In re: "FCC suspends license", October 1981 **Worldradio**, *page 2*

I do not know anything about this referenced situation. I only want to comment that I monitored the Maritime Mobile Net for about six months last winter, and heard N5FX (Richard K. Eastman), and checked into the net through him a time or two. I found him to be extremely patient with me, a new ham, and very helpful. I would say he was the same way with his other contacts. That is a fast-moving, well-organized net, and they do not have much time to spare.

Possibly N5FX was pushed a little, and everything just multiplied out of perspective. The net gets a lot of thoughtless interference. They perform a useful operation, and I was sorry to read about the license suspension. I do not know any of

the parties involved, nor did I monitor the incident.

E.O. THOMAS, N6DJN
Byron, California □

Against no-code licenses

I would like to see articles on computer usage in the ham shack. I would also enjoy more articles about Midwesterners, if possible.

I am against a no-code license. Amateur Radio is a fun hobby. We should learn from the sad plight of CB. It wouldn't be fun if it turns into the mess 11 meters is in.

de
TERESA WAGNER
Westerville, Ohio □

Amateur lists his interests

I have been an amateur for over 29 years, and I am still interested in wire antennas, Delta loops, Vees, etc. Am interested in items to upgrade older gear, including SB101, HT44 and 75S3B.

My first job was to grow germanium crystals for transistors. Had a great future — no circuits then.

ERIC T. HANSEN, K2AIQ
Staten Island, New York □

.....

FD weekend a busy one

Submitted by Scott Thompson, KB6CC

Approximately 300 amateurs in the San Joaquin Valley of California took part in Field Day 1981. About a dozen clubs and organizations and scores of individuals were involved with the special event. Some of the alternative sources of power used were solar, generator and bicycle.

Some of the amateurs were involved in a little more than the usual operation activities that weekend. A wedding was held at one Field Day station in the Sierra National Forest, and several actual emergencies occurred (i.e., grass fires and car accidents).

The "Gamboa Fire" was one catastrophe which hit the area that weekend, blackening over 3,400 acres in the Los Padres National Forest near the Big Sur area. (See **Worldradio**, October 1981, page 3.) Operators who were still exhausted from the weekend's Field Day exercise left for the coast to set up communication stations in the vicinity of the fire. They were a major help in relaying information direct from fire camps to Forest Service headquarters.
— *The Visalian, Visalia, CA* □

Field Day fun

Lenore Jensen, W6NAZ

Although most clubs took to fields "high and away" from the cities in Southern California, several deliberately selected nearby sites so that the public might watch the frantic QSO-chasing during the 27-28 June session.

The Associated Radio Amateurs of Long Beach chose Signal Hill (famous for its oil wells), which is close to downtown Long Beach. The San Gabriel and the Aerojet Electrosystems clubs opted for Arcadia Park, while the Carson Amateur Radio Club settled down in a parking lot of Cal State Dominguez Hills campus.

The Monterey Park group went right to the public in the Atlantic Shopping Center next to a bank and the Fullerton crowd set up just off a main street in the Brea Dam site.

Several went a bit more off the beaten paths to hilltops: South Orange Amateur Radio Club drove up to Temple Hill near Laguna Beach; Northrop's crew was atop a recently closed land-fill waiting to become a new park. The Pasadena Amateur Radio Club ascended Sugar Loaf Drive near the San Raphael tower. Again the United crowd in San Pedro had a comfortable spot near a Rec Center in Friendship Park.

A dramatic setting providing a view of the entire city of Los Angeles was adjacent to the famous Griffith Park Observatory, affording a highly visible operation by the Telco Amateur Radio Club, employees of the Telephone Company.

The combined operators of the San Fernando Valley and Santa Clarita Radio Clubs braved bumpy dirt roads to reach their "Magic Mountain" spot. The Jet Propulsion Lab fellows may have found the highest spot around on Mt. Disappointment. Their enviable height was well-earned by rough riding to the top and no comforts of home. Others fleeing civilization included the Crescenta Valley Amateur Radio Club at Horsehoe Flats' Camp Roselita.

The Santa Barbara Amateur Radio Club was at Mesa Park while the Simi Settlers selected Oak Park in Simi Valley. Antelope Valley's group chose McAdam Park in Palmdale.

High or low scores, the net result was a heap of good experience in coping with non-commercial power and the great outdoors, lack of sleep and all the other joys which would accompany service during an emergency. As usual, Field Day in Southern California saw a generous helping of hot weather and smog — and of course, nary a drop of rain. □

American Radio Relay League

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

The ARRL Board of Directors, at their meeting in Hartford, Connecticut in September, unanimously voted to accept and to start initial implementation of the recommendations contained in the "Long-Range Planning Committee Phase Two report."

Previously in this column, I discussed some of the items covered in the Phase One report of the Committee. The Phase Two report gives specific recommendations of major changes in the organization and operation of certain structures of the ARRL.

The report is long and extensive, but an excellent condensation of many of the major points is given in an article titled "Long-Range Planning — An Update" by Vic Clark, W4KFC and David Sumner, K1ZZ on page 50 of August 1981 QST.

In its action at the September meeting in Hartford, the Directors specifically pointed out areas where change will occur. These were as follows:

Plans are to be developed for a higher level of ARRL club affiliation, providing greater recognition and motivation for clubs with effective programs to protect, promote and advance Amateur Radio at the local level.

Endorsed in principle was the concept of an ARRL Section Communications Manager (SCM) with broader responsibilities than the present SCM.

Also endorsed in principle was a proposal for the creation of steering committees to assist Directors at the division level.

The Board also voted to reorganize the ARRL Advisory Committees to have one member from each Division.

Options for providing a more continuous ARRL presence in Washington, D.C., are also to be studied.

Will the implementation of these changes really signal a major change in the organization and operation of the League? Well, that probably depends on your own viewpoint.

At a recent radio club meeting, I discussed these proposed changes with several League members who were present, most of whom had never heard of the proposals.

Reaction was varied, ranging from "It's about time ARRL made some changes," to "Why do we have to always be making changes when things are running so well," to "I'll believe the League wants changes when they vote to ask for the elimination of the 13 and 20 wpm code requirements."

Taking each of the points mentioned above, let's see how each might work in actual implementation.

Certainly the proposal for more club participation in any programs to promote *and protect* Amateur Radio at the local level are important. Anything the League does to encourage such programs will be for the benefit of all aspects of Amateur Radio.

The "how" in this case is difficult. While most Amateur Radio clubs in the United States and Canada are affiliated with the League, in my own experience, large numbers of clubs are affiliated with the ARRL more in name than in actual activities. With the exception of Field Day, many affiliated clubs have little or no activity related to their League-affiliated status.

Hopefully, programs and recognition will increase club activity in the important "PR" areas that are so important, since it is at the local level that we really generate our image to the public.

The proposal to change the status of the SCM *is* a major change. In past years, the office of SCM has become potentially more important.

Some years ago the Board voted to include club contacts in the duties of the SCM — a change from a position that once was involved mostly with traffic and other operational activities.

Part of the proposed SCM change from the Long-Range Planning Committee would be to possibly make the SCM responsible to the ARRL Director of his Division. At present, the SCM reports directly to the Communications Manager at Headquarters.

If the SCMs are given responsibility for more of the various kinds of League activities at the local level, the proposed change would be helpful.

There are, however, two possible problems with such a change. The first is that by making the SCM responsible to the Division Director instead of the Communications Manager, the Division Directors would become responsible for League communications activity and operation.

At present, the Directors work mostly at a policy making level. Can they also assume responsibilities for operational activities in their divisions?

Secondly, the SCM is an elected office. By changing the structure to have the SCM responsible to the Director, we will have a structure with possible conflict. After all, elected officers should be responsible to their constituents first.

At present, the SCM — at least in theory — should be taking direction from the members of the section who elected him. Can the SCM also take directions from the Division Director without having some conflict?

Closely related to the proposed changes in the structure of the SCM duties and the Communications Department is the proposal to establish a "steering committee" to assist the Director in each ARRL division.

It is suggested that such a steering committee would be made up of SCMs, Assistant Directors (ADs) and other League officials who would meet periodically with the Director to help formulate League policy at the Division level.

Here in the Pacific Division, such a group — at least unofficially — has been in operation since 1946. This "unofficial" group in the Pacific Division is made up of SCMs, SECs (Section Emergency Coordinators), ADs and other League officials, plus representatives of the ARRL-affiliated clubs in the Pacific Division.

The annual meetings of this group are called the "Pacific Division Directors Meetings." In addition to the League officials and club representatives, each unaffiliated club within the Division is invited to send a non-voting but participating observer.

Other Divisions within the League have similar meetings, but none are official in the sense that they have a place within the ARRL structure and organization.

In addition to the annual meeting, the Pacific Division Director calls League official meetings at various Amateur Radio affairs such as hamfests and conventions. SCMs, SECs, ADs and PRAs (Public Relations Assistants) attend these meetings where operational aspects of the League are discussed and cooperative efforts made to strengthen the position of the League and Amateur Radio in all Sections.

Such advisory types of meetings have been highly useful to the Director, at least in my own experience. Such an official ARRL structure should help strengthen the League at the Division level.

Here in the Pacific Division, we have found that including representatives from at least ARRL-affiliated clubs has also been very useful. Many ideas come from these "reps," and affiliated clubs feel they have a real part in League planning and operations.

It is also a good idea to change the League's Advisory Committee structure to include one member from each ARRL Division. This will allow amateurs in every Division to have more a direct line in giving suggestions and advice to the Board of Directors through the Advisory Committee Structure.

There are many other suggestions contained in the Long-Range Planning Committee Report Phase II, and these will be dealt with as the League moves to involve more members in the actual work of the ARRL in many different amateur operational areas.

It remains to be seen how well the changes will be received and whether these changes are effective in strengthening the League in the field at all levels.

Certainly both individual membership and club participation are important to the workings of the ARRL. Hopefully, the Board of Directors is moving toward including more participation at all levels. It remains for the members to support these changes by becoming active in at least one aspect of ARRL work. □

Book Review

ARRL Operating Manual

Lou Horacek, KJ8J

I just bought the new *ARRL Operating Manual*, and would like to recommend it to all amateurs. Unlike so many ARRL publications which have only gradually changed over the years (like the Handbook), this is a completely new version of the old *Radio Amateur's Operating Manual*. Everyone can learn something out of this book.

The topics covered will give you an idea: traffic handling, emergency communications, DXing, contests, awards, repeaters, VHF/UHF operating, satellites, visual communications, microcomputers, and shortwave listening. This is not an encyclopedia, so these subjects are not treated in depth, but enough is given to at least get you started, or give you an understanding of what is going on.

For instance, the *Operating Manual* tells you all the basics of traffic handling on CW, voice and RTTY. It tells how to use the OSCAR satellite, how to work DX on the VHF bands, and how to operate Slow Scan TV. There are thoughts on contest strategy, and all kinds of information on DXing.

Again, every amateur can learn something from this. It's a brand new edition, so the latest developments are covered to bring the old-timer up to date. And I don't see how I ever made it through my beginning years without it — I guess I just learned the hard way! So I especially recommend it to beginners. Read this and you'll sound like an old-timer (only smarter).

— *The Triple States RAC BNT, OH* □

ARRL QSL Bureaus

Outgoing QSLs through the ARRL Bureau

If you are a current member of ARRL and wish to send outgoing QSL cards through the outgoing ARRL Bureau, send them to: American Radio Relay League, 225 Main Street, Newington, CT 06111.

Additional information:

1) An unlimited number of QSL cards may be sent for distribution 12 times per year. The fee is just $1 per pound or portion thereof (155 QSL cards average a pound).

2) Presort your DX QSL cards alphabetically by call sign prefix (A3, AP, C6, CE, F, FG, G, GI, GM, JA, 3A2, etc).

3) Enclose the address label from the brown wrapper of your current copy of QST. Family members may also use the service by enclosing their QSLs with those of the primary member. Include the appropriate fee with each individual's cards and indicate "Family Membership."

4) Enclose payment in the form of a check, money order or cash. Sending large amounts of cash through the mail is not suggested. Please do not send stamps.

5) *DO NOT! DO NOT!* expect any incoming cards from the above bureau.

Receiving QSLs through the Bureau

If you are expecting incoming QSL Cards through the Bureau and you are in the Fourth Call Area and your call sign has a single letter prefix, i.e. W4, K4, or N4, you should send a 5-by-7½-inch self-addressed stamped envelope to: Mecklenburg ARS, P.O. Box DX, Charlotte, NC 28220.

If your call sign has a two-letter prefix, i.e., WA4, WB4, WD4, WN4, AA4, KA4, NA4, you should send a 5-by-7½-inch self-addressed stamped envelope to: Sterling Park Amateur Radio Club, P.O. Box 599, Sterling Park, VA 22170.

Additional information:

1) You do not have to be a member of ARRL to participate in the incoming Bureau.

2) Neatly print your call sign in the upper left hand corner of your SASE envelope.

3) A preferred way to send envelopes is to affix an 18 cent stamp. (Not as long a delay between receiving envelopes if you don't have that many incoming cards.) If you expect to receive more than 1 oz. of cards at a time, please affix postage accordingly.

4) You may send extra postage if you desire.

5) If you already have envelopes at the Bureau, you need to send additional postage since the postage rates have increased.

6) *DO NOT! DO NOT!* send outgoing cards to the above Bureau. □

ARRL bulletin

The FCC has approved the proposal in Docket 80-136 to delete the requirement that amateurs identify the station with which they are in contact, except in cases where international third-party traffic is involved. This action will be effective 30 days following publication in the Federal Register. W1AW will announce the effective date.

In other matters, the Commission decided to release as a notice of proposed rulemaking, ARRL petition 3788 requesting additional authorization for digital techniques and experimentation. The Commission denied a petition for reconsideration filed by the Southern California Repeater and Remote Base Association, SCRRBA, in the matter of power restrictions near certain military installations. The Commission also approved the release of a Fourth Notice of Inquiry in the WARC final acts implementation Docket affecting allocations between 40.5 and 400 GHz. Details to follow in QST. □

Painting your tower?

Putting a coat of silvery stuff on that rusty tower is really easy if you use a car washing mitt. After dipping it in the paint, you can completely circle the tubing with your hand. Cover all surfaces with just one swipe. The mitt also makes it easy to squeeze paint into the corner welds. I saw a guy do a 50-foot tower in one hour. (Good job too.)

— *RF Carrier, Dayton, OH* □

DX WORLD

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

Activities calendar

08 November	Czechoslovakian DX Contest
14-15 November	DARC European DX Contest (RTTY)
28-29 November	CQ Magazine Worldwide DX Contest (CW)
04-06 December	ARRL 160-meter Contest (CW)
12-13 December	ARRL 10-meter Contest
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

One application was received during the month of September. Certificate #142 was awarded to Gordon Girton, W6NLG — a member of the famed Northern California DX Club, who delivered his QSL cards in person to **Worldradio** headquarters.

W-100-N (Worked 100 Nations) is sponsored by **Worldradio**, and is awarded to any licensed radio amateur who can provide proof of contact with at least 100 different nations. A nation is not to be confused with a DXCC country, and in no way competes with the DXCC program. Complete rules and a nation list is available for an SASE at my home address (see column head).

As this is the final issue of 1981, now is the time to run a complete list of all W-100-N recipients. (See page 29.) The right-hand column is the issue of **Worldradio** in which the amateur was listed. The date of issue is shown for those awards beginning with #69. My original list of the first 68 is lost, so I don't have the dates. Some of these amateurs are now Silent Keys — Don Brickey, W7OK (#3), and Jim Fisk, W1HR (#28).

Crozet Island (FB8W)

FB8WG has appeared on the scene and has been checking into the French DX Net on a regular basis. Unfortunately, the net is out of the American phone band on 14.170 MHz at 1700 UTC. He does respond to CW stations that have been listed. As how to get on the list, your guess is as good as mine.

The operator is reported to be George De Marrez, F2CL, who does not like pileups. As usual, the list-taker types are in there trying to arrange lists for him. As to his desires on this type of operation we do not know. There is a report that he is operating from a list operation on 21.279 MHz at 1700 UTC Saturdays.

In early October, FB8WG was using a Drake TR-4 and a rhombic antenna aimed at France (where else??). George will be there for about a year, so don't panic.

Albania (ZA)

The Albania DXpedition has been delayed until early December. The present schedule is set for the period 4 to 12 December. The crew includes Fernando M. Fernandez Martin, EA8AK; EA2AFZ; EA2AJH; Ignacio Alcorta, EA2IA; Arseli B. Echeguren, EA2JG; and Alvaro Robledo Echevarria, EA2OP. The call they will be using is reported to be ZA2HAM.

China (BY)

This one has been in all the DX bulletins lately. Four members of the Boeing Employees Amateur Radio Society went to the People's Republic of China to demonstrate Amateur Radio equipment to Chinese officials. They used the call K7LAY/BY and were authorized one contact on 20 meters, which was made with Bill Bennett, W7PHO of the "Family Hour." Two other contacts were made, but these were "tail-enders" and were not logged.

For more information, refer to the front page of last month's **Worldradio**. But, as for other operations, anything you hear now would be Slim, such as BY1PK. Jim Cain, K1TN reminds us that when the Soviet amateurs were allowed back on the bands following World War II (in the late 1950s), the date was set and hundreds of the "U" stations appeared from all districts, preventing mob scenes. Jim feels that will be the same case when China rejoins the Amateur Radio fraternity. At one time, there were more Chinese stations on the air than the Japanese. This probably was prior to 1952 when the Japanese were permitted to resume Amateur Radio and the stations in both countries at that time were Yanks.

Libya (5A)

Abed, 5A7BQ claims to be a permanent resident with a valid license and has agreed to forward a copy of his license to the DXCC desk to pacify Newington, Connecticut. Look for him on 10 meters where he has been reported at 1700 UTC on 28.546 MHz. From another report, we have the call 5A9BQ, (perhaps the same station with one of the two bulletins getting the call wrong), on 28.650 MHz at 2000 UTC.

Tunisia (3V8)

Dr. Vince Thompson, K5VT concluded his African DXpedition with several days of a contest-style operation using the call 3V8VT. The end of October was to bring London's Borough of Havering DX Club with their DXpedition with the expected call of 3V8DX. The planned operation was to have been a five-band affair on both CW and SSB running 800 watts.

On reviewing various reports, I've found we have a 3V8BD who favors CW. Look for this one around 14.015 MHz from 0100 UTC.

Belize (V3A)

The VP1 prefix is now history. As Belize is now independent, they were assigned a new prefix. This does not mean you have another new DXCC country. All they did was put on a new suit.

Belize, formerly known as British Honduras, can be found on the bands representd by V3AWS, who has been reported on 14.201 MHz at 0900 UTC.

Comoro Islands (D68)

Alaine, D68AM is reported to be active on 21.285 MHz on Tuesdays and Thursdays from 1930 UTC. This is a list operation run by Robert Thomson, K0VVV. QSL chores are handled by Peggy Arciero, WB2OHD. So, if you want a D68, get on the list.

Guyana (8R)

Steve Myers, KA3BUJ was busy working the deserving recently as portable 8R1. A heavy concentration was on 80 and 40 meters CW. KA3BUJ/8R1 has been reported on 28.006 MHz from 1600 UTC, 21.025 MHz from 1100 UTC, 14.026 MHz from 0400 UTC, 7.008 MHz from 0400 UTC and 3.501 MHz from 0530 UTC. As to if he is still there, we don't know. WB4ABK handles the QSL chores and does a fast turn-over on responding.

Jan Mayan (JX)

All stations operating from Jan Mayan are Norwegians using their own calls with the prefix "JX" replacing the prefix "LA" of their calls. So, if you work JX5VAA, the operator is really LA5VAA operating in Jan Mayan. This station is active every day from 1400 to 2000 UTC. Look for him on 20 meters between 14.250 to 14.290 MHz, or 21.230 to 21.290 MHz. This station requests that QSL cards be sent via Stig Lindblom, LA7JO.

JX7FD is scheduled to depart mid-October to return home, but was to be replaced by JX8A, who was to be there for only two weeks.

Heard Island (VK0)

Jim (VK9NS) and Kirsty (VK9NL) Smith are still set for their trip to Heard Island near the end of December. They will be signing VK0JS and VK0HI, respectively. Jim was scheduled to go to Heard Island last year, but had to scratch the DXpedition due to various reasons. Let's hope they are successful, as many of the deserving will be needing Heard Island.

Antarctica

VP8AGX at Adelaide Island is found often between 14.270 and 14.331 MHz whenever the propagation is favorable. This station is also backed up by VP8AHS, VP8AIO and VP8QI, with the normal operating schedule Monday through Friday from 1900 UTC. VP8QI also visits 21.325 MHz from 0100 UTC.

Also, look for VK0HW or 4K1A, who also keep things going down there. 4K1A is a Soviet station that is found mostly on CW on 20 meters. FB8YH is a French station down there that keeps the deserving jumping near 14.020 MHz from 1000 UTC.

VK0JP on Mawson has been found on 21.150 MHz from 1000 UTC with

VK0AM on 21.240 MHz around 0830 UTC.

On 20-meter CW near 14.008 MHz from 0700 UTC, CE9AI has been found. It is reported that this station is in Antarctica, but stations with similar calls are stations in the South Shetland Islands. It is hard to tell where some of these stations are without asking them.

South Georgia Islands (VP8)

South Georgia is represented by VP8AEN who has been reported to have been found on 14.128 MHz from 2000 UTC. United States is also a favorite, as he has been reported on 14.202 MHz at 0900 UTC, and higher in the band on 14.255 MHz at 1000 UTC. VP8AEG has been reported on 14.006 MHz at 0100 UTC to please the CW crowd.

South Orkney Islands (VP8)

Another newsletter has VP8AEN of South Georgia on from the South Orkneys, who goes by the name of Brian. This confusion is understandable as the same prefix is used for both island groups.

VP8AJM gives out SSB contacts for the deserving near 14.275 MHz from 1930 UTC. Operator Gavin requests that QSL cards for him be sent via Steve Wilson, K0JW. Another station active on the band is VP8AJL, who has been reported at 1000 UTC between 14.205 and 14.220 MHz.

South Shetland Islands (HF0POL)

The Polish research team is still in the South Shetlands and activates HF0POL on a fairly regular basis. Look for this one near 14.015 MHz from 2000 UTC. He has also been found working the deserving at 0300 UTC near the same frequency. Just look for the pileups.

CE9AH is also on from the South Shetlands with CE9AT on 40 meters. Look for them near 7.075 MHz from 0530 UTC.

South Sandwich Islands (LU3ZY)

This one appears to be back on the bands again. The operator, Carlos, LU2EEO is not really a DXer, and most likely will be in there operating "list" style on SSB. Check around 0001 UTC near 14.220.

With all the above information, perhaps the Yagis can be turned south for a bit. As for this station in California, the antenna is usually beamed north for the European activity.

Juan de Nova (FR/J)

The Juan de Nova DXpedition with Jean Bouygues, FR7BP and FR0FLO is now history, with the team making 8,000 contacts on 6 September. FR0FLO was found on SSB, with FR7BP responding to CW requests.

A few stations were pleasantly surprised to find FR0FLO pop up from Mayotte as FH0FLO for a one-day affair. Surprisingly, there wasn't much of a pileup on him.

Thailand (HS)

Via *The DX Bulletin*, HS5ANI says the reason that stations in Thailand have been silent is that the government has been having all amateurs register their equipment. Perhaps this preludes licensing of amateurs by the government. Prior to that, Amateur Radio calls were assigned by the radio club in Bangkok, and to anyone who attended the required three meetings of the club.

A later report in TDB via HS1AMX is that Amateur Radio has been forbidden since 18 August, with all operating being illegal.

Egypt (SU)

In addition to SU1AL and W5JMM/SU, we have information on some stations active from that country. SU1AA is a YL who is the daughter of SU1AL. Also active are SU1BA and SU1ER. SU1BA has been known to be operating quite late (Cairo time), which is convenient for amateurs who live on this side of the world.

The above information comes from Mohamed S. Reda, N0BML, who spends more than 60 percent of his time in Cairo. While in Egypt, he operates with the call of SU1CR. The following words are that of OM Reda:

"W5JMM/SU can be quite active but is surely a pirate, as the FCC equivalent in Egypt — the Telecommunication Organization — does never issue a portable or mobile permit. An amateur station in Egypt is at one locality, stated in the license and never this kind of call —/SU. All calls are SU1—, normally the initials of the licensee, or any two letters of his/her choice." Those are his words, not mine. I always assumed that Karl's call W5JMM/SU was assigned as /SU as a reciprocal license. I never heard him claim to be portable or mobile. Therefore, if this is an illegal station, perhaps the DXCC desk should be informed. Has anyone had their W5JMM/SU cards rejected?

SU1CR also reports CW activity from Ibrahim Ibr Mohamed, SU1IM and his daughter, Mona, SU1MI. SU1IM has been active for a long time, as I worked him back in the 1950s when I was living in New Jersey. Ahmed Hassan, SU1AH is reported to be on CW soon.

YASME sails again

The Colvins — Lloyd (W6KG) and Iris (W6QL) — have departed upon another YASME DXpedition. They were to have departed 1 October and will be traveling continuously for at least six months.

Their operations will be on all bands and divided equally between CW and SSB. The normal frequencies will be 28.025, 28.550, 21.025, 21.285, 14.025, 14.225, 7.025, 7.185, 3.525 and 3.800 MHz.

Applications are pending for several very rare countries and, if they get approval to enter and operate in one of these countries, they will go there. Presently, their itinerary includes month-long operations at Barbados (8P6); Trinidad (9Y4); French Guyana (FY0FOL); Surinam (PZ); Guyana (8R1); and Netherlands Antilles (PJ2).

IARU notes

Two more countries have been admitted to the International Amateur Radio Union (IARU). Welcome to Andorra (C31) and San Marino (M1/9A). Applications for membership are pending for Djibouti (J2) and Bangladesh (S2).

Speaking of the IARU, the following item was excerpted from the club bulletin of the Richardson Wireless Klub, which was already secondhand information. It seems that some New Zealanders are not pleased with the IARU headquarters being at Newington. They state: "For over 50 years IARU headquarters has been administered by the American Radio Relay League with its officers arbitrarily selected rather than democratically elected." The New Zealanders suggest that the IARU should have an executive elected by the member-societies, and administrative work should be carried out by regional organizations who would implement policy decided by the headquarters executive after due consultation with regional executives, who in turn have sought the opinion of their member societies and reached a consensus. This, they report, would permit more use to be made of volunteers and so reduce the need for professional administrators.

DXCC notes

The Awards Committee at ARRL headquarters in Newington has approved the country status for the Sovereign Military Order of Malta (1A0KM), and will now accept them for DXCC. Do not submit your 1A0KM QSL cards until after the first of the year. *The DX Bulletin* reports that the vote on SMOM within the ARRL headquarters was very close on the issue. This brings the DXCC total up to 319 again. It was reduced last December to 318 when Okino Torishima was deleted.

As for Burma, neither XZ5A nor XZ9A are expected to count for DXCC. Cards from XZ5A and XZ9A count as new prefixes for the WPX awards. Also, I see no reason why either card cannot be used for W-100-N. In addition to all that, both QSL cards are quite attractive and interesting.

In another DXCC matter, the Awards Committee will be making a change where credit for single-mode DXCC awards will be given only for QSL cards which clearly state "two-way contacts," (2xSSB, 2xCW, etc.). Under the present rules, you can work a station who never uses CW and get credit for a CW contact if you were on CW. In other words, your cross-mode contact will count toward your CW DXCC just as long you were on CW.

K6LPL and the bogus QSL cards

We have included calls of some of the fake QSL cards that were printed and distributed from California, reported to be 60,000 in circulation. These include SV1DC/A, JT1KAA, BV2A, BV2B, K5CO/5A, 3Y1VC, A51PN, SV1IW/A, 5R8AL, 4S7DA, HK0AA, XU1DX, TY9ER, SV1JG/A, C9MIZ, 9S4AX and T3KC. If you have any of the above cards and plan to submit them, check carefully against your log.

As for Dr. Gardner, K6LPL — Jim Neiger, N6TJ of the Southern California DX Club (SCDXC) reports that he hasn't been to a SCDXC meeting for some time. so perhaps he has dropped out of the Amateur Radio fraternity.

RTTY

The RTTY types might check out the following:

Call	Freq. (MHz)	UTC
CX2GB	14.091	0300
EA9JV	21.097	0000
EA9JV	14.085	0130
IS0ZPH	28.097	1600
S8AAA	21.090	2000
SN0WPK	21.088	1700
T12DO	14.095	0300
YB2SV	21.097	1800
YU7BCD	14.092	0000
4X6CV	28.096	1500

You might find Jose Titos Becerra,

EA9JV on 10 meters, all day his time. Between 1900 and 2100 UTC he works 40 meters and 20 meters from 0130 UTC.

The above information is courtesy of Bill Snyder, W0LHS of the RTTY desk. Bill also reports that the two recent DX-peditions — Wallis Island, FW0BK, and Easter Island, CE0AA — were both on RTTY.

Islands-on-the-Air

The following have been excerpted from Geoff Watts' *DX News Sheet* and apply toward his Islands-on-the-Air Awards (IOTA).

Ref. No.	Call	Island group	Freq. (MHz)	UTC
EU-56	LA2QAA	Nordoyane Island	14.258	1830
EU-78	AO3PDX		14.201	0800
AN-01	VP8AGX	Adelaide Island	14.270	1900
NA-08	VE8RCS	Ellesmere Island	14.175	1945
NA-09	VE8MC	Parry Island	14.123	2230
NA-10	VE1CEL	Cape Breton Island	14.135	2200
NA-56	CO4RCB	Isla de Pinos	14.152	0645
NA-58	N4BAA	Sea Islands	3.795	0500
OC-50	FO0KU	Tubuai Islands	14.267	0730
OC-73	JD1BAT	Minami Torishima	21.170	1030

Worked All Provinces

This award is sponsored by VRZA of The Netherlands. It is available to all radio amateurs who can submit proof of contact with at least one Amateur Radio station in each of the 11 Netherlands provinces. There are no time limits, nor are there any mode or band restrictions.

If contacts are made during the annual PACC Contest, proof of contact is not required for those contacts. The fee for this award is $2. No address for the award was given other than the PACC Contest mailing address, which is as follows: F. Th. Oosthoek, PA0INA, Fred. Maystraat 36, 4614 EH Bergen op Zoom, THE NETHERLANDS.

Map of The Netherlands showing the Dutch provinces.

List of Dutch Provinces

Groningen	GR	Noord-Holland	NH
Friesland	FR	Zuid-Holland	ZH
Drente	DR	Zeeland	ZL
Overijssel	OV	Noord-Brabant	NB
Gelderland	GD	Limburg	LB
Utrecht	UT	Ijsselmeer Polders	YP

A contact with Ijsselmeer Polders may be used as a substitute for any one of the 11 provinces.

Radio Vaticana Award

To celebrate its 50th anniversary, Radio Vaticana will issue an award to any station for working at least one station in the Vatican State (Domenico Petti, HV1CN; HV2V0; Curia Generalizia Gesuita, HV3SJ) during the period of 1 October 1981 through 1 February 1982. To apply, send a photocopy of your QSL cards before 31 December 1983 to: HV1CN, Radio Vaticana, Citta del Vaticana, EUROPE.

For further details, see **Worldradio**, October 1981, page 20.

WPX Manager

In the October issue I listed John Kroll, K8LJG as the new WPX Awards Manager. I applied for an endorsement to my WPX certificate to John in August, and it came back from Norm Koch, K6ZDL. If any of you sent your applications to John, don't worry as they will be forwarded to Norm.

John Attaway, K4IIF, Chairman of the **CQ Magazine** DX Committee, informs me that John K8LJG had wanted to be the WPX Awards Manager for a long time and accepted eagerly when Bob Huntington retired. After the files were sent to him, he developed a health problem and was advised by Doctor's Orders to give it up. Fortunately, Norm, K6ZDL was interested in picking up the program.

Therefore, all future WPX applications and endorsements should now go to: Mr. Norman V. Koch, K6ZDL; WPX Awards Manager; P.O. Box 1351; Torrance, CA 90505-0351.

Soviet Awards

On 24 June, I sent over 100 QSL cards with an award application to P.O. Box 88 in Moscow. The cards and the award were received on 7 October, less than four months later.

Perhaps this is encouraging to those of you who hesitate sending QSL cards to Moscow.

Mention of the RAEM Award is in Ellen White's DX column in the September issue of **QST**. Also listed are several Soviet calls that are valid for the RAEM Award with their respective points value. A total of 68 points must be collected and a location can be counted only once; (i.e., you can only count one station from Murmansk). This is a CW only award; no SSB contacts count.

Another active station not shown on the **QST** list is Pete, UA0QEU; who gives his location as Tenkeli. A check on the USSR map shows this hamlet to be above the Arctic Circle.

Collecting Oblasts? Oblast 045, Tashauzskaya, is represented by UK8WAA. He has been reported at 1630 UTC on 21.247 MHz. In addition to that frequency, try 3.502 MHz at 2200 UTC and 7.010 MHz also at 2200 UTC. Those times are from the United Kingdom, so don't try checking 40 and 80 meters at that time of day.

The Hokkaido DX Foundation

Japan has a DX Foundation, which we hope the JA types will support, as many of them don't support the DX foundations here. A major project of this group is the Burma stations — XZ5A and XZ9A. They have no yearly dues, but accept donations, and a donation of at least $12 will get you a memorial T-shirt. You may have either the XZ5A shirt or Hokkaido shirt, both medium and large sizes. Send your contribution to: The Hokkaido DX Foundation, Inc., P.O. Box 150 Asahikawa, Hokkaido 070-91 JAPAN.

The trustees of the foundation include Jim Fukuta, JA8BMK; Toshi Hara, JA8QO; Yoshi Kato, JA8CDT; Masa Itoh, JA8IXM; and Kazu Abe, JA8MWU, who send their "Best Regards."

Clubs

New officers of the Twin Cities DX Association include KI0Z, president; KK0C, secretary-treasurer and Willard Higgins, W0YDB, director.

A request was received from Stanley Kaisel, K6UD of the Northern California DX Foundation. The Foundation is interested in obtaining the lists of current officers, calls and/or the mailing addresses for the various DX clubs. As **Worldradio** does not have that information, perhaps the DX clubs can keep Stan up-to-date. Send your officer lists to: Northern California DX Foundation, P.O. Box 2368, Stanford University, Stanford, CA 94305.

Worldradio would also like a copy for publication in this column.

The DXer's Aptitude Quiz

You may find the article, "The DXer's Aptitude Quiz," by Larry Brockman, N6AR, in the October 1981 issue of CQ interesting reading. From reading the article, it is obvious Larry doesn't care much for the list operations. This was also apparent at the 1980 Fresno International DX Convention where Larry first presented his views on the subject. To put it bluntly, "list operators were welfare rolls of DXing and immoral."

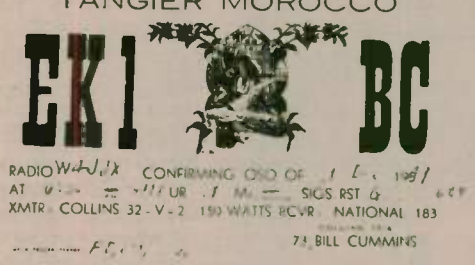
Well, perhaps this is a bit harsh, but there is a point to it. There is a thrill of breaking the pileup for a new one. But that can get old in a hurry if you have a modest station. Whatever, read the article and see for yourself where you fit in. Remember, though, it is one man's opinion.

Every summer the Northern California DX Club has a marathon among the membership to see who can work the most DX during the three-month period of June through August. There are three categories: all SSB, all CW and mixed modes. As for my own participation, I managed to work over 100 DXCC countries during that period, all on CW. My station consists of a FTDX560 and a TH6DXX that has been up for over 10 years. No linear amplifier! No California kilowatt! So, you see. You don't have to get on the list to work DX. Unless, of course, the DX station will only work from a list. Larry didn't have an answer for that one.

Antique QSL Department

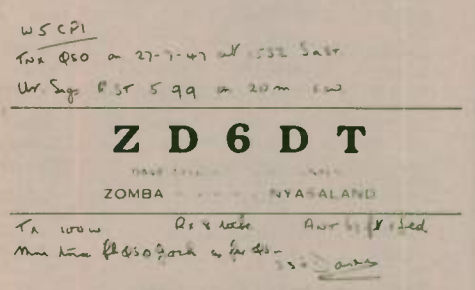
We ran one of these old-time QSL cards for Tangier a couple of years. This one, for EK1BC, operated by Bill Cummins, confirmed a 10-meter phone contact with W4JJX at the end of 1949. That was 10-meter phone, not SSB. Bill was using Collins gear, a 32V2 transmitter with either a National 183 or Collins 75A receiver. This oldie was provided by

Charles McDowell. Charlie, formerly W4JJX, now signs K4LR in Birmingham, Alabama.



Jack Harkins, W5CPI of El Paso, Texas provided the next QSL. This was for a 1947 contact Jack made on 20-meter CW with ZD6DT, of Zomba, Nyasaland.

The station was operated by Dave Taylor. Nyasaland, ZD6, no longer exists and has been replaced by Malawi, 7Q7.



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 Frequency (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″.

JANUARY 1982

UTC	AFRI	ASIA	OCEA	EURO	SO AM
0100	23.3	32.7	31.5	11.8	24.2
0200	19.2	27.7	30.5	11.8	21.3
0300	15.3	22.6	26.8	11.7	19.3
0400	14.6	18.6	23.6	10.8	17.5
0500	12.2	15.9	20.6	9.2	15.8
0600	11.7	13.7	18.2	8.6	14.8
0700	12.2	11.9	16.9	10.8	14.8
0800	12.7	10.9	15.7	12.9	15.3
0900	12.6	10.9	14.2	13.8	15.5
1000	11.9	12.0	13.2	13.1	14.3
1100	10.5	12.4	13.5	12.8	11.8
1200	9.3	10.8	13.3	10.7	10.5
1300	10.4	10.6	11.7	10.4	13.3
1400	14.8	9.2	10.9	13.9	20.0
1500	20.9	11.2	14.6	18.9	27.1
1600	26.3	12.8	22.8	25.1	31.4
1700	30.5	11.3	23.0	21.5	32.5
1800	31.3	10.2	22.9	17.2	32.4
1900	30.9	10.9	23.9	13.4	33.2
2000	30.7	14.4	26.0	11.7	33.2
2100	30.8	20.5	27.8	10.7	32.6
2200	29.9	27.2	28.4	10.8	32.0
2300	27.8	32.4	28.4	11.3	30.6
2400	25.7	35.6	29.5	11.6	27.8

Miscellaneous

We received a letter from George Carleton, AD0S in Merrified, Minnesota. He is concerned about an 18-year-old amateur with an N0 call who lives about 60 miles from him, who at various times indicated to be operating as portable "KH4" or pretended to be a "J88." This was in response to the report of Peter Meyer, N0AFW/KH4, operating on Midway Island, (page 23, October 1981 **Worldradio**). Well, I can't say much more to that, except if it were N0AFW operating and claiming to be portable KH4, why would he be stupid enough to use his own call? Perhaps some of our readers have had similar experiences with this station, or maybe others. (I'm not including the Slims in this case, who use bootlegged calls.)

QSL information

Bill Loenberg, W2OOJ writes that Edwin Anderson, W2JPO has been receiving QSL cards for a 7Z0UA. This station was reported to have been active around the early part of July on both 15 and 40 meters CW. So far, all the cards have come from Japan. W2JPO has not been on the air for some years and has never been a QSL manager. I suspect this is another one of Slim's operations. I have heard of 7Z2 stations, but not a 7Z0.

Anyone have information on 4W1AA from 1963? Bob Truhlar, W9LNQ needs help on obtaining a QSL from that station. And if anyone else needs help in obtaining long overdue QSL cards, drop us a line. We will print it in this section.

We received a letter from Julio Ripoll, WD4JNS, who states he is no longer the QSL manager for HH0N. He seems to be having flack from various groups concerning the operation. We have no other correspondence regarding the problems Julio seems to be having; apparently some of it is coming from League headquarters. As Julio is applying for Life Membership in the ARRL, he wished to remain in good standing and thought it best to resign as QSL manager for

HHØN. All cards for HHØN should now be sent to Reggie Chauvet, HH2CR/KA4MRE/KD4VU.

Franz Langner, DJ9ZB offers a Directory of QSL Managers. A single issue costs DM 13, postpaid in Europe, and DM 15 elsewhere. A yearly subscripton, which consists of four issues, is DM 48 in Europe and DM 55 elsewhere. Contact Frank for details: Franz Langner DJ9ZB, Carl Kistner Str. 19, D-7800 Freiburg/Br., WEST GERMANY. (FRG).

When routing your QSL cards via a Japanese QSL manager, please be aware that the dimensions of most Japanese cards are 10 by 14.8 centimeters. This will require an SAE to be at least 4-by-6 inches, which is larger than a standard U.S. type envelope.

That YA1CP station that was active in the August All Asia Contest was most likely the work of Slim. The Central Radio Club in Moscow disclaims the authenticity of the station. See Note 4 under "QSL Routes."

QSL routes

A4XJJ	-G3NAO
A22YV	-JA2KLT
A35EL	-OE2DYL
A71AE	-DF4NW
AH3AA	-KJ6BZ
AP2ZA	-W6NLG
C5ACJ	-KB8KS
C5ADT	-G3VMK
C21NI	-OE2DYL
C31MF	-EA1QF *(See Note 1)*
C31OZ	-DF6EJ
C31PF	-G3WPF
C31XI	-DF7NJ
CE1VES	-W2NW
CE6COR	-EA3SF
CEØAA	-CE3AA
CEØAC	-CE3YY
CH2DPJ	-VE2DPJ
CH2FOU	-VE2BCC
CR9JA	-JA1UT
CSØCJC	-CT4SU
D68AM	-WB2OHD
DA1CM/HBØ	-DC8HG
DA1GE/HBØ	-DC8HG
DF9FM/ST3	-DF9FM
DL2VK	-DF9FM
EA8RV	-K5MHZ
EC1AD	-EA1QF *(See Note 1)*
EC1BW	-EA1QF *(See Note 1)*
EC9AA	-EA1QF *(See Note 1)*
EC9DQ	-EA9HU
EK8R	-UJ8JJJ
EL2P	-WD9DUF
EL5G	-K3RB
ELØWB/MM	-VE7BVF
FØAHY/FC	-DL4FF
FØCYA/FC	-HB9BFS
FB8YH	-F3KH
FCØGQQ	-DJ6ZB
FG7TD	-W5RU
FHØFLO	-FRØFLO
FK8CE	-K2ROR
FK8CL	-DJ9ZB
FK8DH	-DJ9ZB
FK8DJ	-DJ9ZB
FKØFB	-WB6GFJ
FKØRR	-ZL1BQD
FMØEOM	-F2VT
FO8HH	-KA3A
FOØNP	-OH2NP
FPØGAP	-W8NR
FPØGAQ	-K8CJQ
FPØGBG	-W8AH
FR7BP/J	-FRØFLO
FR7CE	-DF2OU
FWØBE	-DJ9ZB
FWØBF	-DJ9ZB
FWØBK	-FK8DJ
GJ5CHV	-DL3EW
GJ5DQB	-DF3JC
GJ5DQC	-DF3JD
GJ5DQE	-DK3KD
GJ5DQF	-DK9JN
GJ5EBO	-DF1JM
GJ5EBP	-DL4EN
GJ5MTY	-DB7EJ
GU6UQ	-G3VSA
HBØALO	-HB9ALO
HBØAQW	-HB9AQW
HC7CM	-N5BET
HC8KA	-HC5KA
HEØPOL	-SP5EKZ
HHØN	-KD4VU *(See Note 2)*
HL9FR	-WB9RGA
MH1PW	-W3GNM
HP1XEK	-DL1HH
HT1CTJ	-HK3LT
I21AU/ID9	-I21AU
IE9UDB	-I8UDB
IR8ONU	-IW8ZAV
IV3OSH/5R8	-IV3MUC
IZ5ARI	-I5HCH
J3AH	-W2GHK
J5HTL	-SM3CXS
J6LCV	-WD4NBX
J87BK	-W8PSD
J87BT	-W8PSD
J87RS	-N8BKF
J87WW	-W8WW
J88AG	-NØAFW
J88AQ	-W2MIQ
JA2KLT/3B8	-JA2KLT
JA2KLT/3B9	-JA2KLT
JA2KLT/3D6	-JA2KLT
JW5OD	-LA6ZW
JW6MY	-LA6MY
JW7XB	-LA7XB
JWØBS	-LAØBS
JX5VAA	-LA7JO
JY9RV	-GW3RVG
KA2MZS/SV9	-WB5LH
KA3BUJ/8R1	-WB4ABK
KB7IJ/KH2	-WA6GEM
KC6ZZ	-K7TI
KH3AB	-KB7MO
KM6BI	-W5RU
KP4AM	-W7PHO
M1D	-I4FTU
NH6D/KH4	-NH6D
NP4A	-W3HNK
OD5RZ	-VE5QY
OE1ETA/KH6	-OE2DYL
OE1ETA/KH8	-OE2DYL
OE2VEL/KH6	-OE2DYL
OE2VEL/KH8	-OE2DYL
OH1TD/4U	-OH1TD
OH2BK/OHØ	-OH2BAD
OHØAM	-OH2BH
OHØBA	-OH2BAZ
OY8KH	-W5RU
R1ARO	-UK1CAA
RKØA	-UKØAAB
S9VCT	-K5VT
S79MC	-AK3F
SNØMSP	-SP3AUZ
SNØWPC	-SP3AUZ
SO3CC	-K1CC
SP2AOY/OA4	-SP2UU
SP2BHZ/JW	-SP2ESH
STØAS	-DK2OC
SV1NA/9	-SV1NA
SVØAA	-N2OO
T2ETA	-OE2DYL
T2VEL	-OE2DYL
T30AT	-G3XZF
T30BG	-OE2DYL
T30DB	-G8LGB
TA1MA	-DJØUJ
TA2KS	-G3SCP
TA7MM	-TA1KD
TG9WB	-WB2JVP
TJ1BB	-AF4B
TL8CN	-W5RU
TL8JM	-W5RU
TL8WH	-W5RU
TR8AC	-W5RU
TR8GDG	-W5RU
TU2JB	-F6FFS
TU2JJ	-KNØKCW
TU4BA	-W2TK
TYA11	-W4FRU
UK1PGO	-UK3SAB
VKØAM	-VK3EQ
VKØHI	-VK9NS
VKØHW	-VK7HW
VKØJP	-VK2KKK *(See Note 3)*
VKØJS	-VK9NS
VP2LGR	-W5RU
VP2MIX	-WØIJN
VP2MH	-W8HM
VP2MMM	-AA7O
VP2VJ	-VE3MJ
VP5FP	-WB4OSN
VP8AJL	-GM3ITN
VP8AJM	-KØJW
VQ9JJ	-W5RU
VQ9PD	-W1HSP
VQ9QA	-N3QA
VS5MF	-N2OO
VS5RP	-G3REP
VS6CT	-KB9N
VU2DUE	-W5RU
VU2KM	-N7UT
VU2RAK	-W2TYO
W5VFO/HC1	-N5BET
WBØICS/KH7	-WB6FBN
WH4AAA	-W5RU
XE2GDD	-KN5H
XE2QQ	-N5JJ
YA1CP	-UK3A *(See Note 4)*
YB8AEG	-WA2JOC
YB9AAT	-W7KQH
YB9VA	-W5GZI
YBØACL	-WA4RRB
YBØACP	-K6DLV
YC1GJ	-W2GBX
YJ8VV	-ZL1VV
YOØWUG	-YO3AC
YV1DQU	-WA1ROI
YZ3L	-YU2DX
YZ7SM	-YU7GST
YZ9HDE	-YU2HDE
ZD8TC	-N2CW
ZD8VO	-K4VO
ZF2AV	-WBØISW
ZF2CZ	-WA3UFI
ZF2DZ	-WB3GPR
ZF2FF	-WB3JWJ
ZK1BD	-ZL1SZ
ZK1DG	-VK2NMM
ZK2EL	-OE2DYL
ZK2JK	-NCDXC *(See Note 5)*
ZK2TA	-OE2DYL
ZK2WW	-NCDXC *(See Note 5)*
ZK2ZZ	-NCDXC *(See Note 5)*
ZM7EL	-OE2DYL
ZP5XJA	-JA1ODP
ZS5SP	-WD4IHV
3B8AE/3B9	-3B8CF
3C1AB	-EA1QF *(See Note 1)*
3C1CE	-EA1QF *(See Note 1)*
3C1JP	-EA1QF *(See Note 1)*
3C1MM	-EA1QF *(See Note 1)*
3V8BD	-G3RGD
3V8BZ	-DL1HH
3V8VT	-K5VT *(See Note 6)*
3X1Z	-W4FRU
4C5NKP	-XE1DU
4N1R	-YU1DZ
4N2CDL	-YU2CBM
4N2DX	-YU2DX
4S7MX	-SM3CXS
4S7OM	-DF5UG
4S7TT	-DL4GJ
4Z4AB	-K3STM
5B4KU	-SM5ASE
5N8ASS	-G4EKF
5R8AL	-JA2KLT
5T5AY	-W4LZZ
5T5DX	-W2TK
5T5ZZ	-W4FRU
5V7HL	-DK9KD
5V7WI	-DK9KD
5W1BT	-NCDXC *(See Note 5)*
5W1DD	-OE2DYL
5W1DG	-VK9DS
5W1DK	-VK9DS
5W1DL	-NCDXC *(See Note 5)*
5W1DM	-NCDXC *(See Note 5)*
5W1DO	-OE2DYL
5Z4AA	-WA1AER
5Z4NQ	-WD9CIV
6W8JO	-W2TK
7P8BJ	-WBØMSZ
7P8BZ	-K5VT *(See Note 6)*
7P8CA	-W2NSD
8P6OR	-K5MHZ
8Q7DX	-JA8GYQ
9G1DJ	-WD5GXB
9J2JN	-KB2ZP
9M2DW	-DJ3HJ
9N1BMK	-JH3LPT
9Q5FL	-K4AEB
9Q5FW	-K4AEB
9Q5L	-K3FN
9U5FR	-SP6FER
9U5WR	-SP6FER
9V1UZ	-N2JA

A71AD	-Mike Smedal, P.O. Box 4747, Doha, QATAR
CE9AH	-664 Echaurren - Apt. 613, Santiago, CHILE
CR9AN	-Simon, P.O. Box 468, MACAO
FO8GP	-P.O. Box 5281, Piraie, Tahiti, FRENCH POLYNESIA
FOØKU	-Blake, P.O. Box 50, Tubuai Island, Austral Islands, FRENCH POLYNESIA
JTØLAJ	-Wal, P.O. Box 180, Ulan Bator 51, MONGOLIA
KA2MI	-USCG Loran Station, Marcus Island, FPO Seattle, WA 98782
KA6NFL/KHØ	-P.O. Box 209, Saipan, MARIANA ISLANDS 96950
KX6BU	-Operator Biz, P.O. Box 444, APO San Francisco, CA 96555
P29EJ	-P.O. Box 1486, Lae, PAPUA—NEW GUINEA
TG9QK	-P.O. Box 115, Guatemala City, GUATEMALA
TU2JQ	-Christian, 01 B.P. 2946, Abidjan 01, IVORY COAST
V3ASC	-P.O. Box 461, Belize City, BELIZE
V3AWS	-P.O. Box 306, Belize City, BELIZE
VK9NND	-Bob, P.O. Box 279, Norfolk Island 2899, AUSTRALIA
VK9NS	-Jim Smith, P.O. Box 90, Norfolk Island 2899, AUSTRALIA *(See Note 7)*
VP1UR	-A.E. Jehle, N5UR, 31 Park Place, Darien,

W-100-N winners

1. W8AH	Albert H. Hix	(North America Plaque, 1st W8)	Aug 1978	
2. DJ9ZB	Franz Langner	(Europe Plaque)	Aug 1978	
3. W7OK	William D. "Don" Brickey	(1st W7)	Nov 1978	
4. JH1VRQ	Naoki Akiyama	(Asia Plaque)	Feb 1979	
5. WA6KTZ	Terry Falke	(1st W6)		
6. K0VRW	Richard R. Garrison	(1st W0)	Mar 1979	
7. WB3CIW	Dr. Howard L. Smith	(1st W3)	Mar 1979	
8. WA7UVO	Robert H. Nesbitt		Apr 1979	
9. WB8ZRV	Robert J. DeVore		Apr 1979	
10. AI8M	David Willemin		Jun 1979	
11. WD9CWJ	Don Bucholtz	(1st W9)	Jun 1979	
12. WB9TIG	John R. Hansel		Jun 1979	
13. AB8Y	Gary F. Kaser		Jun 1979	
14. K1RH	Ralph M. Hirsch	(1st W1)	Jun 1979	
15. N4MM	John C. Kanode	(1st W4)	Jun 1979	
16. K0LST	Louis H. Ouren		Jun 1979	
17. WA4DAN	Murray D. Adams		Jul 1979	
18. WA6SRJ	William J. Roth		Aug 1979	
19. N3RL	Robert C. Landis		Aug 1979	
20. WA1TPR	Morris Bruce Egalka		Aug 1979	
21. WB7BFK	Beryl "Bill" E. Gosney		Sep 1979	
22. W4TJC	James W. Tidwell, Jr.		Oct 1979	
22. AA4NC	Will Roberts		Oct 1979	
24. W6PYV	Arthur L. Munzig, Jr.		Oct 1979	
25. KA5ACC	Gregg D. Breitegan	(1st W5)	Oct 1979	
26. N6AHU	Joseph Merdler		Oct 1979	
27. K7RDG	Dale Green		Oct 1979	
28. W1HR	James R. Fisk		Nov 1979	
29. K5BLV	Howard N. Schmidt		Nov 1979	
30. WA4UAZ/HC1	Steve Hawley	(South America Plaque)	Nov 1979	
31. K2SP	James L. Sheats	(1st W2)	Nov 1979	
32. K8AQM	Theodore A. Rachwal		Dec 1979	
33. KB7HB	Bob Clay		Dec 1979	
34. WB7PCJ	Kenneth W. Hofer		Dec 1979	
35. W6GO	Jon Jay O'Brien		Jan 1980	
36. K8ZIP	David Larry Armstrong		Jan 1980	
37. KB4LX	Seymore F. Goodman		Feb 1980	
38. WB4UBD	James A. Sladek		Mar 1980	
39. N6AIW	Robert Dale Piedfort		Mar 1980	
40. W2IQZ/7	Lyle O. Jevons		Mar 1980	
41. K4JYS	William A. Stewart		Mar 1980	
42. KL7JFV	Gregory G. Nightingale	(1st KL7)	Mar 1980	
43. N6PV	Victor C. Besancon		Mar 1980	
44. KB8JF	Reinaldo R. Alea		Mar 1980	
45. KB8DB	Richard A. Walsh		Mar 1980	
46. W0SR	James L. Spencer		Apr 1980	
47. W7GYG	James N. Soyk		Apr 1980	
48. K9MD	Don B. Pili		Apr 1980	
49. WD8MGQ	John Van Putten		Apr 1980	
50. KB9IS	Richard J. Henry, DDS		Apr 1980	
51. WD8IPJ	Don Gullett		Apr 1980	
52. K6HHD	Janice K. O'Brien	(1st YL — see #35)	May 1980	
53. VK6YL	Mrs. Gillian "Jill" Weaver	(Oceania Plaque)	May 1980	
54. WA6ZYG	Raymond R. Conners		May 1980	
55. W6TYN	Ed Baker		May 1980	
56. WB7UVA	Tom Weston		Jun 1980	
57. WA6OUA	Kenneth P. Ostrander		Jun 1980	
58. W6YMV	Paul Friebertshauser		Jun 1980	
59. N7ADY	Karl E. Jensen		Jun 1980	
60. K9JS	James V. Smith		Jun 1980	
61. W1WKP	Frank R. Soloman		Jun 1980	
62. VK6NE	Neil Penfold		Jun 1980	
63. N6MB	Milton E. Bramer		Jul 1980	
64. W6ILH	Creed R. Hansford		Jul 1980	
65. JH4PRU	Jiro Iseya		Jul 1980	
66. WA5CST	John J. Uhl		Aug 1980	
67. VQ9KK	Bill Hatcher	(Africa Plaque)	Aug 1980	
68. W6ORD	Norman E. Friedman		Aug 1980	
69. EA8TY	Eric Lund	09 Jul 1980	Sep 1980	
70. KA8CFW	Joseph A. Palmer	24 Jul 1980	Sep 1980	
71. KA6V	Joan E. Branson	24 Jul 1980	Sep 1980	
72. WB6DQP	George W. Besley, Jr.	31 Jul 1980	Sep 1980	
73. N8AC	Donald E. Schmidt	14 Aug 1980	Oct 1980	
74. WA8CAJ	James J. Sebastian	14 Aug 1980	Oct 1980	
75. K4LQ	Frederick M. Perkins	10 Sep 1980	Nov 1980	
76. N9ALC	Dorothy Truhlar	10 Sep 1980	Nov 1980	
77. W9LNQ	Anthony R. Truhlar	10 Sep 1980	Nov 1980	
78. WA6DTG	Robert H. Lyon	22 Sep 1980	Nov 1980	
79. W7WMO	Eugene P. Bye	22 Sep 1980	Nov 1980	
81. WA6LOD	John W. Swancara	22 Sep 1980	Nov 1980	
81. W2KVA/6	Thomas I. Geiger	09 Oct 1980	Dec 1980	
82. WB6CDM	Scott R. Douglas, Jr.	22 Oct 1980	Dec 1980	
83. WB2TKD	Micheal Harodecki	31 Oct 1980	Dec 1980	
84. N8ARA	Ford L. Cole	31 Oct 1980	Dec 1980	
85. K6GXO	Keith D. Hoyt	31 Oct 1980	Dec 1980	
86. K9UAA	Philip P. Brankin	31 Oct 1980	Dec 1980	
87. K9WG	W.Y. "Bill" Golden	21 Nov 1980	Jan 1981	
88. WA6CUP	Gerald W. Boyd	28 Nov 1980	Jan 1981	
89. WB3IVL	John F. Zapf	12 Dec 1980	Feb 1981	
90. KA2BYC	John J. Cimo	22 Dec 1980	Feb 1981	
91. N6APW	Bob Dymond	22 Dec 1980	Feb 1981	
92. WB9UKS	James Wild	22 Dec 1980	Feb 1981	
93. K6BIA	Orlando Benincasa	22 Dec 1980	Feb 1981	
94. VK2FD	Bruce W. Thomas	06 Jan 1981	Mar 1981	
95. WD0BNH	Joan Ash	06 Jan 1981	Mar 1981	
96. KB0OE	Ray McCarty	06 Jan 1981	Mar 1981	
97. K3VY	E. Vernon Young, Jr.	06 Jan 1981	Mar 1981	
98. W1JR	Joe Reisert	09 Jan 1981	Mar 1981	
99. K6FO	Norman Brooks	17 Jan 1981	Mar 1981	
100. N6JM	John F.W. Minke III	17 Jan 1981	Mar 1981	
101. N9AIB	Wanda Hotz	17 Jan 1981	Mar 1981	
102. W9CA	Robert E. Hotz	17 Jan 1981	Mar 1981	
103. N5ANA	Kenneth Ruffner	02 Feb 1981	Apr 1981	
104. VK3NSY	Ron W. O'Grady	13 Feb 1981	Apr 1981	
105. WD8CRY	Richard A. Moran	13 Feb 1981	Apr 1981	
106. WA6BSS	Bill Boots	21 Feb 1981	Apr 1981	
107. WB5CYK	Sanford L. Fortner	03 Mar 1981	May 1981	
108. VK2DEJ	John Saunders	11 Mar 1981	May 1981	
109. N6AIT	William C. Gregory	17 Mar 1981	Jun 1981	
110. AC7P	Creath D. "Don" Fletcher	17 Mar 1981	Jun 1981	
111. WB6OBB	Dennis Schwendtner	07Apr 1981	Jun 1981	
112. N4CSF	Louis J. Raymond	07 Apr 1981	Jun 1981	
113. KB7ND	Kenton C. Gassaway	07 Apr 1981	Jun 1981	
114. AA6BB	Gerald D. Branson	(see #71) 07 Apr 1981	Jun 1981	
115. WA2SRM	James Grandinetti	07 Apr 1981	Jun 1981	
116. WD6AQJ	Lenore "Peg" Austin	07 Apr 1981	Jun 1981	
117. K8IQB	Myron L. Braun	13 Apr 1981	Jun 1981	
118. AG2K	Robert F. Imhof	14 Apr 1981	Jul 1981	
119. WD9FOE	Anthony Tomalewicz	27 Apr 1981	Jul 1981	
120. WA8COE	John Paul Jones	27 Apr 1981	Jul 1981	
121. VK6AJW	John A.E. Woodings	30 Apr 1981	Jul 1981	
122. WN5MBS	Ray E. Wormley	14 May 1981	Jul 1981	
123. AG3S	Robert K. Saulpaugh	14 May 1981	Jul 1981	
124. W6LUR	Michael M. Elliot	14 May 1981	Jul 1981	
125. W7KTI	Thomas F. Crawford	05 Jun 1981	Aug 1981	
126. AI3E	Dwight Sipler	06 Jul 1981	Sep 1981	
127. K0DEQ	William C. Morgan	06 Jul 1981	Sep 1981	
128. W6MUL	John S. Forchtner	14 Jul 1981	Oct 1981	
129. WD6DFN	Roger W. Carter	30 Jul 1981	Oct 1981	
130. WB7FAT	Karl Rietz	30 Jul 1981	Oct 1981	
131. K9BQL	Jack R. Ekstrom	30 Jul 1981	Oct 1981	
132. WA9WGJ	Dave Christensen	30 Jul 1981	Oct 1981	
133. N5CID	Don Strong	30 Jul 1981	Oct 1981	
134. KB6Q	Alan L. Abrams, M.D.	30 Jul 1981	Oct 1981	
135. AG7P	William S. Perry, Jr.	06 Aug 1981	Oct 1981	
136. N6ZL	Werner H. Ruhl	17 Aug 1981	Nov 1981	
137. WB3DNA	Timothy R. Fanus	17 Aug 1981	Nov 1981	
138. VK2HD	Heather Pike	08 Sep 1981	Nov 1981	
139. KB9H	William E. Evans	08 Sep 1981	Nov 1981	
140. AK1H	George J. Stevens	08 Sep 1981	Nov 1981	
141. WB3CQN	Ruthanna Pearson	08 Sep 1981	Nov 1981	
142. W6NLG	Gordon Girton	28 Sep 1981	Dec 1981	

Contributors this month include DF2RG, DJ9ZB, W2OOJ, K4IIF, WD4JNS, K4JW, K4LR, W5CPI, W6AM, WB6EXW, N6TJ, K6UD, K6ZDL, W9LNQ, N0BML, W0LHS, AD0S, Richardson Wireless Klub, Hokkaido DX Foundation, VERON, Lynx DX Group (EA1QF), *DX News Sheet* (Geoff Watts/RSGB), *The Long Island DX Bulletin* (W2IYX) and *The DX Bulletin* (K1TN.)

Merry Christmas and Happy New Year! 73, GL DX de John, N6JM. □

RTTY DX

Terry Russ, N8ATZ

RTTY DX anyone? Well, the HF bands are chock full of RTTY DX these days, and they welcome the chance to QSO with you. I can tell you from personal experience that these are some of the most polite operators you will ever find on the bands. They have incredible patience and will squeeze every S unit to complete the QSO. Because of the mode used, large amounts of power aren't necessary either. Most of my contacts have been on less than 100 watts. I have a long way to go for my DXCC RTTY, but I will have had a terrific time getting there!

Here is a listing of some of the stations that have been active recently: C5ACL (Gambia), CT1SU (Portugal), DU1POL (Philippines), EI5Q (Republic of Ireland), GD3YEO (Isle of Man), GW4EVJ (Wales), LU3EQ (Argentina), LX2LH (Luxembourg), SP3CMX (Poland), SV0AP (Crete), TR8AW (Gabon Republic), VK4AAT (Australia), YJ8TT (New Hebrides), ZL1BBR (New Zealand), 5Z4TV (Kenya) and 9K2GR (Kuwait).

If you're a RTTY'er and haven't tried DX yet, I suggest you jump in and give it a try. It could be just the thing to bring back the old spark you once had for this mode of operating. See you on the HF bands! □

CT 06820

VS5DD	-Rob, P.O. Box 1200, BSB, BRUNEI
ZK1CV	-P.O. Box 143, Rarotonga, COOK ISLANDS
4X6DX	-P.O. Box 21567, Tel Aviv, ISRAEL
5H3TM	-Tom, P.O. Box 429, Mbeya, TANZANIA

NOTES:

1. Address for EA1QF is now at P.O. Box 351, Logrono, SPAIN.
2. Former QSL Manager WD4JNS requests that he be terminated as QSL manager for HH0N. He suggests sending cards now to KD4VU. See this issue.
3. The address for VK2KKK is not in the latest Callbook. Try P.O. Box 50, Grose Vale, N.S.W. 2753, AUSTRALIA.
4. This station was active in the All Asia Contest in August. He gave his QSL Manager as UK3A. That is all the information we have on him. See elsewhere, this issue.
5. NCDXC: Northern California DX Club, P.O. Box 608, Menlo Park, CA 94025
6. Vince, K5VT has a California address. See elsewhere in this issue for details.
7. Jim Smith, VK9NS has a new address, which is no longer P.O. Box 103.

Plenty of room for DXing

Bob McGarvey, WB2EVF

Ten meters has produced quite a bit of worthwhile DX with the advent of cooler weather. The Uzbek Republic in Central Asia may not be a fair sample, but it has been heard on 10 with solid signals.

Newcomers to the band might make mental notes that the frequencies above 29.0, by gentleman's agreement, are not sideband territory. There's no FCC regulation against going up there, but there's plenty of room between 28.5 and 29.0. The higher reaches are busy enough as it is, with AM, FM repeaters and satellite work without adding your "CQ Dog X-Ray" to the package.

— *The Home News, NJ* □

The TR-7730 is available in two variations: a 16-key autopatch UP/DOWN microphone (MC-46) version, and a basic UP/DOWN microphone version.

TR-7730

Miniaturized, 5 memories, memory/ band scan

The TR-7730 is a very compact 25 watt, 2-meter FM mobile transceiver, reasonably priced.

TR-7730 FEATURES:

- Dimensions: 5-3/4 W x 2 H x 7-3/4 D, inches. Weighs 3.3 lbs.
- Extended frequency coverage, 143.910-148.995 MHz, in 5 or 10 KHz steps.
- 25 watts RF output power, with HI/LOW power switch.
- 5 memories for operation in simplex or repeater modes.
- Memory scan, plus automatic band scan.
- UP/DOWN manual scan on microphone (supplied).
- Four digit LED frequency display.
- S/RF bar meter. LED indicators for BUSY, ON-AIR, REPEATER offset.
- Tone switch for internal tone encoder (not Kenwood supplied).
- Offset switch, ±600 kHz. Non-standard offset uses fifth memory.

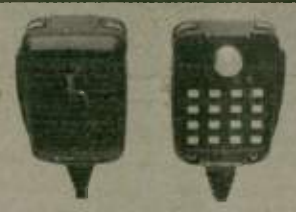
OPTIONAL ACCESSORIES:

- MC-46 16-key autopatch UP/DOWN microphone.
- SP-40 compact mobile speaker.
- KPS-7 fixed station power supply.

TR-8400

Synthesized 70-cm FM mobile rig

- Covers 440-450 MHz, in 25 KHz steps, with two VFOs.
- Transmit offset switch for ±5 MHz. Non-standard offset uses fifth memory.
- HI/LOW power switch selects 10 or 1 watt RF output.
- Similar to TR-7730 in other features, including five memories, memory scan, automatic band scan, UP/DOWN manual scan, four digit display, S/RF bar meter, LED indicators, tone switch, and same optional accessories.



- MC-46 16-key autopatch UP/DOWN microphone.

TR-9000

"New 2-meter direction"...compact rig with FM/SSB/CW, scan, five memories

The TR-9000 combines the convenience of FM with long distance SSB and CW. It is extremely compact . . . perfect for mobile operation. Matching accessories are available for optimum fixed-station operation.

TR-9000 FEATURES:

- FM, USB, LSB, and CW.
- Only 6-11/16 inches wide, 2-21/32 inches high, 9-7/32 inches deep.
- Two digital VFOs, with selectable tuning steps of 100 Hz, 5 kHz, and 10 kHz.
- Digital frequency display. Five, four, or three digits, depending on selected tuning step.
- Covers 143.9000-148.9999 MHz.
- Band scan . . . automatic busy stop and free scan.
- SSB/CW search of selectable 9.9-kHz bandwidth segments.
- Five memories . . . four for simplex or ±600 kHz repeater offsets and the fifth for a non-standard offset (memorizes transmit and receive frequency independently).
- UP/DOWN microphone (standard) for manual band scan.
- Noise blanker for SSB and CW.
- RIT (receiver incremental tuning) for SSB and CW.
- RF gain control.
- CW sidetone.
- Selectable RF power outputs . . . 10 W (HI)/1 W (LO).
- Mobile mounting bracket with quick-release levers.
- LED indicators . . . ON AIR, BUSY, and VFO.

OPTIONAL ACCESSORIES:

- PS-20 fixed-station power supply.
- SP-120 fixed-station external speaker.
- BO-9 System Base . . . with power switch, SEND/RECEIVE switch (for CW), memory-backup power supply, and headphone jack.
- MC-46 16-key autopatch UP/DOWN microphone.

PS-20 TR-9000 BO-9 SP-120

KENWOOD

TRIO-KENWOOD COMMUNICATIONS

1111 West Walnut, Compton, California 90220

R-600

"Now hear this"... digital display, front speaker, easy tuning

The R-600 is a high performance, general coverage communications receiver covering 150 kHz to 30 MHz in 30 bands, at an affordable price. Use of PLL synthesized circuitry provides high accuracy of frequency with maximum ease of operation.

R-600 FEATURES:

- 150 KHz to 30 MHz continuous coverage, AM, SSB, or CW.
- 30 bands, each 1 MHz wide, for easier tuning.
- Five digit frequency display, with 1 KHz resolution.
- 6 kHz IF filter for AM (wide), and 2.7 kHz filters for SSB, CW and AM (narrow).
- Up-conversion PLL circuit, for improved sensitivity, selectivity, and stability.
- Communications type noise blanker eliminates "pulse-type" noise.
- RF Attenuator allows 20 dB attenuation of strong signals.
- Tone control.
- Front mounted speaker.
- "S" meter, with 1 to 5 SINPO scale, plus standard scale.
- Coaxial, and wire antenna terminals for 2 MHz to 30 MHz. Wire terminals for 150 KHz to 2 MHz.
- 100, 120, 220, and 240 VAC, 50/60 Hz. Selector switch on rear panel.
- Optional 13.8 VDC operation, using DCK-1 cable kit.
- Other features include carrying handle, headphone jack, and record jack.

OPTIONAL ACCESSORIES:

- DCK-1 DC Cable kit.
- SP-100 External Speaker.

Digital world clock with two 24-hour displays, quartz time base

The HC-10 digital world clock with dual 24-hour display shows local time and the time in 10 preprogrammed plus two programmable time zones.

R-1000

"Hear there and everywhere"... easy tuning, digital display

The R-1000 is an amazingly easy-to-operate, high-performance, communications receiver, covering 200 kHz to 30 MHz in 30 bands. This PLL synthesized receiver features a digital frequency display and analog dial, plus a quartz digital clock and timer.

R-1000 FEATURES:

- Covers 200 kHz to 30 MHz continuously.
- 30 bands, each 1 MHz wide.
- Five-digit frequency display with 1-kHz resolution and analog dial with precise gear dial mechanism.
- Built-in 12-hour quartz digital clock with timer to turn on radio for scheduled listening or control a recorder through remote terminal.
- Step attenuator to prevent overload.
- Three IF filters for optimum AM, SSB, CW, 12-kHz and 6-kHz (adaptable to 6-kHz and 2.7-kHz) for AM wide and narrow, and 2.7-kHz filter for high-quality SSB (USB and LSB) and CW reception.
- Effective noise blanker.
- Terminal for external tape recorder.
- Tone control.
- Built-in 4-inch speaker.
- Dimmer switch to control intensity of S-meter and other panel lights and digital display.
- Wire antenna terminals for 200 kHz to 2 MHz and 2 MHz to 30 MHz. Coax terminal for 2 MHz to 30 MHz.
- Voltage selector for 100, 120, 220, and 240 VAC. Also adaptable to operate on 13.8 VDC with optional DCK-1 kit.

OPTIONAL ACCESSORIES:

- SP-100 matching external speaker.
- HS-6 lightweight, open-air headphone set.
- HS-5 and HS-4 headphones.
- DCK-1 modification kit for 12-VDC operation.

SP-100

R-1000

HS-5

KENWOOD

TRIO-KENWOOD COMMUNICATIONS

1111 West Walnut, Compton, California 90220

AMSAT - OSCAR 7 ORBITAL DATA

TUE. 1 DEC. 1981 (335)

UTC	LONG	ORBIT
46'29	95.2	32226
241'26	124.0	32227
436'22	152.7	32228
631'19	181.5	32229
826'15	210.2	32230
1021'12	238.9	32231
1216'08	267.7	32232
1411'04	296.4	32233
1606'01	325.1	32234
1800'57	353.9	32235
1955'54	22.6	32236
2150'50	51.3	32237
2345'47	80.1	32238

WED. 2 DEC. 1981 (336)

UTC	LONG	ORBIT
140'43	108.8	32239
335'40	137.6	32240
530'36	166.3	32241
725'32	195.0	32242
920'29	223.8	32243
1115'25	252.5	32244
1310'22	281.2	32245
1505'18	310.0	32246
1700'15	338.7	32247
1855'11	7.5	32248
2050'07	36.2	32249
2245'04	64.9	32250

THU. 3 DEC. 1981 (337)

UTC	LONG	ORBIT
40'00	93.7	32251
234'57	122.4	32252
429'53	151.1	32253
624'50	179.9	32254
819'46	208.6	32255
1014'43	237.4	32256
1209'39	266.1	32257
1404'35	294.8	32258
1559'32	323.6	32259
1754'28	352.3	32260
1949'25	21.0	32261
2144'21	49.8	32262
2339'18	78.5	32263

FRI. 4 DEC. 1981 (338)

UTC	LONG	ORBIT
134'14	107.3	32264
329'11	136.0	32265
524'07	164.7	32266
719'03	193.5	32267
914'00	222.2	32268
1108'56	250.9	32269
1303'53	279.7	32270
1458'49	308.4	32271
1653'46	337.2	32272
1848'42	5.9	32273
2043'39	34.6	32274
2238'35	63.4	32275

SAT. 5 DEC. 1981 (339)

UTC	LONG	ORBIT
33'31	92.1	32276
228'28	120.8	32277
423'24	149.6	32278
618'21	178.3	32279
813'17	207.1	32280
1008'14	235.8	32281
1203'10	264.5	32282
1358'06	293.3	32283
1553'03	322.0	32284
1747'59	350.7	32285
1942'56	19.5	32286
2137'52	48.2	32287
2332'49	76.9	32288

SUN. 6 DEC. 1981 (340)

UTC	LONG	ORBIT
127'45	105.7	32289
322'42	134.4	32290
517'38	163.2	32291
712'34	191.9	32292
907'31	220.6	32293
1102'27	249.4	32294
1257'24	278.1	32295
1452'20	306.8	32296
1647'17	335.6	32297
1842'13	4.3	32298
2037'10	33.1	32299
2232'06	61.8	32300

MON. 7 DEC. 1981 (341)

UTC	LONG	ORBIT
27'02	90.5	32301
221'59	119.3	32302
416'55	148.0	32303
611'52	176.7	32304
806'48	205.5	32305
1001'45	234.2	32306
1156'41	263.0	32307
1351'37	291.7	32308
1546'34	320.4	32309
1741'30	349.2	32310
1936'27	17.9	32311
2131'23	46.6	32312
2326'20	75.4	32313

TUE. 8 DEC. 1981 (342)

UTC	LONG	ORBIT
121'16	104.1	32314
316'13	132.9	32315
511'09	161.6	32316
706'05	190.3	32317
901'02	219.1	32318
1055'58	247.8	32319
1250'55	276.5	32320
1445'51	305.3	32321
1640'48	334.0	32322
1835'44	2.8	32323
2030'40	31.5	32324
2225'37	60.2	32325

WED. 9 DEC. 1981 (343)

UTC	LONG	ORBIT
20'33	89.0	32326
215'30	117.7	32327
410'26	146.4	32328
605'23	175.2	32329
800'19	203.9	32330
955'15	232.7	32331
1150'12	261.4	32332
1345'09	290.1	32333
1540'05	318.9	32334
1735'01	347.6	32335
1929'58	16.3	32336
2124'54	45.1	32337
2319'51	73.8	32338

THU. 10 DEC. 1981 (344)

UTC	LONG	ORBIT
114'47	102.5	32339
309'44	131.3	32340
504'40	160.0	32341
659'36	188.8	32342
854'33	217.5	32343
1049'29	246.2	32344
1244'26	275.0	32345
1439'22	303.7	32346
1634'19	332.4	32347
1829'15	1.2	32348
2024'11	29.9	32349
2219'08	58.7	32350

FRI. 11 DEC. 1981 (345)

UTC	LONG	ORBIT
14'04	87.4	32351
209'01	116.1	32352
403'57	144.9	32353
558'54	173.6	32354
753'50	202.3	32355
948'47	231.1	32356
1143'43	259.8	32357
1338'39	288.6	32358
1533'36	317.3	32359
1728'32	346.0	32360
1923'29	14.8	32361
2118'25	43.5	32362
2313'22	72.2	32363

SAT. 12 DEC. 1981 (346)

UTC	LONG	ORBIT
108'18	101.0	32364
303'15	129.7	32365
458'11	158.5	32366
653'07	187.2	32367
848'04	215.9	32368
1043'00	244.7	32369
1237'57	273.4	32370
1432'53	302.1	32371
1627'50	330.9	32372
1822'46	359.6	32373
2017'42	28.4	32374
2212'39	57.1	32375

SUN. 13 DEC. 1981 (347)

UTC	LONG	ORBIT
7'35	85.8	32376
202'32	114.6	32377
357'28	143.3	32378
552'25	172.0	32379
747'21	200.8	32380
942'18	229.5	32381
1137'14	258.3	32382
1332'10	287.0	32383
1527'07	315.7	32384
1722'03	344.5	32385
1917'00	13.2	32386
2111'56	41.9	32387
2306'53	70.7	32388

MON. 14 DEC. 1981 (348)

UTC	LONG	ORBIT
101'49	99.4	32389
256'45	128.1	32390
451'42	156.9	32391
646'38	185.6	32392
841'35	214.4	32393
1036'31	243.1	32394
1231'28	271.8	32395
1426'24	300.6	32396
1621'21	329.3	32397
1816'17	358.0	32398
2011'13	26.8	32399
2206'10	55.5	32400

TUE. 15 DEC. 1981 (349)

UTC	LONG	ORBIT
1'06	84.3	32401
156'03	113.0	32402
350'59	141.7	32403
545'56	170.5	32404
740'52	199.2	32405
935'49	227.9	32406
1130'45	256.7	32407
1325'41	285.4	32408
1520'38	314.2	32409
1715'34	342.9	32410
1910'31	11.6	32411
2105'27	40.4	32412
2300'24	69.1	32413

WED. 16 DEC. 1981 (350)

UTC	LONG	ORBIT
55'20	97.8	32414
250'16	126.6	32415
445'13	155.3	32416
640'09	184.1	32417
835'06	212.8	32418
1030'02	241.5	32419
1224'59	270.3	32420
1419'55	299.0	32421
1614'51	327.7	32422
1809'48	356.5	32423
2004'44	25.2	32424
2159'41	54.0	32425
2354'37	82.7	32426

THU. 17 DEC. 1981 (351)

UTC	LONG	ORBIT
149'34	111.4	32427
344'30	140.2	32428
539'26	168.9	32429
734'23	197.6	32430
929'19	226.4	32431
1124'16	255.1	32432
1319'12	283.9	32433
1514'09	312.6	32434
1709'05	341.3	32435
1904'02	10.1	32436
2058'58	38.8	32437
2253'54	67.5	32438

FRI. 18 DEC. 1981 (352)

UTC	LONG	ORBIT
48'51	96.3	32439
243'47	125.0	32440
438'44	153.7	32441
633'40	182.5	32442
828'37	211.2	32443
1023'33	240.0	32444
1218'30	268.7	32445
1413'26	297.4	32446
1608'22	326.2	32447
1803'19	354.9	32448
1958'15	23.6	32449
2153'12	52.4	32450
2348'08	81.1	32451

SAT. 19 DEC. 1981 (353)

UTC	LONG	ORBIT
143'05	109.9	32452
338'01	138.6	32453
532'57	167.3	32454
727'54	196.1	32455
922'50	224.8	32456
1117'47	253.5	32457
1312'43	282.3	32458
1507'40	311.0	32459
1702'36	339.8	32460
1857'33	8.5	32461
2052'29	37.2	32462
2247'25	66.0	32463

SUN. 20 DEC. 1981 (354)

UTC	LONG	ORBIT
42'22	94.7	32464
237'18	123.4	32465
432'15	152.2	32466
627'11	180.9	32467
822'08	209.7	32468
1017'04	238.4	32469
1212'00	267.1	32470
1406'57	295.9	32471
1601'53	324.6	32472
1756'50	353.3	32473
1951'46	22.1	32474
2146'43	50.8	32475
2341'39	79.6	32476

MON. 21 DEC. 1981 (355)

UTC	LONG	ORBIT
136'36	108.3	32477
331'32	137.0	32478
526'28	165.8	32479
721'25	194.5	32480
916'21	223.2	32481
1111'18	252.0	32482
1306'14	280.7	32483
1501'11	309.5	32484
1656'07	338.2	32485
1851'04	6.9	32486
2046'00	35.7	32487
2240'56	64.4	32488

TUE. 22 DEC. 1981 (356)

UTC	LONG	ORBIT
35'53	93.1	32489
230'49	121.9	32490
425'46	150.6	32491
620'42	179.3	32492
815'39	208.1	32493
1010'35	236.8	32494
1205'31	265.6	32495
1400'28	294.3	32496
1555'24	323.0	32497
1750'21	351.8	32498
1945'17	20.5	32499
2140'14	49.2	32500
2335'10	78.0	32501

WED. 23 DEC. 1981 (357)

UTC	LONG	ORBIT
130'06	106.7	32502
325'03	135.5	32503
519'59	164.2	32504
714'56	192.9	32505
909'52	221.7	32506
1104'49	250.4	32507
1259'45	279.1	32508
1454'41	307.9	32509
1649'38	336.6	32510
1844'34	5.4	32511
2039'31	34.1	32512
2234'27	62.8	32513

THU. 24 DEC. 1981 (358)

UTC	LONG	ORBIT
29'24	91.6	32514
224'20	120.3	32515
419'17	149.0	32516
614'13	177.8	32517
809'09	206.5	32518
1004'06	235.3	32519
1159'02	264.0	32520
1353'59	292.7	32521
1548'55	321.5	32522
1743'52	350.2	32523
1938'48	18.9	32524
2133'44	47.7	32525
2328'41	76.4	32526

FRI. 25 DEC. 1981 (359)

UTC	LONG	ORBIT
123'37	105.2	32527
318'34	133.9	32528
513'30	162.6	32529
708'27	191.4	32530
903'23	220.1	32531
1058'19	248.8	32532
1253'16	277.6	32533
1448'12	306.3	32534
1643'09	335.1	32535
1838'05	3.8	32536
2033'02	32.5	32537
2227'58	61.3	32538

SAT. 26 DEC. 1981 (360)

UTC	LONG	ORBIT
22'54	90.0	32539
217'51	118.7	32540
412'47	147.5	32541
607'44	176.2	32542
802'40	204.9	32543
957'37	233.7	32544
1152'33	262.4	32545
1347'30	291.2	32546
1542'26	319.9	32547
1737'22	348.6	32548
1932'19	17.4	32549
2127'15	46.1	32550
2322'12	74.8	32551

SUN. 27 DEC. 1981 (361)

UTC	LONG	ORBIT
117'08	103.6	32552
312'05	132.3	32553
507'01	161.1	32554
701'58	189.8	32555
856'54	218.5	32556
1051'50	247.3	32557
1246'47	276.0	32558
1441'43	304.7	32559
1636'40	333.5	32560
1831'36	2.2	32561
2026'33	31.0	32562
2221'29	59.7	32563

MON. 28 DEC. 1981 (362)

UTC	LONG	ORBIT
16'25	88.4	32564
211'22	117.2	32565
406'18	145.9	32566
601'15	174.6	32567
756'11	203.4	32568
951'08	232.1	32569
1146'04	260.9	32570
1341'00	289.6	32571
1535'57	318.3	32572
1730'53	347.1	32573
1925'50	15.8	32574
2120'46	44.5	32575
2315'43	73.3	32576

TUE. 29 DEC. 1981 (363)

UTC	LONG	ORBIT
110'39	102.0	32577
305'36	130.8	32578
500'32	159.5	32579
655'28	188.2	32580
850'25	217.0	32581
1045'21	245.7	32582
1240'18	274.4	32583
1435'14	303.2	32584
1630'11	331.9	32585
1825'07	0.6	32586
2020'03	29.4	32587
2215'00	58.1	32588

WED. 30 DEC. 1981 (364)

UTC	LONG	ORBIT
9'56	86.9	32589
204'53	115.6	32590
359'49	144.3	32591
554'46	173.1	32592
749'42	201.8	32593
944'39	230.5	32594
1139'35	259.3	32595
1334'31	288.0	32596
1529'28	316.8	32597
1724'24	345.5	32598
1919'21	14.2	32599
2114'17	43.0	32600
2309'14	71.7	32601

THU. 31 DEC. 1981 (365)

UTC	LONG	ORBIT
104'10	100.4	32602
259'06	129.2	32603
454'03	157.9	32604
648'59	186.7	32605
843'56	215.4	32606
1038'52	244.1	32607
1233'49	272.9	32608
1428'45	301.6	32609
1623'41	330.3	32610
1818'38	359.1	32611
2013'34	27.8	32612
2208'31	56.6	32613

DATA IS DERIVED FROM OBSERVATIONS BY MEMBERS OF PROJECT OSCAR. REPRODUCTION AUTHORIZED. SEND SELF-ADDRESSED STAMPED ENVELOPE TO PROJECT OSCAR, P.O. BOX 1136, LOS ALTOS, CA 94022. FOR A COPY OF THE LATEST AVAILABLE DATA.

SUPPORT THE AMATEUR SATELLITE PROGRAM. JOIN AMSAT, P.O. BOX 27, WASHINGTON, DC 20044.

COMPILED AND COORDINATED BY JOHN PRONKO - W6XN, RANDY COLE - KN6W, AND JACK SOMERS - WA6VGS

PRINTED BY HENRY RADIO.

AMSAT - OSCAR 8 ORBITAL DATA

TUE. 1 DEC. 1981 (335)

UTC	LONG	ORBIT
113'10	84.2	19063
256'21	110.0	19064
439'32	135.8	19065
622'43	161.6	19066
805'54	187.4	19067
949'05	213.2	19068
1132'16	239.0	19069
1315'27	264.8	19070
1458'38	290.6	19071
1641'49	316.4	19072
1825'00	342.2	19073
2008'11	8.0	19074
2151'22	33.8	19075
2334'33	59.6	19076

WED. 2 DEC. 1981 (336)

UTC	LONG	ORBIT
117'44	85.4	19077
300'55	111.2	19078
444'06	137.0	19079
627'17	162.7	19080
810'28	188.5	19081
953'39	214.3	19082
1136'50	240.1	19083
1320'02	265.9	19084
1503'13	291.7	19085
1646'24	317.5	19086
1829'35	343.3	19087
2012'46	9.1	19088
2155'57	34.9	19089
2339'08	60.7	19090

THU. 3 DEC. 1981 (337)

UTC	LONG	ORBIT
122'19	86.5	19091
305'30	112.3	19092
448'41	138.1	19093
631'52	163.9	19094
815'03	189.7	19095
958'14	215.5	19096
1141'25	241.3	19097
1324'36	267.1	19098
1507'47	292.9	19099
1650'58	318.7	19100
1834'09	344.5	19101
2017'20	10.3	19102
2200'31	36.1	19103
2343'42	61.9	19104

FRI. 4 DEC. 1981 (338)

UTC	LONG	ORBIT
126'53	87.7	19105
310'04	113.5	19106
453'15	139.3	19107
636'26	165.1	19108
819'37	190.9	19109
1002'48	216.7	19110
1145'59	242.5	19111
1329'10	268.3	19112
1512'21	294.1	19113
1655'32	319.9	19114
1838'43	345.7	19115
2021'54	11.5	19116
2205'05	37.3	19117
2348'16	63.1	19118

SAT. 5 DEC. 1981 (339)

UTC	LONG	ORBIT
131'27	88.9	19119
314'38	114.7	19120
457'49	140.5	19121
641'00	166.3	19122
824'11	192.1	19123
1007'22	217.9	19124
1150'33	243.7	19125
1333'44	269.5	19126
1516'55	295.2	19127
1700'06	321.0	19128
1843'17	346.8	19129
2026'28	12.6	19130
2209'39	38.4	19131
2352'50	64.2	19132

SUN. 6 DEC. 1981 (340)

UTC	LONG	ORBIT
136'01	90.0	19133
319'12	115.8	19134
502'23	141.6	19135
645'34	167.4	19136
828'45	193.2	19137
1011'56	219.0	19138
1155'07	244.8	19139
1338'18	270.6	19140
1521'29	296.4	19141
1704'40	322.2	19142
1847'51	348.0	19143
2031'02	13.8	19144
2214'13	39.6	19145
2357'24	65.4	19146

MON. 7 DEC. 1981 (341)

UTC	LONG	ORBIT
140'35	91.2	19147
323'46	117.0	19148
506'57	142.8	19149
650'08	168.6	19150
833'19	194.4	19151
1016'30	220.2	19152
1159'41	246.0	19153
1342'52	271.8	19154
1526'03	297.6	19155
1709'14	323.4	19156
1852'25	349.2	19157
2035'36	15.0	19158
2218'47	40.8	19159

TUE. 8 DEC. 1981 (342)

UTC	LONG	ORBIT
1'58	66.6	19160
145'09	92.4	19161
328'20	118.2	19162
511'32	144.0	19163
654'43	169.8	19164
837'53	195.6	19165
1021'04	221.4	19166
1204'16	247.2	19167
1347'27	273.0	19168
1530'37	298.8	19169
1713'48	324.6	19170
1857'00	350.4	19171
2040'11	16.2	19172
2223'22	41.9	19173

WED. 9 DEC. 1981 (343)

UTC	LONG	ORBIT
6'33	67.7	19174
149'43	93.5	19175
332'54	119.3	19176
516'05	145.1	19177
659'17	170.9	19178
842'28	196.7	19179
1025'39	222.5	19180
1208'50	248.3	19181
1352'01	274.1	19182
1535'12	299.9	19183
1718'23	325.7	19184
1901'34	351.5	19185
2044'45	17.3	19186
2227'56	43.1	19187

THU. 10 DEC. 1981 (344)

UTC	LONG	ORBIT
11'07	68.9	19188
154'18	94.7	19189
337'29	120.5	19190
520'40	146.3	19191
703'51	172.1	19192
847'02	197.9	19193
1030'13	223.7	19194
1213'24	249.5	19195
1356'35	275.3	19196
1539'46	301.1	19197
1722'57	326.9	19198
1906'08	352.7	19199
2049'19	18.5	19200
2232'30	44.3	19201

FRI. 11 DEC. 1981 (345)

UTC	LONG	ORBIT
15'41	70.1	19202
158'52	95.9	19203
342'03	121.7	19204
525'14	147.5	19205
708'25	173.3	19206
851'36	199.1	19207
1034'47	224.9	19208
1217'58	250.7	19209
1401'09	276.5	19210
1544'20	302.3	19211
1727'31	328.1	19212
1910'42	353.9	19213
2053'53	19.7	19214
2237'04	45.5	19215

SAT. 12 DEC. 1981 (346)

UTC	LONG	ORBIT
20'15	71.3	19216
203'26	97.1	19217
346'37	122.9	19218
529'48	148.6	19219
712'59	174.4	19220
856'10	200.2	19221
1039'21	226.0	19222
1222'32	251.8	19223
1405'42	277.6	19224
1548'53	303.4	19225
1732'04	329.2	19226
1915'15	355.0	19227
2058'26	20.8	19228
2241'37	46.6	19229

SUN. 13 DEC. 1981 (347)

UTC	LONG	ORBIT
24'48	72.4	19230
207'59	98.2	19231
351'10	124.0	19232
534'21	149.8	19233
717'32	175.6	19234
900'43	201.4	19235
1043'54	227.2	19236
1227'05	253.0	19237
1410'16	278.8	19238
1553'27	304.6	19239
1736'38	330.4	19240
1919'49	356.2	19241
2103'00	22.0	19242
2246'11	47.8	19243

MON. 14 DEC. 1981 (348)

UTC	LONG	ORBIT
29'22	73.6	19244
212'33	99.4	19245
355'44	125.2	19246
538'55	151.0	19247
722'06	176.8	19248
905'17	202.6	19249
1048'28	228.4	19250
1231'39	254.2	19251
1414'50	280.0	19252
1558'01	305.8	19253
1741'12	331.6	19254
1924'23	357.4	19255
2107'34	23.2	19256
2250'45	49.0	19257

TUE. 15 DEC. 1981 (349)

UTC	LONG	ORBIT
33'56	74.8	19258
217'07	100.6	19259
400'18	126.4	19260
543'29	152.2	19261
726'40	178.0	19262
909'51	203.8	19263
1053'02	229.5	19264
1236'13	255.3	19265
1419'24	281.1	19266
1602'35	306.9	19267
1745'46	332.7	19268
1928'57	358.5	19269
2112'08	24.3	19270
2255'19	50.1	19271

WED. 16 DEC. 1981 (350)

UTC	LONG	ORBIT
38'30	75.9	19272
221'41	101.7	19273
404'52	127.5	19274
548'03	153.3	19275
731'14	179.1	19276
914'25	204.9	19277
1057'36	230.7	19278
1240'47	256.5	19279
1423'58	282.3	19280
1607'09	308.1	19281
1750'20	333.9	19282
1933'31	359.7	19283
2116'42	25.5	19284
2259'53	51.3	19285

THU. 17 DEC. 1981 (351)

UTC	LONG	ORBIT
43'04	77.1	19286
226'15	102.9	19287
409'26	128.7	19288
552'37	154.5	19289
735'48	180.3	19290
918'59	206.1	19291
1102'10	231.9	19292
1245'21	257.7	19293
1428'32	283.5	19294
1611'43	309.3	19295
1754'54	335.1	19296
1938'05	0.9	19297
2121'16	26.7	19298
2304'27	52.5	19299

FRI. 18 DEC. 1981 (352)

UTC	LONG	ORBIT
47'38	78.3	19300
230'49	104.1	19301
414'00	129.9	19302
557'11	155.7	19303
740'22	181.5	19304
923'33	207.3	19305
1106'43	233.1	19306
1249'54	258.9	19307
1433'05	284.6	19308
1616'16	310.4	19309
1759'27	336.2	19310
1942'38	2.0	19311
2125'49	27.8	19312
2309'00	53.6	19313

SAT. 19 DEC. 1981 (353)

UTC	LONG	ORBIT
52'11	79.4	19314
235'22	105.2	19315
418'33	131.0	19316
601'44	156.8	19317
744'55	182.6	19318
928'06	208.4	19319
1111'17	234.2	19320
1254'28	260.0	19321
1437'39	285.8	19322
1620'50	311.6	19323
1804'01	337.4	19324
1947'12	3.2	19325
2130'23	29.0	19326
2313'34	54.8	19327

SUN. 20 DEC. 1981 (354)

UTC	LONG	ORBIT
56'45	80.6	19328
239'56	106.4	19329
423'07	132.2	19330
606'18	158.0	19331

MON. 21 DEC. 1981 (355)

UTC	LONG	ORBIT
101'19	81.8	19342
244'30	107.6	19343
427'41	133.4	19344
610'52	159.2	19345

TUE. 22 DEC. 1981 (356)

UTC	LONG	ORBIT
105'52	82.9	19356
249'03	108.7	19357
432'14	134.5	19358
615'25	160.3	19359

WED. 23 DEC. 1981 (357)

UTC	LONG	ORBIT
110'26	84.1	19370
253'37	109.9	19371
436'48	135.7	19372
619'59	161.5	19373

THU. 24 DEC. 1981 (358)

UTC	LONG	ORBIT
114'59	85.3	19384
258'10	111.1	19385
441'21	136.9	19386
624'32	162.7	19387

FRI. 25 DEC. 1981 (359)

UTC	LONG	ORBIT
119'33	86.4	19398
302'44	112.2	19399
445'55	138.0	19400
629'06	163.8	19401

SAT. 26 DEC. 1981 (360)

UTC	LONG	ORBIT
124'06	87.6	19412
307'17	113.4	19413
450'28	139.2	19414
633'39	165.0	19415

749'29	183.8	19332	754'03	185.0	19346	758'36	186.1	19360	803'10	187.3	19374	807'43	188.5	19388	812'17	189.6	19402	816'50	190.8	19416
932'40	209.6	19333	937'13	210.8	19347	941'47	211.9	19361	946'21	213.1	19375	950'54	214.3	19389	955'28	215.4	19403	1000'01	216.6	19417
1115'51	235.4	19334	1120'24	236.6	19348	1124'58	237.7	19362	1129'32	238.9	19376	1134'05	240.1	19390	1138'39	241.2	19404	1143'12	242.4	19418
1259'02	261.2	19335	1303'35	262.4	19349	1308'09	263.5	19363	1312'43	264.7	19377	1317'16	265.9	19391	1321'50	267.0	19405	1326'23	268.2	19419
1442'13	287.0	19336	1446'47	288.2	19350	1451'20	289.3	19364	1455'54	290.5	19378	1500'27	291.7	19392	1505'01	292.8	19406	1509'34	294.0	19420
1625'24	312.8	19337	1629'58	314.0	19351	1634'31	315.1	19365	1639'05	316.3	19379	1643'38	317.5	19393	1648'12	318.6	19407	1652'45	319.8	19421
1808'35	338.6	19338	1813'08	339.7	19352	1817'42	340.9	19366	1822'15	342.1	19380	1826'49	343.3	19394	1831'23	344.4	19408	1835'56	345.6	19422
1951'46	4.4	19339	1956'19	5.5	19353	2000'53	6.7	19367	2005'26	7.9	19381	2010'00	9.0	19395	2014'33	10.2	19409	2019'07	11.4	19423
2134'57	30.2	19340	2139'30	31.3	19354	2144'04	32.5	19368	2148'37	33.7	19382	2153'11	34.8	19396	2157'44	36.0	19410	2202'18	37.2	19424
2318'08	56.0	19341	2322'41	57.1	19355	2327'15	58.3	19369	2331'48	59.5	19383	2336'22	60.6	19397	2340'55	61.8	19411	2345'29	63.0	19425

SUN. 27 DEC. 1981 (361)

UTC	LONG	ORBIT
128'40	88.8	19426
311'51	114.6	19427
455'02	140.4	19428
638'13	166.2	19429
821'24	192.8	19430
1004'35	217.8	19431
1147'46	243.6	19432
1330'57	269.4	19433
1514'07	295.2	19434
1657'18	321.0	19435
1840'30	346.8	19436
2023'40	12.6	19437
2206'51	38.3	19438
2350'02	64.1	19439

MON. 28 DEC. 1981 (362)

UTC	LONG	ORBIT
133'13	89.9	19440
316'24	115.7	19441
459'35	141.5	19442
642'46	167.3	19443
825'57	193.1	19444
1009'08	218.9	19445
1152'19	244.7	19446
1335'30	270.5	19447
1518'41	296.3	19448
1701'52	322.1	19449
1845'03	347.9	19450
2028'14	13.7	19451
2211'25	39.5	19452
2354'36	65.3	19453

TUE. 29 DEC. 1981 (363)

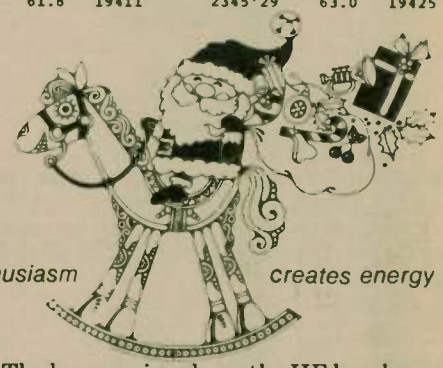
UTC	LONG	ORBIT
137'47	91.1	19454
320'58	116.9	19455
504'09	142.7	19456
647'20	168.5	19457
830'30	194.3	19458
1013'41	220.1	19459
1156'52	245.9	19460
1340'03	271.7	19461
1523'14	297.5	19462
1706'25	323.3	19463
1849'36	349.1	19464
2032'47	14.9	19465
2215'58	40.7	19466
2359'09	66.5	19467

WED. 30 DEC. 1981 (364)

UTC	LONG	ORBIT
142'2[illegible]	92.3	19468
325'[illegible]	118.1	19469
508'	143.9	19470
651	169.7	19471
835'[illegible]	195.5	19472
1018'15	221.3	19473
1201'26	247.1	19474
1344'37	272.9	19475
1527'48	298.7	19476
1710'59	324.5	19477
1854'09	350.3	19478
2037'20	16.1	19479
2220'31	41.8	19480

THU. 31 DEC. 1981 (365)

UTC	LONG	ORBIT
3'42	67.6	19481
146'53	93.4	19482
330'04	119.2	19483
513'15	145.0	19484
656'26	170.8	19485
839'37	196.6	19486
1022'48	222.4	19487
1205'59	248.2	19488
1349'10	274.0	19489
1532'21	299.8	19490
1715'32	325.6	19491
1858'43	351.4	19492
2041'54	17.2	19493
2225'05	43.0	19494

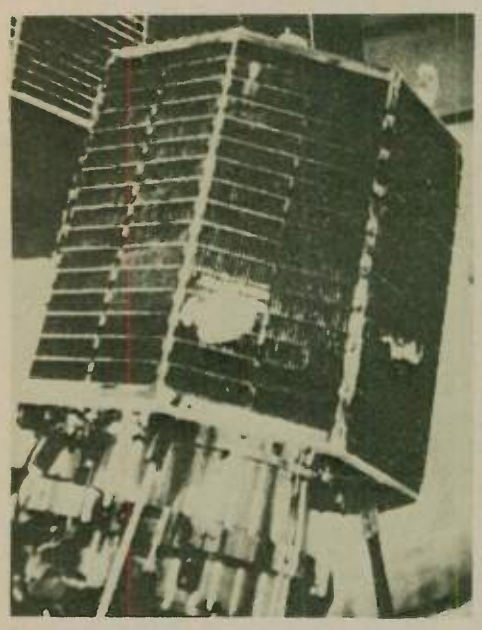


AMSAT OSCAR

Dr. Norman L. Chalfin, K6PGX

OSCAR 7's seventh

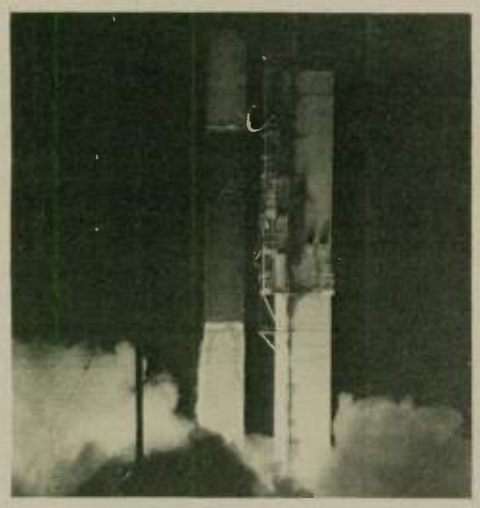
15 November heralded the completion of the seventh year of operation of the spacecraft AMSAT/OSCAR 7. While it has recently not been in the best of health, there have been reports from Australia and England of reception of its Mode B beacon. It is the longest lived of the Amateur Radio communications spacecraft to date. During its period of most active use, amateurs from every part of the globe have communicated with one another through it. It has carried SSTV, medical data, and been used in a variety of demonstrations for schools, radio clubs, museums, and for government entities involved in search and rescue and similar activities.



AMSAT/OSCAR-7 ready for launch in November 1974.

OSCAR 7's innards included quite a variety of system designs which, at the time of OSCAR 7's launch, were novel for amateur communications spacecraft. One notable example was the use of the phenomenon of the "radiometer" principle to rotate the spacecraft slowly by the sun's energy.

The radiometer principle, as those of you with elementary physics class experience may remember, is usually demonstrated by a four-paddle rotor within an evacuated bulb. Each of the paddles has a shiny or white side and a black side. When one shines a light against the paddles, they rotate within the bulb. On the spacecraft, the four-element canted turnstile antenna extending from four corner points on the spacecraft's lower end have respectively white and black painted surfaces. As the sun impinged on the turnstile antenna, the spacecraft was rotated slowly so that all of the facets of OSCAR 7's solar panels were illuminated relatively uniformly. Thus, a physics class curiosity of no known practical application (at that time) was put to a practical use by amateurs who designed the spacecraft.



The SME is an atmospheric research satellite designed to study the photochemical and transport processes associated with ozone concentrations in the Earth's atmosphere. The project is under the direction of the NASA Office of Space Sciences and is managed by the Jet Propulsion Laboratory. The University of Colorado heads the science team. The spacecraft will be controlled from Boulder, Colorado. The UOSAT is a downlink-only amateur scientific and experimental spacecraft designed and constructed by a Radio Amateur Satellite Corporation team (AMSAT) based in Surrey, England. The 130 lb. UOSAT was carried with the SME as a piggyback rider. Signals from UOSAT, now OSCAR-9, can be picked up on 145.825 MHz during passes between 1:45 and 4:45 local standard time. The signals use FM 5kc deviation.

UOSAT launched successfully

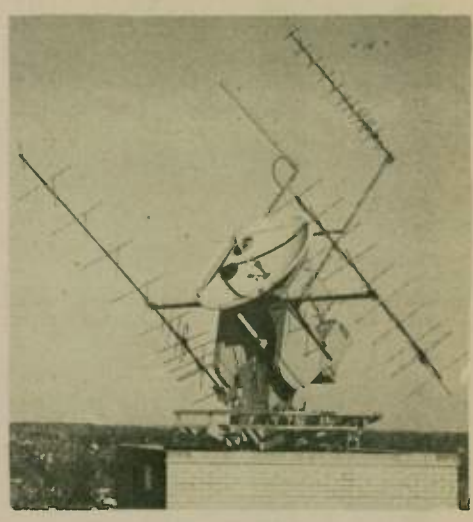
I stayed up until the wee small hours of the morning of 6 October to watch the launch of the Delta 157 carrying the Solar Mesophere Experiment and the University of Surrey's UOSAT into a successful orbit. The launch occurred at 4:27 a.m. Pacific Standard Time and although my vantage point was my living room window, which faces west, I saw the bright orange deltoid plume of the rocket pass from northwest to southwest over the trees to the west of my location in Pasadena, California.

In orbit, the AMSAT-UK's UOSAT is designated OSCAR-9. You can hear this downlink-only spacecraft at about 3:00 to 4:00 a.m. and about 3:00 to 4:00 p.m. local time. I have listened to 300 baud ASCII for several of the passes since launch. At first there was only a carrier without modulation that faded in and out due to the tumbling of the spacecraft, but finally the problem (desensing of the receiver in the command system aboard the spacecraft by the telemetry carrier) was overcome and the ASCII I described above was being received.

The period of testing by University of Surrey controllers continued through mid-November. Thereafter, amateurs were able to receive the various experiments aboard this downlink-only spacecraft. The period before final operation in its intended modes was used by the University of Surrey group to check out the various experiments. During November you should have been able to hear the beacons and other experiments on the several downlink frequencies.

The beacon signals on the HF bands are as follows:

Phase-related beacons on 7.050 MHz, 14.002 MHz, 21.002 MHz and 29.510 MHz will support a wide range of ionospheric experiments and observations. The four beacons are each derived from their own crystal oscillator and can be operated independently; however a synthesizer network enables the 14, 21 and 29 MHz oscillators to be phase-related to the 7 MHz oscillator, thus maintaining a constent phase relationship between all the beacons for trans-ionospheric path analysis. The synthesizers can be turned off, allowing the beacons to free-run. The beacons can be modulated (on/off a.m. keying) with Morse code telemetry interspersed with a carrier or a continuous carrier upon ground command. The output power of the beacons is 100mW each with a total experiment power consumption of 1.2 watts DC. The 50-foot stabilisation boom will be exited by the HF dipole antennas and should result in a strong radiated signal, even at the lower frequencies.



The antenna installation at the University of Surrey with which the UOSAT signals are being received. (*Photo from University of Surrey via AMSAT UK*)

Data beacons

Two VHF and UHF beacons provide the primary engineering and experiment data links to the outside world and have been designed to provide a healthy satellite-to-ground transmission link to enable reliable and straight-forward reception by the simplest of ground stations. A standard, unmodified n.b.f.m. VHF or UHF amateur receiver and a small, fixed, crossed-dipole antenna should suffice to gather data from most orbit passes. The addition of a +10dB gain Yagi steerable in azimuth only would provide coverage of the low elevation passes.

The data sources available to these beacons are:

Telemetry	ASCII - Baudot - Morse code
Primary s/c computer	Serial o/p port no. 1 - serial o/p port no. 2 - Speech Synthesiser
Video Display Expt.	Camera Image Data - Text/news/schedules/graphs
General Data Beacon:	
Frequency	145.825 MHz
Power output	350mW
Modulation	n.b.f.m. ±5 kHz devn.
Total DC/RF efficiency	45%
Unwanted signal levels	► −65dB ref. carrier
max. doppler	±3.1 kHz
Engineering Data Beacon:	
Frequency	435.025 MHz
Power output	650mW
Modulation	n.b.f.m. ±5 kHz devn.
Total DC/RF efficiency	40%
Unwanted signal levels	► −65dB ref. carrier
max. doppler	±9.3 kHz

Data transmission formats

High speed data at 1200 bps from the telemetry, computer and video display expt. are transmitted as phase-synchronous a.f.s.k. using 1200 Hz ('0') and 2400 Hz ('1') synthesised tones. The '1' - '0' data transitions occur at the zero crossings of the tone waveforms, thus reducing the DC component of the data modulation spectrum and resulting in exactly one cycle of 1200 Hz representing a data '0' and exactly two cycles of 2400 Hz representing a data '1'. This method lends itself to quite simple but effective decoding techniques.

The SSTV imaging experiment on UOSAT

A two-dimensional, charge-coupled device imaging array (GEC MA357) is mounted in the bottom of the spacecraft, which points toward the center of the earth and provide images of land, sea and cloud over a 500 × 500km area of the earth's surface. The image is formed by integrating the amount of light falling on the 65,536 (organised as 256 × 256) light sensitive "buckets" of the array over a set period of time and then transferring the resulting accumulated charge into a similar masked storage area alongside.

The integration time of the CCD is under ground control via the command system and can be set to any of 16 preset periods between 4ms and 16ms. The spectral response of the CCD is in the visible/red range and should give good haze penetration. The charge "image" in the CCD storage area is then digitised into 4-bit words (each word representing a pixel), and transferred once more to a long-term memory in the Video Display Experiment (VDE) module. The data now resident in the VDE memory can be transmitted to ground stations at 1200 bps (phase synchronous a.f.s.k.) through the General or Engineering Data Beacons.

The image data is transmitted in a line synchronous manner; i.e., 256 × 4 bits are sent (representing one line of image) in one continuous stream preceded by a "line sync" bit pattern comprising a 32-bit code sequence.

Speech Synthesiser Experiment: A 120-word speech synthesiser based on the National Semiconductor "Digitalker" integrated circuit is under the control of the primary on-board computer via a high speed 14-bit parallel port. Thus telemetry s/c status and programs, orbit ephemeris data and general s/c news can be encoded in 'English' and relayed via the general, engineering or 2.4 GHz beacons using n.b.f.m.

Power consumption	2.5 watts (when speaking) 0.25 watts (standby)

SHF Beacon Experiment: A beacon on 2.401 GHz will transmit the same data source provided to the VHF General Data Beacon on n.b.f.m.

Power o/p	125mW
dc i/p	2.9 watts
modulation	n.b.f.m. ± 10 kHz
max. doppler	±51.3 kHz
path loss o/h	−152dB
path loss horiz.	−169dB

Microwave Beacon Experiment: A beacon on 10.47 GHz will transmit a steady carrier for tracking and propagation studies.

Power o/p	125mW
DC i/p	1.96 watts
modulation	carrier
max. doppler	±223 kHz
path loss o/h	−169dB
path loss horiz.	−181dB

From the above experiment, beacon and data source descriptions, it should be clear that the UOSAT signals are usable by anyone with a standard shortwave receiver for the HF beacon signals and any standard 2-meter or 435 MHz FM receiver. Any of the currently used 2-meter synthesised transceivers can be set up to pick up the 145.825 MHz beacon experiments. Simple converters are all that would be needed to translate the 70cm FM signals down to 2 meters. A converter for the SHF (2.401 GHz) beacon experiment should not be too complex either.

The orbital parameters of OSCAR-9 are: Period — 95.43 minutes; Height — 538-540km; Inclination — 97.4631 degrees; Increment — 23.85 degrees west/orbit; Max o/h pass — 12 min. 20 sec. approx.; Max. slant range — 2730km; Sub-sat. visibility included angle — 133.6 degrees; Velocity of s/c — 7.6km/sec. All of this data is intended to act as a guideline for initial tracking; more exact data will be published shortly after launch. □

KLM — how it started

Among California's big beams, high towers and the "boys who know how to do it right" is a 120-foot high, five-element beam with an 85-foot boom. This one is for 40 meters and was built by Mike Staal, K6MYC. This antenna is manufactured by his own company, KLM.

KLM is 10 years old this year and one of the largest manufacturers in the field of Amateur Radio in our nation. When Mike was younger, he did research in EME (Earth-Moon-Earth or "moon-bounce") at Stanford University along with another young man.

One day while Mike was teaching his young, growing family how to water-ski, an idea hit him. Taking a refreshing break ashore with his two friends, they talked about investing their pooled resources to form a home-garage factory. They figured, naively, that they could work four days a week over the weekends and during the week they would be able to take more time to enjoy their families in this water-sport.

At that time, Mike met another man who manufactured antennas on a small scale. This man suffered an apparent heart attack and wanted to sell out. Mike bought his small business and began to build antennas in his own garage during weekends.

The rest is history. Their results can be seen across our nation among Amateur Radio operators equipment and in booths at national conventions, etc. The experience Mike gained in doing research at Stanford University proved invaluable in shaping his lifetime career.

Oh yes, what does "KLM" stand for? The three guys who got together as a team, driving and pulling until their goal was accomplished: Ken, Lee and Mike.

—*MARC Harmonics Newsletter, IL* □

Historic moonbounce

Bob McGarvey, WB2EVF

The first completely solid-state Earth-Moon-Earth radio contact is being credited to a group of New Jersey amateurs, with a Franklin electronics manufacturing firm playing a key role.

It was fitting that the "Triumph of the Transistor" took place in New Jersey, since the device was invented here in 1947. Even the HQ215 receiver was solid-state, reports Andy Furlong, WA2FGK of Bridgewater, New Jersey.

With Andy on the solid-state end of the historic moonbounce were Al Katz, K2UYH of Trenton, New Jersey and Bill Ashby, K2TKN of Pluckemin, New Jersey. The contact was made without schedule or prearrangement on 1296 MHz with G3LTF, a well-known English EME enthusiast. It was done on a random CQ by the English operator, at 0840 GMT on 20 September. "Being good friends with Al Katz and his 28-foot dish, it was decided to try it out that weekend," Furlong says. "It was the solid-state transmitter, with just two transistors in the final amplifier."

Furlong is a senior technician for the Device Development group at Microwave Semi-Conductor Corporation (MSC) on School House Road in Franklin. He has been operating on 1296 for the last two years with what he terms medium power, 40 watts. When MSC introduced a new "L" band 100-watt long-pulse device in their power amplifiers, he tried it on CW and found it would put out 85 to 90 watts, with a 50 percent duty cycle, typically five seconds key down, five seconds key up.

He reasoned that if a pair of the new devices could be coupled together, they would beat a pair of 7289s any time and, with the right antenna, might make moonbounce contacts.

It was planned to mount the amplifier at the feed, eliminating any power loss, but on the big day, power supply problems resulted in the amplifier remaining in the shack, with a 70-foot feedline. The very first try produced echoes and, with that encouragement, the experimenters went listening for signals.

It wasn't long before they heard Peter Blair, G3LTF calling CQ, and on the first try they were successful, exchanging calls and signal reports. Peter was 449 in New Jersey and in return he sent a string of Os, meaning strong, readable signals.

It couldn't have been done without the help of a group of MSC employees, according to Andy, and he expresses his thanks to Ed Lau, Wayne Boylan, Tony DeNicola (who is WA2IHZ of Edison), and Walter Poole, ex-K2PPT.

The first transistors were developed in the Bell Telephone Laboratories in Murray Hill. Work on the project began in 1936, was interrupted by World War II and resumed when military communications needs ended. The transistor became a working reality in December 1947. The inventors — William Shockley, Walter H. Brattain and John Bardeen — received the Nobel Prize in Physics in 1956 for their discovery.

—The Home News, NJ □

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Required by 39 U.S.C. 3685)

Date of filing: Oct. 22, 1981
Title of publication: Worldradio
Publication No.: 947000
Frequency of issue: Monthly, 12 issues a year
No. of issues published annually: 12
Annual Subscription Price: $9.00
Location of known office of publication: and
Location of the headquarters or general business offices of the publishers: 2120-28th St., Sacramento, CA 95818
Names and addresses of publisher, editor and managing editor: Publisher, editor, Armond M. Noble, 2120-28th St., Sacramento, CA 95818; Managing editor, Christine I. Wilson, 2120-28th St., Sacramento, CA 95818.
Owner: Worldradio, Inc., 2120-28th St., Sacramento, CA 95818; Armond M. & Helen L. Noble, Sacramento, CA; Jack & Dorothy Schwartz, Sacramento, CA; Norm Brooks, Carmichael, CA; Linda Rutledge, Sacramento, CA.
Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities are: Kopps Corporation, Sacramento, CA.
Extent and nature of circulation

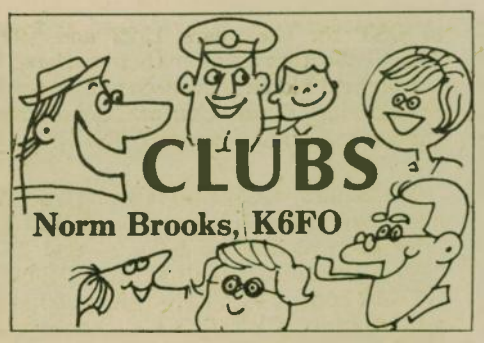
	Average No. Copies Each Issue During Preceding 12 Months	Actual No: Copies of Single issue Published Nearest to Filing Date
Total No. Copies printed	24,248	24,500
Paid Circulation		
1) Sales through dealers and carriers, street vendors and counter sales	608	696
2) Mail subscriptions	10,261	10,915
Total paid circulation	10,869	11,611
Free distribution by mail, carrier or other means — Samples, complimentary, and other free copies	13,137	12,644
Total Distribution	24,006	24,255
Copies not distributed		
Office use, left-over, unaccounted, spoiled after printing	242	245
Returns from news agents	-0-	-0-
Total	24,248	24,500

I certify that the statements made by me above are correct and complete.

ARMOND M. NOBLE, Publisher

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.



"You do it."

"No, I'm afraid. You do it."

"Well, I don't really want to. What does the script say?"

"It doesn't say."

This was the bickering that went on at the podium of "Old-Timers' Night" of the North Hills Radio Club of Sacramento, California, 16 October 1981. Joe Strazzarino, W6BWZ was general chairman of the affair, and John Dowling, WB6PWT was co-chairman. What was the task that both of these grown men feared? How did they settle who should "do it?" They flipped a coin, and Joe "lost". He had to seek out, from the audience, the *oldest female radio amateur!*

As it turned out, the task wasn't as formidable as anticipated. Mildred O'Brien, W6HTS admitted to 71 years of age and took the prize. Another lady amateur, who appeared to be the closest contender, said she wasn't quite that far along in years.

This was the second annual Old-Timers' Night for the North Hills club, and it appears to have become well accepted by the radio amateurs of Sacramento County as an annual affair. Almost 200 turned out, filling the Elks Club Hall in Carmichael, California almost to capacity.

Potter's history

Lou Potter, K6VT was the featured speaker. He was also the speaker last year, when he had prepared so much material on the history of Amateur Radio, that they cut him off at 1930. He saved his notes, and this year covered the period 1930 to present. To those of us who lived through those early years, (I'm an old-timer too), his material was interesting. I didn't ask any of the newer amateurs what they thought of it.

Lou told about how we built radios on breadboards, which were usually made of fine birch. Items were fastened down with wood screws.

Then we graduated to 19-inch-wide relay racks using steel panels if we had the money. The alternative most of us chose was to use Masonite for the panels. "Fifty cents worth would cover two 6-foot racks completely," Lou claimed. He further admitted, "If you looked at the front, it looked pretty nice, but from the sides or back, it looked cruddy."

Lou recalled that receivers of that day started at $29.95, with no sales tax. The Hallicrafters HT-1 transmitter sold for $195. If you had lotsa bucks you could get the Hallicrafters HT-4 transmitter for $695. That's the unit that became the BC-610 of World War II fame.

In the 1930s, parts were not expensive. A 3000-0-3000 volt ½ amp plate transformer was $30. A choke $8. A new 810 transmitting tube was $13.50. A Vibroplex "bug" was $9.95.

During the 1941-1946 war years, the amateurs were shut down. Only those in AREC (RACES) could operate on 5 meters if they got special permission.

In 1947, the war having ended, beautiful surplus military radio equipment could be bought for "peanuts." For example, the SCR-274 equipment was used universally, from planes to tanks. The set consisted of four receivers and three

Donna Cotter, KA6NEN (left) was the youngest licensed amateur at Old-Timers' Night; Mildred O'Brien, W6HTS was recognized as the oldest lady amateur that evening.

transmitters and a dynamotor supply. Phone was amplitude modulated. One could buy one of these sets, complete and brand new in overseas packaging, with a complete spare set of tubes from Burstein-Applebee Company in Kansas City for $19.95!

One of the receiver units covered 160 to 500 kilohertz (kilocycles in those days) — and nobody wanted it. They could be bought separately for $1.95. Then someone devised a way to use it as as a selective IF circuit, calling it the Q-5'er. After publication of this information, the price of that "unwanted" unit went up to $9.95. Before the Q-5'er rage subsided, the unit was selling for $24.95.

Then the good old days of AM (amplitude modulation) radio came to an end. Single sideband (SSB) suddenly became popular. Those who could afford it bought SSB adapters for their transmitters. Others could get on inexpensively by transmitting double sideband, suppressing only the carrier. Class B modulators became so much junk. Swinging chokes ditto. Power supplies for SSB became simplified pretty much to transformers, rectifiers and capacitors. Of course, there were some hold-outs. Some dyed-in-the-wool AM'ers refused to change over, calling SSB "Donald Duck," due to their inability to tune it in. SSB equipment changed from transmitter-receiver combinations to transceivers.

As late as 1960, the ARRL Handbook sold for $3.75. Since 1960, SSB transceivers gradually changed to all solid-state, including digital read-outs and memories. They seem to be more reliable, mainly because parts in solid-state equipment last longer due to the cooler operating temperatures.

This concluded Lou Potter's presentation. He was given a big hand — probably because he completed a speech that took two years to give!

The Lecher Wire

Jim Beam, WA6CLZ then gave a demonstration of a Lecher Wire. It was one he rebuilt from an earlier version he had in high school. (A Lecher Wire is an early device used to measure frequencies.) The standing waves on the line were clearly shown — to the amazement of many of the younger amateurs. Jim noted that the Amateur Service is the only radio service assigned in bands, without specified frequencies. Even CB operators are assigned frequency channels. Thus, it is most important to the radio amateur to be able to measure frequencies. And this is the way we did it before frequency meters came along.

Displays

The MC's then called a break, with coffee and cake served. We were able to view displays of ancient amateur memorabilia — radios, licenses, magazines, pictures, QSLs, etc. Bill Allport, WA6DPL, Orin Levis, W6DZ, and Dick Dickinson, W6WA had such displays, with Dickinson's including a superb collection of semi-automatic "bug" keys. Joe Strazzarino displayed old receivers. Norm Wilson, N6JV had a splendid collection of old transmitting tubes. Bill Cotter, KA6KCC displayed an American Morse sounder, such as used on early telegraph lines.

Prizes

Joe Strazzarino had the pleasant task of handing out $15 checks as cash prizes for the various categories of "old-timer" winners. Mike Caldwell, W6RTK got one for being oldest amateur present, age 78. Mike is famous in the Sacramento area for the number of Novice classes he has held. Those who were his students were asked to stand up, and there were over 20!

The prize for the longest licensed amateur was claimed by Dick Dickinson, who was first licensed in 1923.

Then came the argument we told you about at the head of this column. Mildred

O'Brien not only won the prize for being the oldest lady amateur, but also for being the longest licensed lady amateur — since 1948.

So that there could be no claim of "discrimination," a prize was offered to the youngest licensed amateur present. It turned out to be Donna Cotter, KA6NEN, age 16.

How about your club

Old-Timers' Night is an excellent club activity. Has your club had one? If not, try it. You'll find that the old, old-timers who seldom come to club meetings are willing to come to a once-a-year affair where old-timers are honored. Also, many amateurs have collections of old radio items and are looking for an opportunity to show them off. □

●●●●●●●

Worldradio will trade a paper for a copy of your monthly bulletin or newsletter.

Send us the name of your editor. In exchange for your monthly bulletin, your editor will receive a monthly issue of Worldradio.

●●●●●●●

QUARTER CENTURY WIRELESS ASSOCIATION INC.

Ethel Smith, K4LMB
National Director

President Stuart Meyer, W2GHK has been hard at work implementing his 10-point program for the future of QCWA.

One of his first actions was to appoint a "Planning Committee" to study the problems of the past and to look forward to actions that will make QCWA more vital and attractive to its members — and more productive to Amateur Radio in general and society as a whole. Vice President Leland Smith, W5KL was named chairman of this committee, with Directors Vic Clark, W4KFC and Ethel Smith, K4LMB serving as members. They are now looking for membership participation in this planning effort. What do you feel is needed to develop a more vigorous and productive organization? Drop a line to the committee and let them know your thoughts and recommendations.

Plans for the 1982 QSO Parties have been announced. The CW Party will be held 13-14 February. The Phone Party on 13-14 March. Our brand new Pine Tree Chapter #134 will sponsor the parties this year. Rules are essentially the same as last year with the exception that multipliers will be allowed for *each* DX station contacted. Watch for details in the next issue of *QCWA News.*

A new roster of QCWA members will be published in early 1982. This will be the first roster since 1979 and the last one until 1985. If there are any changes or corrections that should be made, contact General Manager Leland Heithecker, W5EJ as soon as possible. We are anxious to have this roster as accurate as possible.

A generous contribution to the QCWA Silent Key Memorial Scholarship has been made by "Shaw" Shalkhauser, W9CI in the form of two bound volumes of QST for the years 1922 and 1923. These collectors items are being offered to the highest bidder. Proceeds will go to the Scholarship Fund. Contact Scholarship Chairman Leo Meyerson, W0GFQ.

The Sunday QCWA nets are attracting more new members every week and we have been pleased to have several German stations checking in. DL9AR, DL1YA and DJ1TE have been putting in good signals. PY8ZLC is also a regular check-in. Join this interesting net at 2000Z each Sunday on 14,346 kHz. And don't forget the CW net on Wednesday nights on 7035 kHz at 8:00 p.m. local Eastern time and on 3750 kHz at 9:00 p.m. Eastern. These nets are a fine way to get acquainted with your fellow members and catch up on the latest news from the Board and Headquarters.

The new Board is encouraging membership participation. Take part in the activities and let your Board members hear from you.

Best wishes for a pleasant holiday season. □

●

Pass it on . . . WORLDRADIO

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.

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

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./WB6LBU
S. CA Amateur Transmitting Society
P.O. Box 1770, Covina, CA 91722
Cortze 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
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.

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.

MISSOURI

Heart of America Radio Club
3521 Broadway
Kansas City, MO
3rd Tuesday/monthly

NEW JERSEY

Glouster County ARC, W2MMD
PO Box 370, Pitman, NJ 08071
American Legion Post
Delsea Dr., Rt. 47, Clayton, NJ
1st Wednesday/monthly — 8:00 p.m.

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

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

AWARDS

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

The IARS Directory of Certificates & Awards

The finest award directory ever published is back. To quote Jock White, ZL2GX, editor of the Contests and Awards column in the NZART (New Zealand Amateur Radio Transmitters) publication **Break-in**, "Several publications have followed and each has its merits . . . but not one comes within a "bulls Roar" of the coverage obtained in the Directory of Certificates and Awards." (**Break-in**, July 1981).

This directory contains more than 200 pages packed with award information, maps, CQ and ITU zone listings and maps, USA complete county listings, helpful operating information, complete USSR oblast information, Japan's Gun and city listings, etc., etc., etc.

If you are into award hunting or DXing, this publication is a must for your ham library. The cost is $12.95 plus $2 postage. A true value.

To obtain a copy for yourself, send your order to: International Amateur Radio Society, P.O. Box 9990, Glendale, CA 91206-0990.

United States of America Counties Award (USA-CA)

The USA-CA, sponsored by CQ Magazine, is issued for confirmed contacts with specified numbers of U.S. counties in seven classes.

USA-CA is available to all licensed amateurs everywhere in the world and is issued to them as individuals for all USA county contacts made, regardless of the calls held, operating QTHs or dates. Special USA-CAs are also available to SWLs on a heard basis.

All contacts must be confirmed by QSL and such QSLs must be in one's possession for identification by certification officials. Any alteration made to QSLs will, of course, result in disqualification of the applicant.

The scope of the USA-CA makes it mandatory that special record books be used for your application. CQ provides a 64-page 4¼-by-11-inch record book, which contains application and certification forms and also provides record log space for a cost of $1.25 from CQ, 76 N. Broadway, Hicksville, NY 11081. This type of material is also provided in the Directory of Certificates and Awards from IARS.

Complete award information is available from the USA-CA custodian Ed Hooper, W2GT, P.O. Box 73, Rochelle Park, NJ 07662.

If you are into county hunting, this award is a must. It measures 20¾ inches by 13¾ inches and is printed in six colors on a fine parchtone bond. Cost to subscribers of CQ is $4 and to non-subscribers $10 (ouch), but is well worth the price.

Michigan County Award

Issued for contact with counties of the state of Michigan in the following classes: F= 20, E= 35, D= 45, C= 55, B= 65, A= 83. Send your log extract (GCR) along with $3.50 to International Certificate Hunters Club (see address in column head).

Iowa County Award

Issued for contact with counties of the state of Iowa in the following classes: E= 40, D= 60, C= 75, B= 90, A= 99. Send your log extract (GCR) along with $3.50 to International Certificate Hunters Club (see address in column head).

Worked Trumbull County-Mobile Award (WTC-M)

A very nice 8½-by-11-inch certificate is offered by the WARA (Warren Amateur Radio Association) for contact with 10 Trumbull County amateurs operating mobile in that county. Applicants in Trumbull County require 20 contacts and DX stations require only five. Send your log extract (GCR) along with $1 to: WARA Awards Chairman, P.O. Box 809, Warren, OH.

New Zealand Counties (NZC)

The basic award requires contacts with 20 different counties in New Zealand. Endorsements for 40, 60, 80 and 100 are available along with an additional special certificate for contact with all 112 counties. Send your log extract (GCR) along with $1 or three IRCs to: NZART Award Manager, Jock White, ZL2GX, 152 Lytton Road, Gisborne, NEW ZEALAND.

Worked All Norwegian Communes (Counties) Award

Contacts with 25 different communes are required. Endorsement stickers are issued for each additional 25 communes contacted as you work toward all 454. Send your log extract (GCR) along with 10 IRCs to: WANCA Award Manager, Sverre Schmidt, P.O. Box 3, N-9801 Vadso, NORWAY.

Worked All GI (Northern Ireland) Counties

Amateurs in the USA required to make one contact with each of the following counties: Down, Antrim, Armagh, Derry, Tyrone and Fermanagh. Send your log extract (GCR) along with $2 or 10 IRCs to: L.M. Lyske, GI3CDF, Erinbrook, Killarn, Hewtownards, Down, NORTHERN IRELAND.

Worked All West Australian Shires Award

Contacts with 40 different shires in western Australia are required. A map is available from the sponsor to assist you in identification for $2. Send your log extract (GCR) along with 10 IRCs or equivalent to: WAWASA, P.O. Box 6250, Hay Street, Perth 6000, AUSTRALIA.

GCR is an abbreviation which specifies that you may submit your application certified by your local radio club, notary public or two licensed amateurs in lieu of QSL cards. Such an allowance by award sponsors has obvious advantages and reduces the cost of application.

If you are having difficulty in obtaining information on an award or experiencing problems in obtaining a response from a sponsor, let me know. I will be happy to provide any information or assistance possible.

I wish to thank all of you who have written to me expressing your appreciation of this column. If you have any comments or suggestions, or if you would find information on a particular award series of interest, let me know. It is our wish to make this section as enjoyable as possible, and your correspondence is appreciated.

Till next month, 73s and Good Hunting. □

Bluegrass ARS presents award

Chris Gay, KU4A

Each year, the Bluegrass Amateur Radio Society of Lexington, Kentucky presents the Ernie Farmer Memorial Award to an outstanding amateur in the Bluegrass area. The award is named for the late Ernie Farmer, W4MWR, who was well known for helping many people get started in Amateur Radio.

The 1981 award was presented to Bill Shepherd, W4AUZ for his many contributions to the hobby. "Shep" is well known for providing technical assistance to his fellow amateurs. For many years, he maintained the club's 2-meter repeater system.

The plaque was presented to Shep by Mrs. Ernie Farmer at the annual hamfest on Sunday 9 August 1981.

About 900 electronics hobbyists attended the hamfest, which was held at Tates Creek Junior High School in Lexington. Displays ranging from computers and new transceivers to a satellite TV receiving station could be found, not to mention an outdoor flea market. Several forums were also held.

For more information on the annual Central Kentucky ARRL Hamfest, write to: Bluegrass Amateur Radio Society, P.O. Box 4411, Lexington, KY 40544. □

Award was a complete surprise

Everett Harrington, W1VMH

In Haverhill, New Hampshire, amateurs and their wives gathered with their RVs at the QTH of Phil Rand, W1DBM, 13-17 August 1981, for the annual assembly of the Northwest RV Net (3963) of the Wally Byam Caravan Club Amateur Radio Club. Phil is as past president of the club. The net meets Sundays, 8:00 a.m. Eastern time. The club is a function of the Wally Byam Caravan Club Inc., but welcomes any amateur with an interest in recreational vehicles.

W1DBM and XYL Louise have been hosts annually for tours, picnics, and historical and electronics lectures by Phil.

The highlight of the weekend was the annual banquet in a restaurant in nearby Wells River, Vermont. As a complete surprise to Phil and Louise, Phil was presented a plaque from the group commemorating his 50 years as a licensed amateur. Louise received a scrimshaw pendant of the whaling ship *Charles W. Morgan*. As a coincidence, a photo of Phil's a few years back — taken on the *Morgan* — went to photo contests worldwide.

Phil Rand, W1DBM (left) receives the 50-year commemorative plaque from Everett Harrington, W1VMH, who acted as Master of Ceremonies. Other amateurs in attendance were: Oliver Quist, K1HYL; Barry Martin, W1ISD; K1TJF; Bill Fischer, W2HBL; Charles Taber, W2AGQ; Harry Werner, W2SZV; Emile Thibault, K1LHW; George Von Bargen, WB2VNG; Bill McIntosh, K1TVY; Daniel Patton, W2UMT; George Cameron, W1WKZ; and Gerald Torrey, WA2VGV.

Phil's fame in Amateur Radio has been most extensive. Among the earliest things he became known for was that of the first RV mobile in a rig which he built called "Black Maria"; then came the installations in his Airstream.

W1DBM is a familiar call noted on reports and papers in QST, CQ, 73, Electronics, Radio News, and many other publications through those 50 years. One has only to read a few to realize how much his experience as an amateur, an engineer, a sailor, and his success in journalism have contributed to the art. His expertise in photography — many shows in many years, worldwide — also enhance his literary works. His publications about TVI exemplify the standard of authority his writings have achieved for Amateur Radio.

At 75 his hobbies are still photography, gardening, electronics, and last but not least, those 4:00 a.m. contacts with the folks on the other side of the globe his antenna systems are designed to work.

Wilson receives OKAY award

Wendell Wilson, 55, was named Outstanding Kansas Amateur of the Year at the annual Kansas Nebraska Convention on Saturday, 8 August. Wilson was cited for his broadcasts of code practice and technical material to the Midwest over his station, WØTQ. Wilson has also collected and edited a slide presentation on antenna basics, and a technical explanation of the Smith Chart—a device used by antenna technicians. He is now completing a third slide show on VHF and directional antennas, and is gather-

ing material for a book on Amateur Radio for the handicapped.

Wilson is general manager of KNCK-KCKS radio stations, and founded the radio reading service in Cloud County for the blind and print handicapped. A member of the board of directors of the Concordia Chamber of Commerce, Wilson is also on the Cloud County United Way Board, a lifetime member of the Concordia Jaycees, an assistant director of the Midwest Division of the American Radio Relay League, the Society of Broadcast Engineers, and in 1958 was a member of the Institute of Electrical and Electronic Engineers. He is an active Episcopal layman.

Wendell Wilson, W0TQ

First licensed in the Philippine Islands in 1946 as KA1ABP, Wilson is secretary of the Kansas chapter of the Quarter Century Wireless Association. He built studios at Concordia High School and at Cloud County Community College. He did the technical and legal work leading up to the licensing of the student station KVCO-FM at the college, as an unpaid volunteer.

The Kansas Nebraska Radio Club makes the award based on nominations from clubs around the state. Wilson received the 17th award. The club celebrated its 30th convention in Concordia this year. □

Net members enjoy picnic

Jay Abbott, KB8TC

The Great Lakes Emergency Traffic Net's annual picnic was held recently in Lansing, Michigan with an excellent turnout of members and families.

The first highlight of the picnic was the introduction of new officers of GLETN who are: Bud Coulter, WD8LSV, net manager; Frank Martin, WB8TAR, assistant net manager and Ray Gardner, WD8IBY, secretary.

The next item of business was the awarding of five plaques to individuals who had demonstrated outstanding service to the net. Included as recipients of the plaques were: Ray Gardner, WD8IBY; Peter Schuyffel, VE3JPP and Ruth Hagy, WD8BSE.

Cited for special attention by the officers was the awarding of two plaques in absentia to Loyal Guthrie, K4TZQ/8. The first was for 1980 and the second for 1981 for having served the past two years as pre-net manager for those checking into the group daily at 0000 UTC.

Finally, a round of applause was given to Louie Baker, WD8PKG for making the longest trip to join the picnic, his home QTH being New Carisle, Ohio. With business concluded and the goodies consumed, the group disbanded for their home towns until the next annual picnic.

Loyal S. Guthrie, K4TZQ/8 — a pre-net manager for the Great Lakes Emergency Traffic Net — proudly displays one of two plaques he received in absentia for outstanding service to the organization for 1980 and 1981.

The ART of Contesting

Randy Thompson, K5ZD

The two basic ingredients of a winning contest effort are a top-notch station and superior operating. An abundance of one or the other will do well, but it takes both to win consistently. The search for a winning combination has created a group of contesters who compete as "guest operators." Sometimes it is the station owner who is looking for a "hired gun" to pilot his station, but more often it is the stationless contester who is seeking the "perfect" station. When the operator and station owner work together, some very successful efforts result. Two examples are Charles Margelli, K7JA, with his many SS (Sweepstakes) victories from Rush Drake, W7RM; and Jeffrey Briggs, K1ZM — a winner in the CQ WW (World-Wide) from Gerard Scarano, W1ZM.

When an operator or station gains a winning reputation, it suddenly becomes very easy to find another station to use, or to find operators who will come in.

Probably the most difficult task for the beginning guest operator is finding a station to use. It requires politics, self-confidence and salesmanship to convince someone they should let you have the opportunity to use their station. A good start is to get to know the local amateurs, especially those who have stations which could be used for a contest.

I have found volunteering to do tower and antenna work an easy way to get acquainted. Get to know the XYLs, as well, since they sometimes have final say over who comes to operate. To them, you are an unfamiliar person who will be staying in their house.

It is important the station owner has confidence in your operating ability. After all, he is placing a considerable investment in equipment under your control as well as the reputation of *his* call sign. If you use poor operating practices, it is the call you are using which takes the blame.

If possible, operate the station before the day of the contest. This gives you time to learn any peculiarities or weaknesses the station has. Be familiar with the equipment. It takes time to adjust to a different rig and costly mistakes can result when fatigue begins to cloud the thought process late in the contest. You might even consider bringing your own rig.

The most important talent a guest operator should have is the ability to recognize and adapt to any "surprises" the unfamiliar station can provide. Don't blame the station if things don't go well. You could have stayed home and operated!

Discuss with the station owner any special requirements you may have for the contest effort. This could include antenna and station changes, eating and sleeping arrangements, responsibility for QSLing, and so on. The operator should always be responsible for submitting the logs since he is the one who will be disqualified if the logs are not "clean." Try to have the station owner act as cheerleader by asking him to check up on you during the contest. I have been found asleep at the rig more than once!

This has been a very rough overview of one of my favorite areas of contesting. Using other people's stations for contests has not only improved my scores, but provided an additional challenge above that of the contest itself.

Each "guest op" experience is and will be unique. That is part of what makes Amateur Radio contesting infinitely fascinating — nothing is ever the same twice.

The purpose of this column each month will be to explore and discuss various aspects of Amateur Radio contesting. I don't promise to put you in the top ten of Sweepstakes or the CQ WW, but I might come up with something which will move you up a notch or two against the competition. This is where I need your help. I would like to have your ideas on what you want to read about. Beginning contesting? Domestic and/or DX contests? QSO parties? Logging, duping and log submission? Station design? Computers and contesting?

As you can see, there is more to contesting than calling CQ! Please write to me: Randy Thompson, K5ZD, 7735 Willow Tree Court, Apt. 221, Dallas, TX 75231.

Good luck in the ARRL 10-meter and 160-meter contests. MX and HNY. □

MARITIME MOBILE

There's good news and bad news this month for all you maritime mobile operators. The good news is that there are plenty of maritime mobile nets to satisfy your cruising communications needs. The bad news for the bootlegger is that the net operators are making an all-out effort to weed out mariners using their system who are not properly licensed.

"Who, me? Not licensed? I have a Panamanian call sign that . . ." "I use my Technician Class license on HF because I am in international waters and the FCC doesn't cover . . ." "These call signs were authorized by my friend who no longer uses his General Class . . . ." "Good ol' Jerry died about six months ago and I am sure he would appreciate someone keeping his call sign active . . . ." Yes, YOU!

CLAMMARO is going to get you. CLAMMARO stands for the Committee for Legal Maritime Mobile Amateur Radio Operations. Whew! A mouthful, but also a handful of concerned operators to keep our ham bands clean of marine bootleggers.

Let's face it, mariners are the worst abusers of the ham bands and marine nets.

"Our records and experience continue to indicate that 25 to 30 percent of all maritime mobiles checking into the nets are unlicensed or underlicensed," comments Ramsey Armstrong, W6ELU. "It is our hope that marine net operators should be students of both International ITU regulations, and FCC regulations. He should also utilize CLAMMARO reports to supplement his studies of the regulations, and to report questionable call signs," adds the new CLAMMARO Chairman, Bill Hines, KA6HGU.

If you are presently using the maritime net to assist you in the process of patching in phone calls, double-check your license. If you do not hold a General Class license or higher, issued by the Federal Communications Commission (FCC), chances are your operation will be questioned publicly, right on the air when you attempt your next phone call. Needless to say, with all the hundreds of fellow marine amateurs listening in, it's going to be a bit embarrassing.

No, folks, CLAMMARO doesn't go by the Callbook. Callbooks are simply not up to date. Your local FCC field office contains up-to-date microfiche data that gives all the low-down on recent upgrades and license changes.

But let's not go overboard on this subject. If you have a true emergency aboard, you may use any means to call out for help and assistance. This would include Amateur Radio and any Amateur Radio net.

There is nothing illegal about having an operational piece of Amateur Radio equipment aboard, even though you don't have a license. There is no prohibition against someone installing an Amateur Radio aboard, even though you don't have a license. There is nothing illegal about you monitoring the maritime mobile net to get a "feel" of how they operate in case of an emergency.

And by God, if an emergency should strike, get on that maritime net and start calling out for help. No one will turn you down.

Maritime Mobile Nets
By Gordon West, WB6NOA
(In order by time)

GMT Starting time	Frequency in kHz	Net name — area covered	Net control
0230	14313	Seafarers Net - Pacific	WA6ZEL
0530	14314	(20M) Pacific Maritime Net-Pacific	KH6HEO
0630	14320	S. African Maritime Net - Atlantic, Caribbean	ZS5MU
0700 + 1700	14313	Int'l Maritime Net - Atlantic, Mediterranean	DKØSS
0715	3820	Bay of Islands Net - South Pacific, Australia	ZL1BKB
0800	14315	Pac Interisland Net - Pacific	KH6FV
0800 + 1800	14303	U.K. Maritime Net - Atlantic, Mediterranean, Caribbean	G8OS
1030	3808	Caribbean WX Net - Caribbean	VP2AYL
1030	14265	Barbados Cruising Net - Atlantic, Caribbean	8P6JH
1130	14320	S. African M/M Net - Atlantic, Indian Ocean	PY1ZAK
1200	7115	Caribbean M/M Net - Caribbean	J61DZ
1200	14320	SEA Net - Southeast Asia, Indian Ocean, Australia	WB8JDR
1245	21400	Trans-Atlantic M/M Net - Atlantic, Mediterranean, Caribbean	WA1WTP
1300	7268	Waterway Net - US East Coast, Caribbean	WD4NLC
1530	14295	Cates Navy - Mexico Coast	WA6WGN
1600	14313	Coast Guard M/M Net - Atlantic, Caribbean, USA	K4CG
1700	14340	California-Hawaii Net - South Pacific	K6VDV
1800	14313	M/M Service Net - Pacific	KB5YX
1800	7197	South Pacific Sailing Net - South Pacific	WA2CPX
1900	14340	Manana Net - Mexico Coast	K6IKI
1900	7285	Shamaru Net - Hawaii	KH6SFF
1900	21390	Halo Net - North/South America	WB4YBA
1930	14305	Confusion Net - Pacific	W7GYR
2100	21390	Inter-American Traffic Net - North/South America	WB4ABW
2300	21404	(15M) Pacific Maritime Net - Pacific, Caribbean	KH6CO
2400	14320	SEA M/M Net - Asia, Japan, Australia	VS6BE

Each net meets daily, except some not on weekends. The frequency 14.313 MHz is the unofficial maritime mobile international calling frequency in case of distress. There are usually fellow maritime mobile operators that guard this channel 24 hours a day.

Maritime nets

An up-to-date list of known maritime nets operating in our hemisphere is included with this month's column. (See page 41.) If you know of corrections, additions, or changes in this list, please address them directly to me at **Worldradio**. This list will be reprinted regularly with the new corrections.

Special thanks go to Fried Heyn, WA6WZO, member of CLAMMARO, for this initial information.

Have a fun fall cruising season, and 73's.

Next month, all about those new ham sets that may tune in marine SSB frequencies.

New Product

Marine VHF hand-held

ICOM is proud to announce the world's first marine synthesized (no crystals to buy) *12*-channel VHF *hand-held*. The ICOM IC-M12 is truly one of the most exciting announcements in the marine electronics field and will capture the imagination of your customers of its many possible applications. With its extremely compact size (much smaller than most 6-channel hand-helds on the market), the M12 has 12 channels of capacity (about double that of the other marine hand-helds on the market), yet *no crystals to buy*.

The ICOM M-12 is also extremely affordable, retail priced at only $499, and comes complete with rechargeable NiCd battery pak, charger, antenna and belt clip. The M12 comes ready to go and has many possible applications as a second inexpensive VHF for the flybridge to intership communications from vessel to dinghy, etc.

The M12 also comes with a full line of accessories to increase its versatility, including speaker mic, provision for running directly from the ship's power to the radio, and a provision for plugging directly into the existing VHF antenna. The portable M12 can act as the main VHF; simply unplug and carry home for better security.

The IC-M12 is built by ICOM. It is a "sister radio" to the very popular ICOM hand-held that has been in the Amateur Radio market for over two years with over 60,000 produced worldwide. The IC-M12 is a proven radio and carries the highest reputation for reliability and performance in the world of Amateur Radio where performance and reliability is absolutely essential.

The IC-M12 will be shown for the first time at IMTEC Trade Show in Chicago, Illinois, and can be seen at Booth #520. Initial orders and deliveries are pending receipt of FCC certification. Contact ICOM on either of our inward WATS lines at: 800-426-7983 Bellevue, and 800-527-7424 Dallas for additional information. □

•••

Pass it on . . . WORLDRADIO

Maritime emergency

Linda Turner, WD4OCI

For Kenneth Gaskill, third engineer aboard the tanker *Puerto Rican*, the situation was serious and could have had a tragic ending. Could have had a tragic ending, but didn't, because the captain of the *Puerto Rican*, — Phil Roberts — is also known as WA6PVB, and he had the foresight to set up an excellent station aboard his vessel.

It was 2230 local time on 28 July. The *Puerto Rican* was some 240 miles from the east coast of the United States, on a course from Puerto Rico to Wilmington, North Carolina. Phil was enjoying his evening cup of coffee while listening to the Seafarer's Net on 14.313 MHz, and Ken was on duty in the engine room when he became aware that a bone was stuck in his throat. The 49-year-old engineer reported his condition to the captain, and Phil and the other officers applied various first aid techniques to try and dislodge the bone. Ken was breathing comfortably, but he was in considerable pain, and no one knew when his condition would worsen to the point where his life would be in imminent danger.

The following is an account of the events that took place aboard the *Puerto Rican* on 28 July and in the early morning of 29 July.

2245 — Phil was successful in contacting Terry Shaw, KA9ALE, the net control on the Seafarer's Net that evening. Since Phil's location was extremely unfavorable for good propagation on 20 meters, it was necessary for several other amateurs to become involved, and Hank Poole, K4MH; David Lane, N4EHU; David Hicks, N4DIM; and William Templeton, W5MWJ stood by willingly to relay the emergency traffic to Bill Rolls, N4BMK in Miami, Florida.

Phil's objective was to contact the Coast Guard to obtain some medical consultation from their doctors and then to possibly arrange for Kenneth's evacuation from the ship. Soon Bill had enough information and was able to contact the Coast Guard by telephone. Phil commented that there were several other amateurs who helped that night but, in the tenseness of the situation and the speed with which the contacts were made, some did not find their way into his log.

29 July, 0000 — By this time, the *Puerto Rican* was located at 31°06'N, 76°00'W. Miami Coast Guard had consulted the doctors and everyone felt Ken should be evacuated from the tanker as soon as possible. Propagation was becoming nearly impossible on 20 meters, so Phil, Hank and Bill decided to change to the 40-meter band to work Miami direct. Phil next used CW on the commercial frequency, but he emphasized that the commercial band would have been virtually useless at the onset because of the probable loss of information through all the relays. At this midnight hour, Ken's condition was still stable, and the *Puerto Rican* was advised to divert its course to Jacksonville, Florida, approximately 270 miles away.

0030 — Phil reached Miami Coast Guard again on the commercial frequency using CW, and was told to again change his course — this time toward Wilmington, North Carolina. Helicopter 1496 was being sent from Portsmouth, Virginia to intercept the ship, but since the *Puerto Rican* was just in the fringes of the helicopter's range, a C130 plane was dispatched as well.

0500 — Using direction-finding techniques, Phil established contact with the C130. Thirty minutes later, at 0530, voice communication was begun with the helicopter.

0605 — Perhaps the most exciting part of the rescue was about to take place. From its precarious position overhead, a wire basket was lowered from the helicopter to the deck of the tanker, and Ken was successfully hoisted to the plane and soon on his way to the New Hanover Hospital in Wilmington, North Carolina, where he received the appropriate treatment and was eventually discharged.

Fortunately, the weather was favorable, with winds about 15 knots out of the southwest. Although it was the first evacuation by helicopter for the *Puerto Rican*, Phil remarked that the task was a relatively easy one due to the excellent pre-arranged procedures and manner of operation by the Coast Guard personnel.

There are, no doubt, in the log books of private yachts and commercial vessels alike, accounts of rescues much more dramatic and spectacular than this one of 29 July 1981. Possibly Kenneth Gaskill might have been treated through the advice of doctors that had already been contacted by the amateurs on the 20-meter net. Certainly, many of the crewmen aboard the *Puerto Rican* became aware of the valuable services that Amateur Radio is capable of providing, and the net managers of Seafarer's as well as the United States Coast Guard can congratulate themselves on another job well done. □

YLs are friendly

Bob McGarvey, WB2EVF

Nice to check into the YL Single Sideband Communication System on 20 meters and be greeted by Ellie Hornor, K4RHL in Fort Lauderdale, Florida. She is a marvel when it comes to remembering calls and names. The YL frequency on any band is a friendly place.

— 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 holidays to all

We would like to take this opportunity to thank each of you for your interest in the DF work of the HAPPY FLYERS through the years. I personally would also like to thank those who contacted me before and after my operation. This column was written the day before entering Los Alamitos General Hospital (11 October). I know I am in good hands with Dr. David Cook, WB6FMX as my surgeon. By the time you read this I am sure I will feel much better.

In all the rush preparing for my expected three weeks in the hospital, I lost the original story on the Universal DF Tester. It was (and is) to be in two parts because there is too much to cover in one column. I am taking this from an article I wrote for the Western States Sheriff's Air Squadrons' "Fly-in" seminar this same weekend. I trust I will cover most of the points covered in the original "first" column that was lost.

ELT DF problems

The location of ELT signals continues to be a problem for almost the entire Search and Rescue (SAR) community. This is sad indeed, since a working ELT at a crash site is one of the best methods ever devised to find the downed aircraft. A rapid find of the downed plane can mean the difference between life and death for the survivors. The NTSB (National Traffic Safety Board) recently released a report stating that survivors of a twin-engine plane crash died because they were not found in time. They make strong suggestions that better training and preparedness should be worked on for SAR. I wondered, as I read the report, if they realized that almost all SAR in the United States is done by volunteers? I did not see the actual report, but I do wonder if they have figured out some way to legislate volunteers! I do agree that what they suggest is needed, but those of us involved are doing practically everything we can now.

SAR workers in the mountainous western states have led the world in our work in the ELT DF field. Credit is due all the SAR organizations. The HAPPY FLYERS have provided free seminars on radio direction-finding throughout the United States, Canada, New Zealand and Australia. We produced an excellent slide/sound show on DF, covering the many different tools and techniques available for VHF direction finding. We have about 35 copies which we loan free (postage only). (Contact Vice Commander Paul Hower, WA6GDC with your reservation.) We gave copies of the film to the Air Force, New Zealand and Australia. We wrote a book on DF, complete with excerpts from some engineering handbooks, and gave it away to SAR groups for copying. The ARRL also recently copied it and sent a copy to every ARRL club in the United States.

We were not the only ones working to help the non-radio oriented to understand the mysteries of VHF DF, and the foregoing was not to detract from all that they too have done. Even with all of us working at it, the ELT remains a problem to the SAR community, rather than the lifesaver it could and should be. When we started, the published national average time required to locate an ELT was 42.5 hours each. Six years later, it is still above 30 — last I heard. The FAA, pilots, plane owners, and non-DF SAR people generally curse what should be saving people. The high "false alarm" rate should have revealed the need to improve our DF capabilities long ago. Instead, major FAA receivers on the distress frequency of 121.5 were turned down. People in SAR adopted a waiting period before they would act on ELT reports (unless an aircraft had already been reported missing in that general area).

During the early days of traveling and teaching DF, we found many installed non-working DF units. At first we thought some brands were no good, while others were better. Nearly two-thirds of the installations I personally checked (at home and abroad) did not work properly (or at all)! It did not take too long until we ran into a non-working Micro Electronics VH 12 (the brand issued by the State of California). I had used that brand for nearly a year before I began traveling after my first operation, and knew it was excellent.

DF installation problems

We now know that the proper installation of DFs in the search planes is one of the major culprits. Naturally, it was impossible to give a successful free DF flying lesson when the DF did not work. (The second major problem we noted was a lack of understanding the bouncing characteristics of VHF RF; pilots continually expected a VHF DF to work at 700 feet AGL.) It was nearly five years until I figured out why so many search pilots did not even know their DF did not work.

Almost *ALL* DF practice missions were conducted on unknown targets. The practice ELT beacon was hidden. If you don't know where it is, you will have a difficult time of learning if you have a problem or if the DF doesn't work. I believe we would have been much farther along if we had made a check-out rule (like we do as pilots), so that one could not go on a life-saving mission without at least two hours of practice on *KNOWN TARGETS* (with the brand you planned to use). As search pilots, we have to take check rides each year. We also have to take check rides at some time in each type of plane we are qualified to fly. Think about it. I spoke at the Commanders meeting of the Western States Sheriffs yesterday. This is the first time they had thought about practice flights on known targets.

This would allow you to check out the DF capabilities, as well as your own knowledge on VHF DFing. If you were to find yourself fortunate on both counts right away, you could use the time to practice how to find the same signal without a DF. Experiments could be done to note the effect of altitude and terrain on accuracy. Working with a known target and knowing you are on course will allow you to see many interesting things. For instance, on a number of training flights we have been able to note that a plane passing in the distance will cause the needle on the DF to fluctuate momentarily. Almost all of these switched antenna DF units are capable of accuracies of about plus or minus *1 foot at crossover!* (And this from an altitude of 5,000 feet above ground.)

Universal DF Tester

We have designed what we call a Universal DF Tester. It is designed to be used (in series) with any brand of switched antenna DF unit. It will plug into a DF unit, and you plug the wires that were previously connected to the plane's DF, into the test unit. This will allow the technician to monitor each of the important parts of the DF unit in the plane (while actually flying if necessary).

An additional feature is that a group of switches has been provided to allow one to substitute various portions of the cir-

cuitry, with signals from test equipment. It also contains a battery, which can be switch substituted for the plane's DF voltage. We have found some of the problems caused by "hash" on the plane's DC line.

Front view of the Universal DF test unit. The front panel controls allow the unit to operate as a "stand alone" direction finder, (with its own internal batteries), or substitute known test signals for various sections of the DF under test. The internal battery (12 volts), can be substituted for the voltage normally supplied to the installed DF by the airplane. Metering points are provided on the top of the box to allow connection to a scope, counter, signal generator, and multimeter.

Rear view of test unit. The BNC connectors allow connection to the plane's receiver, and its DF antenna. It also allows connection to the installed DF unit's rear panel antenna connections. The center BNC allows you to connect an external DF antenna that can be switched in as a substitute (to test the plane's DF antenna's). A jumper cable is installed into the matching connectors to the DF under test and will then allow for individual testing of each lead involved, or total substitution of the internal DF, to complete the test.

As part of our tests, we always had a spare DF unit with us when possible. This allowed for a complete substitution to ascertain if the plane's DF was OK. Since the cost of a commercial DF usually runs around $300, most people could not do this. Since we had already designed our own inexpensive phase-type DF unit for homebuilders, we decided to include one of these in the Universal DF Tester. This allows for complete substitution of the built-in DF with the plane's DF while in flight — by just flipping a switch on the panel. If neither DF unit will work, it leaves *no doubt* that the problem is in the airplane installation itself.

An additional value of this tester with its built-in DF is that it provides a SAR group with a spare, functional DF that can be used as a portable unit — or as a backup spare. It has the proper type connectors for most popular DFs, and can therefore be quickly installed when the other fails.

We will provide more complete details in next month's column, for those who wish to build their own universal DF tester, as well as learn how to use it. When we first produced our DF kits, we received many requests for completely constructed units. We do not wish to get involved in building DFs or competing with existing companies. In the case of this tester, we feel that most who want one will be able to build their own. However, to avoid too much correspondence, I have twisted the arm of a friend in San Francisco who builds medical equipment. Bud Kirsch, WB6MVE has agreed to build a limited number for SAR people on a per request basis. He will have to squeeze it in with his regular work. He figures he can build the entire unit — including the built-in DF and batteries — for about the same as the commercial DFs cost, without all the test features. By the time this is printed, he should have printed information and an exact price for your group. Please contact him direct at 5131 Mission Street, San Francisco, CA 94112. You can call him at night at 415-333-1916. Thanks Bud, for the offer of help to those in need.

...

THERE'S A WHOLE NEW WORLD OUT THERE

WAITING FOR YOU — JOIN IN.

WITH THE HANDI-HAMS

Bruce L. Humphrys, KØHR

Christmas all year long

Snowball fights . . . sleigh bells ringing . . . sumptuous dinners with all the trimmings . . . the laughter of children . . . and lotsa *presents!* These are the images one sees when this happiest of seasons comes around. Even in the warmer climes, Christmas cheer is heightened by putting colorful lights on the palm trees. Everyone is happy, excited, full of enthusiasm. Nobody thinks of the bills (at least for a while).

Around the first of December, we start leaving little "hints" around the house: "Say, Mom, ya know . . . that new Conflab-65 Transceiver is pretty slick. It's right there on page 19 of that little 'ole magazine there . . . " Or, "Maud, you know what we need to keep the birds off the grapevines out there? We need something up high that they can roost on. What's that? Oh, yeah, sure — I know just the thing . . . " Or, even more subtle: "Why haven't I been on the air lately? Ahhh, gee, Dad — it's no use. I just don't have enuf power with my little peanut whistle to be heard in the next county. All them guys with *linears* get to work the good stuff . . . "

Yes, Christmastime is a season of giving and getting and sharing and excitement and great nighttime openings on 75 meters. Wouldn't it be wonderful if we could, somehow, keep that same spirit all year long? Can you just imagine what it would be like to have the Christmas spirit in, say, June?

Well, let me fill you in on something! Within the ranks of the Courage HANDI-HAM System we have a bunch of people for whom Christmas comes at the most unexpected times.

Take Rachel, for example. Rachel is a 13-year-old blind girl who just bubbles over with enthusiasm all day long. She is terrifically active in school — so active, in fact, that she will be spotlighted in a coming "PM Magazine" program on CBS. This summer she got interested in Amateur Radio. She has attacked this hobby like nobody's business — whizzing through the Morse code like an old pro, mastering the most involved of circuit theory. She came out to Radio Camp where she absolutely charmed everyone. Her unabashed enthusiasm infected everyone at Camp, keeping our instructors in top form! It was just like the first of December; she kept dropping hints about what she knew, and what she didn't know, and how she was going to find out, and so forth.

Aha — then comes the BIG DAY (exams, in this case). Rachel breezed through the exams with the same vigor a 10-year-old has opening a Christmas gift. Reveling at every question answered correctly . . . becoming more and more excited as the "BIG GIFT" (knowing you've passed) comes ever closer. And then, the big box with the bright red bow on it — knowing for sure she's passed! A squeal of delight which echoed throughout the halls of Courage Center. Jumping up and down, tears of joy in her sightless eyes.

I tell ya . . . it makes a grown man cry to see such happiness. And here, right in

(*please turn to page 46*)

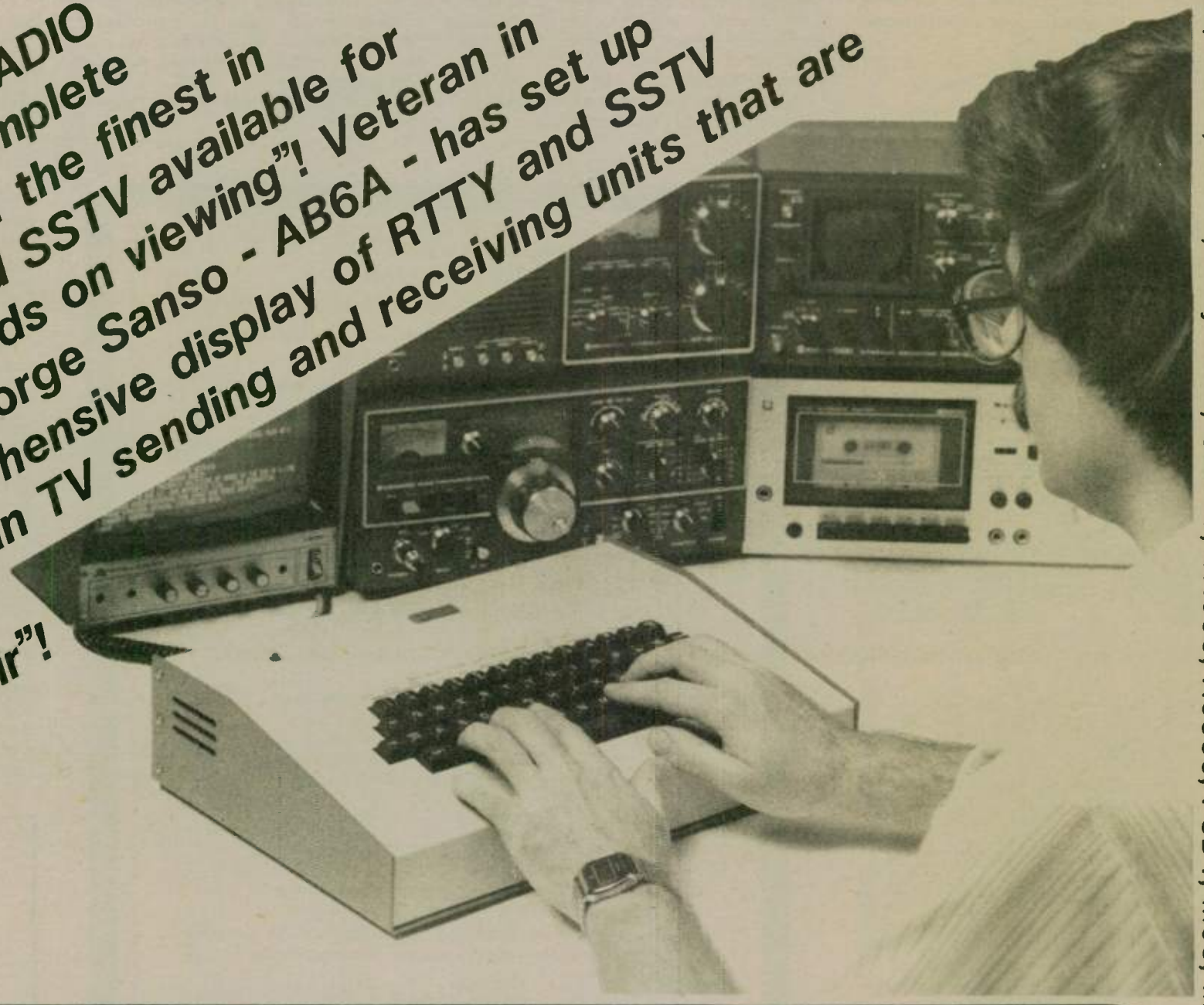
Converter IRL – FSK 500, FSK 1000 KANTRONICS – Field Day 2, Mini-Reader CURTIS – KB4900

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

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

HANDI-HAMS

(*continued from page 44*)

the middle of August! It's not often that we have the opportunity of seeing such joy; for most of us, it's maybe once or twice a year.

There were more Christmas presents at Radio Camp, too. Chuck came up with a big one. Chuck has multiple sclerosis which is coursing its dreaded way through his body, affecting both limb and mind. Last year at Radio Camp, Chuck had an extremely difficult time just paying attention to what was going on in class. He squeaked through the Novice exams. Frankly, no one expected Chuck to do much more — the disease was taking hold of him firmly.

This year, however, the chimes rang out loud when Chuck started copying the Morse code. Dr. Tom, our code instructor, was drilling the whole Radio Camp class by having everyone call out the letters in unison. One by one the campers dropped out when the code came too fast for them. One voice kept calling out the characters unerringly: Chuck's. Have you ever experienced the thrill of hearing a whole company of marchers keeping perfect time, just as if they were one person, without cadence being called? That kind of thrilling excitement pervaded the whole Camp as Chuck kept calling out the characters. Eighteen words per minute . . . Nineteen . . . Twenty — he started missing a few. And finally, he gave out. A shout rang out from the campers. People jumping for joy! Chuck wore a smile that split his whole head. He looked like he had gotten the biggest Christmas gift of his life.

Maybe he had . . .

In this most blessed of seasons we all feel the joy that comes with giving. If, indeed, Christmastime is a season of giving and getting, sharing and excitement — why not prolong this wonderful time? Why not try to bring the Christmas feeling to yourself — and others?

We in the HANDI-HAM System have the opportunity of bringing the unbridled joy of adventure and excitement to handicapped people all over the world. Christmas is in season any time of the year. Join us . . . experience the joy that comes with helping someone become an amateur. Recall again the jubilation of your first contact. Give the gift that gives so much in return — your help, your concern, your love.

Have a delightful Christmas — all year long! Peace. □

These seven paintings were done by System member Don David Taylor, WA0YAH, and hang in the Amateur Radio room at Camp Courage. They depict the pathway of bringing the Christmas spirit to someone any time of the year.

Seasons Greetings

Blind operator is back on the air

Submitted by Gwen Burnett, VE3AYL

Audrey Cuthbert, VE3ILT of Toronto Ontario, Canada is back on the international ham airwaves again after apartment building regulations denied her that pleasure for more than a year. The blind mother of two is "thrilled" to be able to enjoy her hobby again.

Audrey, 35 years old, obtained her Amateur Radio operator license in 1972 and was operating every day, competing in ham contests or talking to people around the world. But her daily contact with "hams" abruptly ended when she and her husband, Dave, (also an amateur) moved to a condominium where they were refused permission to erect a radio antenna on the roof of the building.

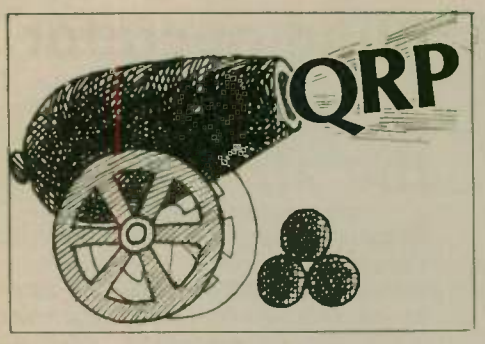
The Cuthberts moved again, only to encounter the same situation at their new apartment location. The manager told them that an antenna fixed to the roof would invalidate the building insurance. Audrey and Dave are both employees of the Canadian National Institute for the Blind (CNIB) and because they wanted to keep the apartment they accepted the antenna prohibition and sold the Amateur Radio set.

However, the building manager — after being interviewed by the Toronto newspaper **The Star** — finally allowed the antenna installation. The permission was given on the condition that the antenna was not to be affixed to the roof. Audrey rented radio equipment at a nominal fee from the CNIB and was soon broadcasting again.

The good news couldn't have come at a better time, as Audrey recently underwent an operation on the cataracts that have glazed her eyes since birth, reducing her vision by about 95 percent. Radio will give her hours of amusement during the recovery period of six weeks.

"I like working with Amateur Radio because I can contact people and meet friends all over the world," Audrey says. "A lot of us never get the opportunity to travel abroad, and talking on the radio makes it possible to glean a lot from people about what it is like in different countries. A number of Europeans send lengthy letters about themselves after they have been contacted on Amateur Radio, and reading them one can sit back and picture those countries and can really 'see' them. □

Please see page 11.



QRP to the rescue

Al Goeppinger, W6FXL

It was another hot Friday noon on 19 June 1981 as the NCS (Net Control Station), George Wiley, W6VKT* of Sacramento, California began to close the daily 40-meter Pacific Coast Net. Al Goeppinger, W6FXL* of Escondido, was saying 73 when a strange sounding signal broke in — "W6FXL de KQ6O emergency traffic here." With the help of another member of the net — Gene Zaluskey, K6IE* — the calling station was moved to a clear frequency away from the net. For the next four hours, Boyd Smith, KQ6O remained in CW communication with W6FXL, and during this time, messages were relayed between the two stations and thence via landline to the government agencies.

Boyd was the only adult with a group of six Boy Scouts (Troop 50 Southern Sierra Council) camping in a very remote area of the Sierras on the Kern River southwest of Mt. Whitney. It was there that they encountered Fred Vernon, an adult leader of a hiking group from the First Baptist Church of Santa Barbara, California.

Fred was in search of two brothers, Matthew and David Dunscumb, who became separated from the leaders somewhere back up the trail. Fred had hiked all the previous day and through the night, covering 43 miles in his attempt to find the missing boys. Another adult leader had gone to an outpost ranger station about two miles from camp but found it unattended.

A series of messages between the two amateur stations obtained the immediate help of the Forestry Service, and Tulare County Sheriff Hopkins soon had the information needed to arrange for their search and rescue team to look for the missing boys. By late afternoon, this team had located the boys in good condition and it is understood they were picked up and taken back to their group. They were found separated from the searchers by a two-day hike!

The good news about finding the boys was immediately relayed via radio to Fred Vernon who remained with KQ6O at the Little Kern Lake camp. Since Fred had found it necessary to abandon his backpack and food, the Scouts provided him with one of their bags and food for an overnight stay. In the meantime, the Scouts were able to hike two miles to the point where Fred's friend John Bruce was waiting, and guided him back to the Scout camp. Because Fred's feet were in bad condition, he could not hike out, and again arrangements were made via Amateur Radio for a helicopter pickup of Fred and John the following morning. From there they were flown to Lone Pine for a reunion with their group.

Throughout the afternoon, Gene Zaluskey, K6IE helped to monitor the frequency and act as backup station for W6FXL.

Much credit goes to Boyd Smith, who with some misgivings had decided to take his HW-8 Heathkit Transceiver along with all his other camping gear on his back! Powered by nine alkaline flashlight C batteries with the help of an inverted V antenna, it put out a solid signal for four hours on Friday afternoon and again for another half hour on Saturday morning. At 8:00 a.m., Boyd again contacted W6FXL to report the successful pick-up of the two weary searchers by the helicopter. "Mac" Cowden, W6TBZ* of Clear Lake was also able to QSO him and to help in pulling the signals through the heavy Mexican phone QRM (7,089 kHz).

We salute the Scouts and their Scoutmaster KQ6O. They proved the meaning of their motto "Be prepared."

**By sheer coincidence the following SOWP (Society of Wireless Pioneers) members were involved: George Wiley, W6VKT, 364 P; Gene Zaluskey, K6IE, 1446 P; Al Goeppinger, W6FXL, 2947 V; and "Mac" R. E. Cowden, W6TBZ, 2477 S.* □

Solar power

Bob Patton, N4BP of Miramar is now operating his Argonaut 509 on solar power (QRP) and making worldwide contacts on CW and SSB. Bob's first QSO was an SM in Sweden. Can anyone top that?

— Florida Skip □

Repeater links

220 MHz users can check into the Monday Night Swap Net at 9:00 p.m. via the MARC link which is usually brought up sometime during the net.

On 4 March, at 1:45 a.m., Bob Heil, K9EID brought up the link from 2 meters to 40 meters. John Becker, NØAJF was at work on his hand-held and talked to New Zealand on 40 meters through it.

Dick Hoffmann, W9UWP found himself pleasantly chatting with a fellow on 81/21 who spoke to him from about 100 miles north of London.

—MARC Harmonics Newsletter, IL □

TRAFFIC

Chuck Clark, K4ZN
Assistant Director
Roanoke Division, ARRL

December, the big month

The month of December is probably of more value to our Amateur Radio traffic operations than any simulated emergency test could be. The high-volume period usually lasts two weeks or more, and involves traffic from everywhere to everywhere. It exercises and challenges all levels of the National Traffic System (NTS), all the independent nets, and those handling traffic outside organized nets. Many amateur groups try to add to the confusion by setting up booths in shopping malls to solicit traffic from the general public, It all adds up to a hectic period and a BPL list in March QST about three times as long as usual. And more important, every segment of our operation has been given a thorough workout, weak spots and bottlenecks can be identified, and any needed corrective action can be taken before there is need for handling a sudden big load of emergency traffic.

To this writer's mind, this is the most important benefit the Amateur Radio Service gains from our annual December rush. But it is not the only one. Closely related is the training it provides our operators. The load puts pressure on us all and makes it necessary that we improve our efficiency if we are to be able to handle it with accuracy and dispatch. Not necessarily that we send faster, although that is helpful when both the sending and the receiving operators can handle a higher speed, but more especially in eliminating time killers. R means the same as QSL, for example, and takes only one-fourth the time to send. In fact, there are some who say it's not correct to use QSL to acknowledge receipt of a message. But don't argue about that when the rush is on. Discussions like this, or about how to count a check, or how to route traffic — all are time-consuming.

Slow down to speed up

The skipper told the signalman whom he was asking to send a message to another ship, "Slow down, this message is urgent." And the General Radio Regulations tell ship radio operators to send distress messages at no more than 16 wpm. Often, one can get a message through more quickly by reducing speed so that the receiving operator can copy it solid first time, with no need for fills, and so that the sending operator can transmit it without having to go back every few words to correct a sending error. These things all add up. Another time-killer is the attempt to copy weak, fading stations. Better to get a relay or to shift to another band where propagation is better.

Hot lines

The various ARRL publications concerning traffic often speak of "hot lines" — special circuits set up to handle large volumes of traffic between specific points instead of putting it through the normal routing. They are seldom set up, however. In fact, there are some officials who object to them as violating the system concept of the NTS, despite the fact that they are specifically mentioned in NTS literature. Where equipment is available, a hot line using teletype is just about overload-proof; it will handle all the traffic that any amateur circuit can generate. Several years ago it would have been a natural when Amateur Radio was operating a communication system for Vietnam refugees in the United States. In particular, it would have solved the language problem. But some officials insisted it should go by normal NTS routings.

Some examples where a hot line would be helpful in handling holiday traffic:

An exhibit station might arrange schedules with stations in various parts of the country where much traffic is expected to be sent. In that way, the operator can send continuously and keep the traffic moving, with receiving stations following one another as the traffic is cleared to each in turn. If experience shows that a large volume will be expected for one destination area, the traffic could be given to a local amateur via 2 meters or he could pick it up in person, and then send it by special schedule to a station in the destination area. In this way the upper levels of NTS are bypassed.

At this time of year, these levels are usually overloaded anyway, so using alternate routings for wholesale bunches of traffic like this makes it possible for them to handle more "retail" traffic for individuals. The reason given for discouraging use of alternate routes does not hold in this case, as there is no danger that the upper levels will be starved for traffic.

People are not impressed by Amateur Radio's performance if it takes longer to handle a message by radio than by mail, even if we tell them we were careful to stick to the system.

Show stations

Another benefit Amateur Radio stands to gain from handling holiday traffic is the chance to enhance its status before the public, to let people see it as something besides a group of people who ruin TV reception or create noise in stereo systems.

It is a chance to perform a valuable public service, making it possible for people to exchange greetings in an unusual way — and free of charge, too. The last aspect becomes more appreciated each year as postal rates climb. This writer predicts a larger volume of traffic this year, particularly with the increase to 20 cents for first-class mail.

Individual amateurs can solicit traffic from friends, post notices on bulletin boards, or make the service known in newsletters of non-amateur organizations to which they belong.

Clubs and other amateur groups can set up exhibit stations in shopping malls and similar places, where they are usually welcome because they are a potential attraction to bring more people. In this instance, probably the primary emphasis will be on traffic handling, on making the service known and available to the public. But one must never forget there will be potential amateurs among the spectators too, and one should make sure that any such people know how and where to pursue their interest further, and what is involved.

The main concentration, however, should be on moving the traffic. Be sure there are enough people on hand — people to deal with the public, people to count checks and otherwise prepare the traffic for sending, to sort messages by destination for the convenience of the operators, and operators who will be kept busy moving the traffic. Choice of mode must depend on the available operators, but there is much to be said for CW. For one thing, it is never confused with "that other service." And many people today seem unaware that years ago it was the ordinary way to communicate, and is still as effective as ever.

More important to the success of such projects, however, is speedy and accurate delivery of messages. For this purpose, it is essential that the persons receiving the messages from the public make sure the address is correct and complete, including a telephone number if at all possible, and that the text is clear and legible. Sometimes changes in wording can be suggested — changes that make the meaning more clear, or that can make garbles less likely. Sometimes it is also necessary to suggest changes in order to eliminate something that should not be sent by Amateur Radio. Tactful suggestion here is preferable to curt rejection, but, of course, there may be times when it will be necessary to refuse traffic if the sender is unwilling to change the offensive part.

It is also important to record the address and telephone number of the sender with each message; do this even if the sender is from out of town. While nondelivery is not to be relished, still, much of the potential discredit to our service is neutralized if we promptly contact the sender to explain why.

If a service message comes for a message sent by a visitor from out of town, we can always send a service message to the sender at the home address via Amateur Radio, and that can be impressive too. Be sure that after the show station is closed, there is someone designated to handle such service messages and see that the senders are informed, or to unscramble the garbles that may have found their way into the message en route.

Before leaving this subject of holiday traffic, your columnist wants to wish all readers a happy season themselves — for many of us, an overflow of our efforts to use Amateur Radio to bring happiness to others.

Packet radio, traffic's future

It's still in its developmental stage as far as Amateur Radio is concerned, but it has already been put to work on commercial circuits. And it offers the promise of giving us a nationwide system of practically instantaneous communication. No longer will messages be relayed manually, with the need to meet schedules, to find a net that can handle it, with the delays that occur because an operator is unable to meet a schedule on a given day. Packet radio promises to give us electronic mail service, and at a cost in keeping with the average amateur's budget.

October QST has an article describing packet radio. Briefly, it works something like this: (Details in the eventual system may vary somewhat, as the whole concept is still in the developmental stage, but it won't be too much different from what is described here.)

Messages will resemble the formal traffic we now have, in that they will have a preamble and address before the text. But the preamble and address will be machine-readable, so will consist of a series of letters and other characters of the ASCII code (pronounced *askey*, the letters stand for American Standard Code for Information Interchange). Just as in the case of formal traffic, the preamble and address serve to identify the message, give instructions for its handling, and name the addressee. There is no check in this preamble; however, it comes at the end and will be discussed later.

In the system that seems likely to be eventually adopted as standard, the text will be limited to 255 characters or *bytes*, followed by an error-detecting byte, taking the place of the check in the formal message. The ASCII code is a seven-unit code — seven bits, each of which may be either a one or a zero, off or on, giving 128 possible combinations. This is enough to provide a complete alphabet with upper and lower case, figures, punctuation and operating signals.

Each character is individually checked for errors by the addition of an eighth bit, the *parity* bit, which can be either a one or a zero, and is so arranged that all bytes will be either odd or even. As each character is received, it is checked. If it is odd when it should be even, it must be incorrect. In addition, there is the error-detecting byte at the end of the message which provides an additional means of insuring accuracy. One way this can operate is to insert the final eight bits of the total found by adding the binary numbers corresponding to the text of the message. Here is an example:

Binary(ASCII)	Decimal
K 11010010	210
4 00101101	45
Z 01011010	90
N 01110010	114
Total 111001011	459

Note that in each of the letters of K4ZN, the ASCII character has an even number of ones; it happens to be four in each of the characters here, but could be zero, two, six or eight. In each case, the last bit is made zero or one as needed to provide an even number of ones. If any character as received has an odd number of ones, it must be incorrect.

The binary total of the ASCII characters is 111001011, or 459 decimal. If the received text does not have the same total, something is wrong. Actually, only the last eight bits need to be checked; any error will show there, so only the last eight are sent. In this case, therefore, the first one would be dropped and 11001011 would be sent.

The comparison is done by computer, and if an error is detected, a repetition is requested.

With suitable software, any microcomputer can handle this process, and an ordinary teletype or a computer terminal can be used. Another method would be to develop a smart terminal device to interface between a computer and the radio equipment. As packet radio becomes more widely used, expect to see units designed expressly for the purpose of handling communications by this mode.

It will probably begin as a VHF mode, using single-frequency simplex — all stations in a group operating on one frequency. Repeaters will operate in the same way, receiving traffic on the net frequency, checking it for error, acknowledging or asking for a repeat, then retransmitting it when it is error-free. All would be done under microprocessor control.

The processor could also transfer the message to another channel — perhaps a 10 GHz Gunnplexer or an HF channel — for relay to a repeater somewhere else, which in turn would either deliver it to the addressee or pass it on by a further relay. The result would be a system similar to the NTS, but operating 24 hours a day and moving things along at several hundred words a minute. You could sit down at your terminal and punch in your message. Your terminal would wait for a go-ahead from the repeater, send your traffic, and it could be across the country in a matter of a few seconds and flashing on the screen or typed on the printer of the addressee. A real electronic mailbox.

No more room to say more, but it looks like the traffic mode of the future.

FCC's plans for the future

It's not official, and there's no room to discuss it here this month, but a working paper of the FCC's Office of Plans and Policy is about the most encouraging thing that has come from the FCC in a long time. It makes a good case for doing away with many regulations that actually hamper Amateur Radio, such as: the prohibition against handling business traffic; relaxing identification rules; allowing the use of repeaters on more frequencies; and opening the door to new methods of modulation.

If even some of these suggestions are adopted, expect Amateur Radio to make significant contributions to the art in the same spirit of past years when things were still unhampered — when one mimeographed sheet held the whole of the Amateur Regulations. □

What's ECARS?

Tom Rosica, W2GIR

Does everyone know what ECARS is? Well, after being in Amateur Radio for 30 years, I finally learned what this service is, thanks to our old friend, Stu Bowden, WA2SYR. He had told me to look for him on ECARS — I had heard the expression before, but I didn't know what it really was all about.

ECARS stands for *East Coast Amateur Radio Service* and is a group that meets daily on 40 meters (7.255 MHz) from 8:00 a.m. till about 6:00 p.m. It is primarily a "meeting frequency" whereby you can check into the group, give your call and QTH and see if anyone is looking for someone in your area. You can also ask for someone in a particular area in the country you may be trying to reach. You should call "Contact," and then find out whether your contact, or someone you are looking for, is on frequency. Then you should slide off — up or down, 5 or 10 kc, or wherever — and carry on your QSO.

I tried it the other day and it works fine. I understand that ECARS is 10-12 years old and that it has some 620 members. You don't have to be a member to use it — you can use it any time by just calling in when you need the service. It doesn't run after 6:00 p.m. in the evening because of the heavy interference which is on 40 due to foreign broadcast, like Radio Moscow.

—GRAM News, Batavia, NY □

A minor tragedy

The number of British amateurs has doubled in the past 12 years, causing the United Kingdom Home Office to consider abandoning the present system wherein the call sign prefix identifies the individual British Isles countries, such as GW for Wales. They were considering going to GA prefixes when the last (G8ZZZ) of the Class B license prefixes had been issued. Instead, they decided to use a G6 series of prefixes.

In making their announcement, the Home Office made a comment that said, "One of the minor tragedies of Amateur Radio in recent years has been the breaching of the conventions surrounding international prefixes — notably by the American FCC which has largely destroyed the 'district' identification feature of American call signs as well as confusing the position in U.S. overseas territories."

—Lockheed Employees RC Newsletter □

Kurt N. Sterba

Please know that I enjoy hearing from you. Most of all I like getting QSL cards from "K" call two-letter licensees with nice words about this column. Then I'm pleased to answer questions from the newer amateurs. Please allow for the time for your query to be forwarded to me and my answer to be sent back to Sacramento before it is sent back to you.

What is a waste of your time and good paper and postage stamps is you writing in to disagree with me.

What makes you look very silly is to take me to task (you think) for something I've said and then write to **Worldradio** saying, "Too bad you don't have somebody like Harry Hooten writing for you; he knew what he was talking about."

I've been told to read Bill Orr, to read Maxwell, etc. What brings such rockets my way are my statements regarding a "proper" length of coax cable between the transmitter and the antenna.

First of all, for Harry Hooten devotees, I quote from page 93 of his *Amateur Radio Antennas*, published by Howard W. Sams & Co.: "Amateurs frequently place an SWR bridge at random points in a coaxial line and adjust the antenna for a low SWR . . . measurements obtained in this manner are usually worthless; almost invariably, the line SWR is excessive when measured according to standard engineering procedures. The SWR bridge or other impedance-measuring device should be placed either at the antenna feedpoint or at a half-wave multiple of the line."

That's what HE said. (Note: the velocity factor of the line must be taken into account.)

Looking at page 25.9 of one edition of the respected *Radio Handbook* edited by Bill Orr and published by Howard W. Sams, we find this: "The input impedance of the line depends not only on the load impedance at the far end of the line but also on the electrical length of the transmission line."

Lest anyone think this is some new-fangled idea or passing fad, we go back to 1959 and look on page 10.12 of a book issued by the Collins Radio Company, *Fundamentals of SSB*. "The impedance presented to the transmitter depends on the terminating impedance and the feedline length."

What does the *ARRL Antenna Book* have to say on the subject? Page 76: "The input impedance, or the impedance seen when "looking into" a length of line, is dependent upon the SWR, the length of the line, and the Zo of the line."

Now, if you have any argument about all that, please do argue with them, not me.

Let's take a look at something quite interesting. What is the property of a quarter-wavelength line? Let's say you had a 300 ohm antenna and put a quarter-wave line (don't forget the velocity factor) of 72 ohm cable on it. What would you see at the end of the cable? Answer: 17 ohms.

Let's take the same 300 ohm antenna and use 50 ohm cable. Answer: 8 ohms. Thus we see that a certain length of coax will have properties of its own. And the same holds true of multiples of that length.

Suppose you cut a random length of coax and, by chance, it drops pretty close to a certain length. This is what could happen — off the resonant frequency the antenna is 25 ohms, and the transmitter is now looking into 207 ohms.

Here is how we came to that. Assuming 72 ohm cable — 72 times 72 equals 5184 divided by 25 comes to 207.

Here is how we can avoid oddities and really know what is happening.

Looking into the manual that comes with the Palomar R-X Noise Bridge, on page 3 it says, "If the feedline is an electrical half-wave long, or some multiple of a half-wave, the readings taken at the end of the feedline are exactly the same as though they were taken at the antenna."

Now, isn't it nice to start somewhere? Here we have a point to work from, if desired.

For a discussion of all this, I'd recommend the material found on pages 41 to 44 of *Beam Antenna Handbook* by Bill Orr and published by Radio Publications of Wilton, Connecticut.

Now, what do the English think about all this? They've been working with the field for a long time. In the section on HF Aerials in the *RSGB Handbook* (after some beating around the bush and qualifications), they say, "The adjustment of line length may result in the presentation to the transmitter of a more acceptable load impedance so that it delivers more power . . . ."

What else do they say? "For a greater percentage change in freqeuncy, there will be a greater variation of input impedance the longer the physical length of line."

If you'd like the rest of the story, the book is available from the Ham Radio Magazine bookstore.

There is a good reason for buying all these books on antennas. It is so you do not embarrass yourself when writing to Doug DeMaw. Really now — people running the half sloper up a tree or wooden mast, finding nothing to ground the shield side to, so they just left it unconnected to anything! Then they wrote in to complain that it didn't work!! (See page 31, **QST**, October 1981.)

I suspect that those were unsigned letters written by pals of DeMaw's knowing full well that when he read them he'd just go sputter, sputter. They probably were laughing with glee when they wrote them, chortling all the way, wishing they could see the look on his face when he read them.

On that tack, here's a little tip. Many hams, when traveling, will take the 2-meter rig out of their car and use it in the motel room. The antenna may be the classic "wire coat hanger cut to 19 inches" and soldered into a coax connector. They expect the chassis of the rig to be the ground. Wishful thinking.

Take 19 inches of wire (and a bit more for the wrap) and attach it to the barrel connector. Now you have a whole antenna instead of half an antenna. Watch the radiation increase greatly. This should also be quite useful for those who just run a rubber duck into the antenna receptacle. Just let the added wire hang down. Now you have a vertical dipole. Much better.

Speaking of 2 meters — when at the hamfests, do you look at the Heath Twoers with nostalgia?

Next month we'll have a special tip for those whose interest is weak signal reception on HF CW. Which reminds me — wouldn't you agree that the biggest improvement in the magazine has been the **QST** DX column since Ellen White took it over?

(Kurt N. Sterba is an alias (really?). He insists on such because he does not want to run into the people on the air who call him asinine and stupid in letters. This mature gentleman, urbane and erudite, has but one answer for such people: "I'm made of rubber and you're made of glue. Whatever you say bounces off me and sticks on you.") □

SSTV

Dave Ingram
K4TWJ

Things are happening

Pardon the absence of our SSTV column here in **Worldradio**, gang. There's so doggone many exciting things happening that one almost gets whiplash trying to keep up with the action! As you may have heard, we're writing another book (number 7! This one on Advanced Video Technology) plus working on some rather exotic projects. Those efforts, combined with the unfortunate fact there's only 24 hours in a day, restricts writing time.

Voyager II encounter phenomenal

The gang at JPL pulled off another fantastic operation from W6VIO in August as Voyager II flew by Saturn during the latter part of August. We trust all of you were on 14,230 kHz with us, viewing the live pictures and sharing the views with local news media. Special recognition is due W6VIO operators Jim and George — these two fellows "hung in there" with action on an apparently tireless basis for the full two-week period. Some of the Voyager II/W6VIO SSTV pictures are included with this month's column.

SSTV close-up view of the newly discovered "beer can" satellite which appeared during the center of Voyager II's pass. This view was also relayed by W6VIO on SSTV.

One bit of technical information worth sharing happened here at K4TWJ when NBC news paid two visits during nightly SSTV communications with W6VIO.

This W6VIO-relayed picture shows two tiny satellites in respect to Saturn and its ring. This excitement-creating picture was transmitted during Voyager II's prime "discovery period."

During the first visit, incoming SSTV views were relayed via "insta-cam" (mobile unit, with color camera viewing my black and white SSTV monitor). The resultant views (broadcast via commercial television) were black and blue, giving the illusion of color. During the second visit, we connected the output from my Robot '400 directly to the TV station's video input, bypassing their camera. Those resultant televised pictures appeared pure black and white, with noticeably less impact. Moral: TV station cameras seem prone to excess blue — a strategic point when viewing SSTV on commercial TV.

Another view of Saturn as Voyager II moved closer to the ringed planet. Note gray scale calibration chart and computer info on the right.

Another W6VIO-relayed view during Voyager II trek of the dangerous rings showing transparency of ring. Clouds on planet were actually visible through the ring.

An increasingly popular item appearing in backyards throughout the country are satellite TV dishes. The noteworthy point of this particular dish antenna is the foward-shifted LNA (low-noise amplifier), with downconverter mounted directly behind it. Location? Arlington, Texas — home of Universal Communications.

WA7WOD's color converters doing great

Sam Mormino, WA7WOD reports increasing numbers of SSTVers are purchasing his ready-to-go dual 65K memories for Robot '400s, and going color SSTV in style. This is basically the same conversion as Don Miller, W9NTP's, except it's fully wired and somewhat simplified. Installation in a '400 takes around six hours, and the results are great. In case you haven't noticed, color SSTV is coming on strong these days.

TRS 80C — an SSTV natural

The relatively new Radio Shack color computer is, at less than $400, an outstanding bargain for SSTV, RTTY and ASCII enthusiasts. Thanks to the efforts of Clay Abrams, K6AEP, this gem is working out grand as an SSTV scan converter and as a color SSTV converter.

Clay recently devised all necessary software and hardware for the system, and (as always) he's now working on some exotic expansions for the system: zoom, multi-picture processing, digital storage, etc. The low price of this system is quite impressive, and the computer's basic functions remain intact. Clay frequents 14,230 around 0130 to 0200 GMT.

MDS and TVRO interest booming

The challenge of receiving pay TV broadcast and direct satellite TV reception is sweeping the country like wildfire. It's reported many MDS broadcasters are "going scramble" to avoid the chase; however, we understand that homebrew descramblers are also popping up at an almost identical rate. Hmmm — this thing's almost turning into a game of cat and mouse. Meanwhile, 200 MHz higher in frequency (2300 MHz) Fast Scan TV and computer interlinking is also gaining widespread popularity. Watch for Universal Communications of Arlington, Texas to introduce a 2300 MHz transmitter and a 2300 MHz transceiver to join their ever-popular 2300 MHz downconverter.

The "big news" in TVROs (satellite TV receiving systems) involves placing the 3.7-4.2 GHz downconverter directly at the receiving dish, behind the LNA (low-noise amplifier). This concept results in increased sensitivity and lower cost. The older concept of running hardline coax to an indoor tuning unit seems to be losing ground. Universal Communications is also pioneering this concept.

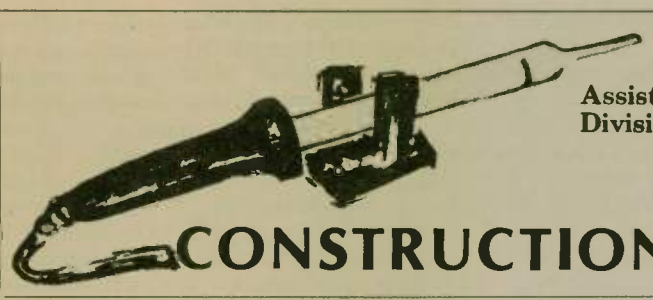
Deborah Franklin, General Manager of Universal Communications, holding a 2 GHz downconverter and power supply/tuner which she constructed in miniscule time. The unit worked right on the first try!

Finale

As you may have heard, Mike Stone, WB0QCD recently assumed publication of **A5 Magazine**. Mike's first issue was a colossal 48 pages, so things are looking good. We wish him the best of luck and success.

Next issue, we'll share with you some ideas on rigging your SSTV gear for use as a home weather radar, rap more on satellite TV, and discuss new video ideas. Remember to send us info on your activities and projects. 73, Dave Ingram, K4TWJ, Eastwood Village #1201 South, Rt. 11, Box 499, Birmingham, AL 35210

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



CONSTRUCTION

Chuck Clark, K4ZN
Assistant Director, Roanoke Division, ARRL

General coverage

WARC 79 brought us new amateur bands, and also brought us into contact with the limitations of the gear most of us use. In fact, there were amateurs who opposed the granting of the new bands because it would make their gear obsolete. Some even went so far as to suggest that the whole proposal was a plot by the manufacturers to sell new rigs so that we could use the new bands, and thereby to rake in a few fast bucks.

In former times, most amateurs used separate receivers and transmitters, with the transmitters limited to operation on the amateur bands, but with receivers usually covering from 540 kHz to 30 MHz.

Two things caused the change to amateur-band-only receivers: the fact that it's much harder to produce a general-coverage receiver that performs throughout its range as well as a receiver designed for only a limited range of the spectrum; and secondly, the switch to single sideband.

It is more economical to build a transceiver than to build separate transmitters and receivers, and the transceiver is more convenient for the operator, too. But a general-coverage receiver can be useful in the amateur station and can be interesting in its own right, independently of its use as an adjunct to amateur operation, for there are lots of interesting transmissions on the HF bands.

Good quality general-coverage receivers don't come cheap, however. The best are priced in the kilobuck range. There are some, of course, that sell for only a few dollars. Here, as anywhere, you get what you pay for, or as my experience has been, you usually get a little less than you pay for.

The top-priced units will have digital frequency synthesis, covering from 10 kHz to 29.99999 MHz, with accuracy to a hertz or two, very low noise, no spurious responses of any significance, sharp selectivity — anything the most discriminating operator could want. The bargain receivers may cover their range in three or four bands, often with very critical tuning so that the entire 20-meter amateur band is covered in a quarter turn of the knob, making it next to impossible to tune in a sideband signal so that one can understand it. And even if you do manage to tune it in, it will either slip out of tune as soon as your hand moves away from the knob, thereby changing the capacitance of the oscillator circuit, or it will drift out in a few seconds due to temperature or voltage changes. Due to lack of front-end selectivity, you will find that you can receive stations above 10 MHz on two (sometimes more) places on the dial, one of which is about 910 kHz higher than the other — the image frequency.

In between, there are some fairly good receivers available, which may be adequate for the needs of any but the most discriminating.

Surplus

For those who want more than is offered by the bargain receivers, but are unable or unwilling to invest any more, the surplus market offers an alternative. There are some World War II "boat anchors" that are excellent general-coverage receivers, and there are more recent models that offer still better performance, although at a somewhat higher price.

Surplus offers the most economical way to purchase quality gear, provided one is willing to do the necessary work to adapt it to civilian use. Surplus dealers are willing and able to advise you on how to do it. They usually are even able to supply you with the needed parts to make the modification. Usually the main conversion involves adapting the unit for operation from the AC line, as most of them were designed for ship or aircraft service. Some popular units are listed here.

Navy TCS covers 1.5-12 MHz in three bands; sells for as little as $20 depending on condition.

BC-348 covers 200-500 kHz and 1.5-18 MHz in six bands. Prices begin about $75.

R-648/ARR-41 covers 190-550 kHz and 2-25 MHz in five bands with mechanical digital tuning. Prices start about $150.

R-390A/URR covers 0.5-32 MHz in 32 bands with digital counter readout, and operates directly from 115/230 volt AC power line. Prices are $300 and up.

AN/FRR-59A covers 2-32 MHz in four bands with digital tuning, and also operates from the 115 volt AC line. It is able to receive both sidebands separately of a dual independent sideband signal.

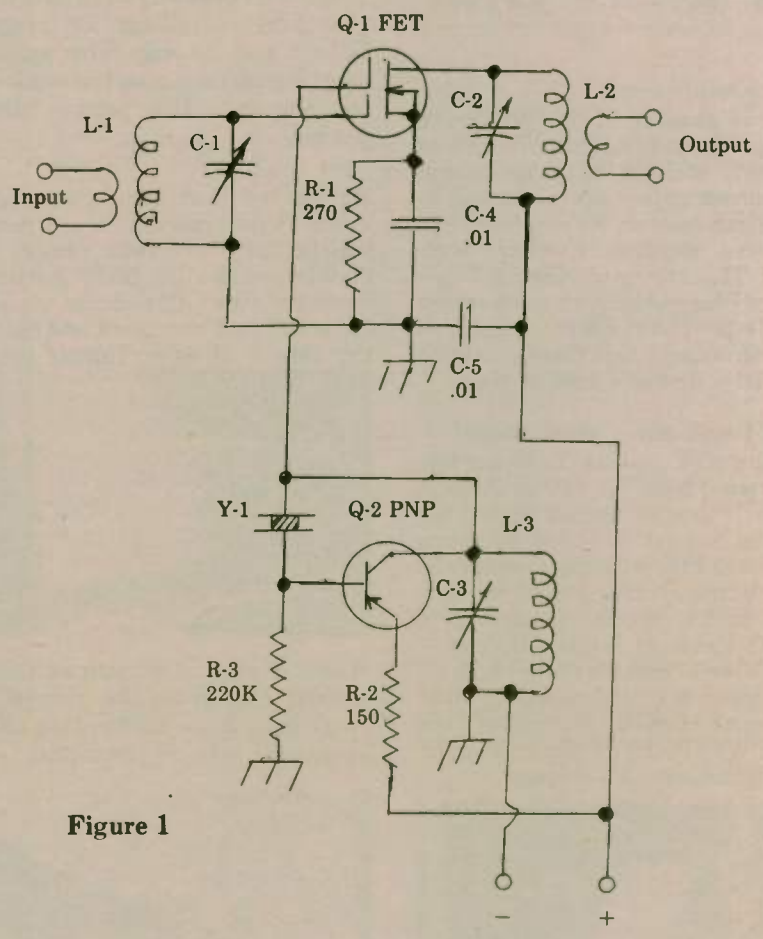


Figure 1

Costs in the $400 range.

All these pieces are hefty by today's standards, with weight increasing in proportion to price. The TCS unit runs around 30 pounds, while the AN/FRR-59A is a big rack-mounted rig occupying about 7 cubic feet of space and weighing 250 pounds.

If you're thinking along these lines, you will do well to write to some surplus dealers for catalogs, and see for yourself what is available and who can make the best offers.

Converters: use what you have

Any amateur station worthy of the name has a receiver that is a better performer than the cheap general-coverage receivers mentioned earlier. The term receivers here includes transceivers, of course, since a transceiver is actually either a receiver or a transmitter but not both at the same time. It requires some kind of switching to change it from one to the other.

To put these good receivers to work on other frequencies, you need only build yourself a converter. You can even purchase them for a few dollars if you prefer, at least for some frequencies. But they are easy to build, and form an excellent project for the amateur who wants to do some construction, to be able to say the station is not entirely store-bought.

Figure 1 gives a typical circuit for a converter. The frequency depends on the crystal used at Y-1 and on the frequency range of the receiver being used. Actually, you can cover several bands with one crystal by switching the frequency range of your receiver, and by tuning both above and below the local-oscillator frequency. For example, an 8 MHz crystal would offer the possibility of covering the following bands using a typical amateur-band receiver:

Receiver	Low	High
3.5-4	4.5-4	11.5-12
7-7.5	1-0.5	15-15.5
14-14.5	6-6.5	22-22.5
21-21.5	13-13.5	29-29.5
28-30	20-22	36-38

In the circuit shown, L-1/C-1 is tuned to the frequency to be received, L-2/C-2 is tuned to the receiver's frequency, and L-3/C-3 is tuned to the oscillator frequency. You can make it a single-frequency converter, or, by providing coil and crystal switches, make it cover any frequency range you desire.

Or roll your own

Designing and building a communications receiver, particularly one that is to give state-of-the-art performance over a wide band of frequencies, is not a trivial matter. This is particularly true if you want digital dials, frequency synthesis, wide dynamic range, carefully specified selectivity and high stability.

But if you will be satisfied with somewhat less, you can build a surprisingly effective general-coverage receiver for next to nothing. Many an old-timer made his WAC using no more than a two-tube regenerative receiver, which is almost the standard receiver in the amateur station around 1930. These old bloopers had other uses at the amateur station. Attach a frequency counter to a regenerative receiver and you have a precision signal generator. Add a meter to the circuit and you have the RF jack-of-all-trades — the dip meter, which you can use to measure resonant frequencies, inductance, capacitance and several other things.

Figure 2 shows a circuit for a regenerative receiver that is somewhat different from others I've seen. It has the advantage that there is no coil tap and no capacitive divider to complicate the circuit. Coils can be switched by a single-pole switch. And the circuit works from audio to VHF if the transistors are capable of handling the frequency. Q-1 is a field-effect transistor connected as a source follower driving Q-2, a PNP transistor connected as a grounded base amplifier. The input to Q-1 and the output of Q-2 are both high-impedance, so can be connected directly across the tuned circuit. R-1 is the regeneration control, and shorts the emitters to ground at minimum resistance.

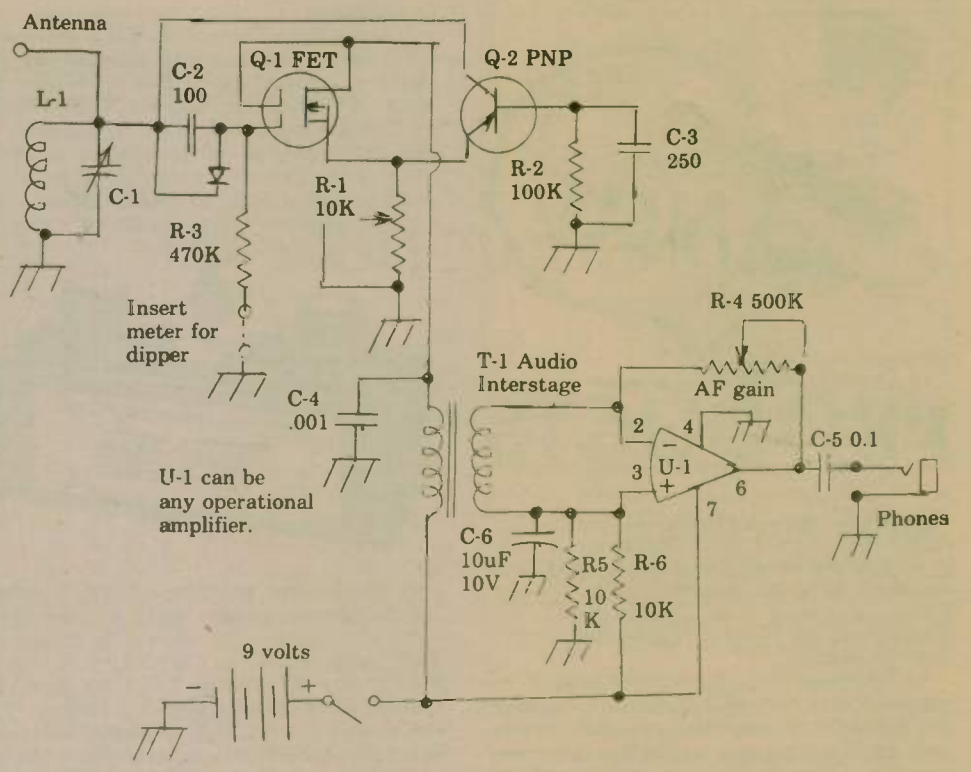


Figure 2

U-1 is an operational amplifier used as the audio amplifier. It is necessary to use an audio transformer to couple the audio signal because the current in the detector circuit varies widely as R-1 is varied, making it impossible to find a load resistor for resistance coupling that would match both when the detector is oscillating and when it is not.

One warning: these simple receivers are not as simple to operate as the commercially-built ones we are accustomed to. The setting of R-1, in particular, is somewhat critical. The most sensitive point is just before the detector breaks into oscillation; that's where you listen to AM signals. For CW and SSB, you advance R-1 slightly until oscillation begins, indicated by an increase in hiss noise. Also, you will get a clock if you touch the hot end of the tuned circuit with a pencil if the detector is oscillating. You will find that the setting of R-1 will vary with frequency, making adjustment necessary as you tune across the band. A little practice will make it much easier, however.

A short antenna is best with this type of receiver. Longer wires tend to have resonance, giving dead spots. They also pick up too much energy from nearby stations that can overload the receiver. This is something that has to be found by trial and error.

The tuning capacitor C-1 is important if you want the best performance. It should be solidly built to reduce instability from mechanical causes. Some of the surplus units are ideal. I used a five-gang capacitor, each section rated at about 400 picofarads. A three-position switch makes it possible to use just one section — all five with a 400-picofarad capacitor added, or all five with a 2200-picofarad capacitor added, giving maximum capacitances of 400, 2400, 4600 picofarads. With coils ranging from an 88 millihenry toroid to 0.5 microhenry, it is possible to cover from 7 kHz to about 60 MHz.

This capacitor has a 60:1 worm drive, making the tuning rate slow enough for comfort. You can also reduce the tuning rate by using a very small capacitor (called a *bandspread capacitor*) in parallel with the main tuning capacitor. When you have two capacitors in the circuit, however, calibration becomes more difficult, unless you use a frequency counter as your readout.

One additional use for a regenerative receiver: connect it to the antenna of a receiver that has poor front-end performance. The regenerative unit acts as a Q-multiplier, giving a remarkable improvement in both sensitivity and selectivity, bringing signals out of the mud that you wouldn't even hear otherwise. Again, though, the adjustment of the regeneration control is critical for the best performance. □

PRODUCTS

Surge arresters

Transi-Trap Surge Protectors are gas surge arresters designed to protect sensitive electronic equipment from damage due to excessive voltages or currents generated by transient phenomena.

The elements in the Arc-Plug™ Cartridge are constructed of two metal electrodes hermetically sealed in a gas-filled, rugged ceramic cylinder. They perform as voltage dependent switches which can reliably and repeatedly carry large currents for brief periods of time. In operation, application of a sufficient voltage across the element causes an arc to form between the electrodes changing its impedance from greater than 10,000 megohms to a few milliohms in a time period of less than 100 nanoseconds. While conducting in the arc mode, the voltage across the surge arrester is less than 30 volts.

The life of the Arc-Plug Cartridge is a function of the surge current amplitude and duration to which the device is subjected. Transients are by their very nature unpredictable in magnitude and energy content. Life may be in the order of many hundreds of operations, depending on surge current wave shape. Typical end of life is not catastrophic failure, but rather, gradual shift of breakdown voltage and lowering of insulation resistance. Life characteristics shown in the data are for the surge current wave shapes based on most commonly occurring transients induced by lightning discharges. End of life is considered to occur when the voltage breakdown varies more than 20 percent from minimum or maximum rated breakdown voltage.

Installation

1) Alpha Delta Transi-Trap Surge Protectors are designed for indoor installation at the rear of the equipment* (receiver or transceiver for Model R-T, linear amplifier for Model HV). If outdoor use is planned, it will be necessary to coat thoroughly all surfaces (after attaching coax and ground wire) with a good sealer/protector such as silicone spray. One type is "Slipicone®" made by Dow-Corning.

2) These surge protectors utilize a unique isolated ground system which permits direct earth connection while preventing arc energy from being coupled to the equipment chassis through the coax shields. Lab tests show this method to be best for overall protection. For the system to work, it is *absolutely necessary* to attach a direct earth ground wire to the nut and washers on the Arc-Plug Cartridge. (A cold water pipe connection is suitable if its ground path can be determined and if it is not too long or circuitous.) The surge protectors will not function without this connection as there is no other return path for the arc energy. Tests show that #12 AWG aluminum ground wire is adequate for relatively short runs (10 to 15 feet) with coax braid material recommended for longer runs. Be sure the ground wire does not touch other metal, such as connector shells.

Operational and test information

1) Lightning-induced surges (transients) are unpredictable with regard to energy content, time duration, and ramp speed (wave front) characteristics. As a result, these protectors are not guaranteed to protect against direct strokes. Also, certain semi-conductors are beyond the protection of these devices. For example, some exotic MOS IC memory devices are so sensitive that the discharge caused by the simple touch of a finger will destroy them.

2) The level of protection provided by Transi-Trap Protectors is remarkable, and our lab tests show truly outstanding state-of-the-art performance. By using a special wave front generator, designed by John Tyrrell of AlphaDelta Communications, simulating fast rise time lightning-type pulses of up to 10 kilovolts, we have been able to observe the performance of Transi-Trap Protectors with semiconductors commonly used in solid-state receivers and transceivers.

Our own experience in the communications industry has shown that some of the devices' most sensitive to lightning-induced surges are certain PIN diodes, including the higher voltage types currently used in the industry. These devices are known to be even more sensitive than many MOSFETs and bipolar transistors in typical use.

By connecting this type of PIN diode directly to the output of the wave front generator, with no protection, the induced pulse will "blow" the diode into a dead short. It should be noted that many PIN diodes fail in equipment when much lower-level surges cause them to become merely "leaky."

When the Transi-Trap Protector is inserted between the generator and the PIN diode in a typical 50 ohm coaxial configuration, the diodes survived repeated pulses without failure. Other receiver-type components show the same remarkable results.

3) Since many equipment failures occur as a result of lightning-induced surges from distant storm fronts and near-misses, the operator will find a new dimension of protection with the use of AlphaDelta Transi-Trap Surge Protectors.

Models available:

Transi-Trap Model R-T Low Level Protector — for use with solid-state receivers, transceivers or transmitters running up to 200 watts at 50 ohms (HF to UHF).

Transi-Trap Model HV High Voltage Protector — for use with linear amplifiers running up to 2kW at 50 ohms (HF to UHF). (Can be used in addition to the Model R-T to form a system.)

Replacement Arc-Plug Cartridges — for Model R-T and Model HV.

For more information or to order, write to: Alpha Delta Communications, 116A North Main Street, Centerville, OH 45459; (513) 435-4772.

*NOTE: Either model must be placed at a point in the coax line where the VSWR does not exceed 2:1 (such as between tuner and transmitter/linear). □

Communications receiver

Trio-Kenwood Communications of Compton, California has just announced a new general coverage communications receiver, Model R-600, covering 150 kHz to 30 MHz in 30 bands. The use of PLL synthesized circuitry results in highly accurate frequency control, with maximum tuning ease. The unit features an easy-to-read digital display; AM, SSB and CW reception; built-in IF filters; noise blanker; RF attenuator; "S" meter; front-mounted speaker; and can be operated from power sources of 100, 120, 220 and 240 VDC, 50/60 Hz. Operation on 13.8 VDC is also possible, using the optional DCK-1 DC power cable kit.

Contact: Trio-Kenwood Communications, P.O. Box 7065, Compton, CA 90220, Telephone (213) 639-9000. □

Two-meter FM transceiver

Trio-Kenwood Commuications of Compton, California announces the new TR-2500, a compact 2-meter FM hand-held transceiver weighing approximately 1.2 lbs., yet including such deluxe features as LCD digital frequency display, 10-channel memory, with memory scan, built-in five-year lithium memory backup, manual scan, programmable automatic band scan, built-in tuneable sub-tone encoder, built-in 16 key auto-patch encoder, 2.5 watts RF output, with HI/LO power output switch, and other features too numerous to mention.

Complete with rubberized antenna with BNC connector, 400 mAH heavy duty NiCd battery pack, and AC charger, the TR-2500 has a factory suggested retail selling price of only $329.95.

For additional information, contact Trio-Kenwood Communications, P.O. Box 7065, Compton, CA 90024. □

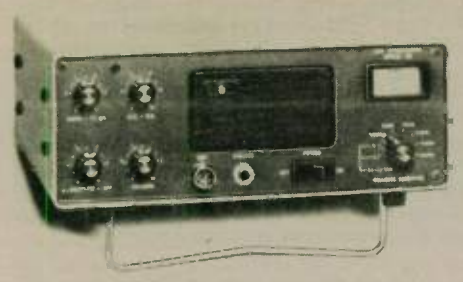
CAP transceiver

Designed in close cooperation with Civil Air Patrol (CAP) officials, the new TEN-TEC Model CAP 100 meets all the needs of the CAP service with features uniquely appropriate, high-power solid-state design, and a full line of matching accessories.

The 200-watt solid-state, broadbanded transceiver has eight crystal controlled channels (two user-selected 4 MHz channels for primary and alternate frequencies plus the National Emergency Frequency, two CAP channels on 7 MHz, and the 11.9, 14.9 and 20.8 MHz CAP channels), all built-in, ready to go.

Other features include: automatic sideband selection, 4-pole crystal ladder filter (2.7:1 shape factor at 6/50dB), built-in squelch, S/SWR meter, adjustable threshold ALC and drive, clean audio, high-stability oscillators, built-in speaker, built-in phone patch jacks, linear t/r control relay, counter output jack and 13-volt DC circuitry.

Options include: 8-pole plug-in filter, power supply, microphone, noise blanker, mobile mount, mobile circuit breaker, speech processor and antenna tuner.



Styling is in rich bronze with contrasting nomenclature for easy reading. The "clamshell" type aluminum case in dark finish features full shielding, tilt-up bail and compact size: 5"H X 11⅜"W X 12⅛"D.

The unit, a basic HF SSB transceiver, can be adapted to domestic and foreign commercial applications as well.

Model 100 is prices at $595 with all crystals included. For full information, contact your CAP headquarters or write TEN-TEC, Inc., Highway 411 East, Sevierville, TN 37862. □

Antenna tuner

Another "first" for TEN-TEC is a new 2kW antenna tuner/SWR bridge/power meter. The new tuner uses a reversible "L" configuration with a silver-plated roller inductor, high-voltage variable capacitor, and selectable fixed capacitors for greater versatility in impedance matching. The design automatically provides a low Q, minimum loss path when properly adjusted. Power ratings are 2kW PEP, and 1kW CW. Frequency range is 1.8 - 30 MHz.

Model 229 matches conventional 50 ohm unbalanced outputs of transceivers or linear amplifiers to a variety of balanced or unbalanced load impedances. Antennas such as dipoles, inverted "V"s, long random wires, windoms, beams, rhombics, mobile whips, Zepps, Hertz and similar types can be matched. A built-in balun converts one antenna to a balanced configuration if desired.

The built-in SWR bridge and dual-range power meter indicates SWR from 1:1 to 5:1 and power from 10 to 2000 watts.

Front panel controls are variable capacitor with spinner knob, roller inductor with spinner knob, 11-position by pass/hi-lo capacitor select switch, 4-position antenna selector switch, SWR sensitivity, forward/reverse switch, 2000/200 watt power range switch, and SWR/power meter switch.

Rear panel includes coax input connector, four coax antenna connectors, three thumbscrew type connectors for single wire and balanced line, ground connector, and 12V DC input for dial lighting power.

Styling matches TEN-TEC OMNI transceiver and HERCULES linear amplifier with black and bronze front panel with blackout lighting, satin-finish wrap-around aluminum bezel, black textured vinyl-clad aluminum clamshell top and bottom with fold-down stainless steel bail. Size 6½"H × 12¾"W × 13½"D. Wt.: 9 lbs. Model 229 amateur net price is $249. For full information, write TEN-TEC, Highway 411 East, Sevierville, TN 37862. □

Accessories catalog

An all-new 20-page catalog of communications monitoring accessories and publications is now available from Grove Enterprises, well known for their inexpensive, high-performance shortwave listening and scanner accessories. Featured are several innovative receiver add-ons designed to enhance the listening quality of both professional and non-professional monitoring posts.

New products include a frequency-selective antenna tuner for the 10 kHz through 30 MHz spectrum, a scrambled speech decoder with an adjustable deep notch tone interference filter, a dual scanner antenna coupler, and a unique 30-960 MHz table-top active antenna/preamplifier designed especially for apartment or other hidden-antenna users.

More than 20 products including antennas, filters, couplers, converters, preamplifiers and hard-to-find books and frequency lists make this catalog "must reading" for the serious communications monitor.

For your free copy, write Grove Enterprises, Inc., Dept. G, Brasstown, NC 28902 or call toll-free 1-800-438-8155. □

HF wattmeter

The new MFJ-814 HF wattmeter/SWR meter has a frequency range of 1.8-30 MHz. It reads forward and reflected power on two scales (2kW and 200 volts) on a large (2½"W × 1½"H), easy-to-read, lighted meter (light requires 12 volts).

This versatile power meter also reads SWR directly and is calibrated up to 6 to 1 SWR. Three easy-to-use push button switches let you switch between power and SWR, high and low power, and forward and reflected power.

The MFJ-814 is eggshell-white with black top and sides and measures 6¼"W × 3½"H × 3½"D.

If ordered from MFJ, you get a 30-day money back trial period. If not delighted, you may return it within 30 days for a full refund (less shipping). MFJ also provides a one year unconditional warranty.

The MFJ-814 is available from MFJ Enterprises, Inc. for $49.95 plus $4 shipping and handling.

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. □

Speech processor

Daiwa announces a compact audio speech processor that rivals the performance of the "RF types" at an economical price!

The RF-670 will give your signal the boost it needs to cut through bothersome QRM. The unique photocoupler design delivers a high level of processing with a minimum of distortion. Traditional audio processor design is handicapped by the circuitry time constants that limit the ability of the processor to respond to rapid variations in the level of the input audio signal. The result is distortion and poorer performance. The RF-670's photocoupler/variable gain amplifier design permits a very rapid response to input levels and the result is *clean* output and *excellent* performance. The RF-670 features velcro pads for easy mobile or base mounting.

Specifications: Starting level of limiting - .5mV. Clipping level - 20dB max. Output level - 40mV max. Mic. Impedance - 600-50,000 ohms Frequency response - 300-3000 Hz. (-10dB, 0dB at 1 kHz) Power Source - 13.8VDC. Dimensions - 90x25x92 m/m.

Be heard! Add the RF-670 to your shack today! To order, write to MCM Communications, 858 E. Congress Park Dr., Centerville, OH 45459. □

BASIC book

With 60,000 copies of the first edition sold, ARCsoft Publishers has released a revised and expanded second edition of *50 Programs in BASIC for the Home, School & Office.*

For small businesses, classrooms and households, the second edition has been expanded to 55 programs and 96 pages. It is published in the useful perfect-binding style, ARCsoft said. Despite the expansion, the book price will remain the same as the first edition at $9.95.

Each program is ready to run on the TRS-80 Pocket Computer and Sharp PC-1211. Each will run, with minor modifications to program lines, on any BASIC computer.

For the businessman, "Pocket Datebook" and lots of other programs saving time computing ad costs, profits, price mark-ups, hourly wages, invoice totals, and more.

For students and teachers, "Flash Card Math Drill," grade scoring, factors, slope, distance, geometry and more.

For the home, mortgage loans, simple and compound interest, checking account balancer, game timers, metric converter and more.

The book can be ordered for $9.95 plus $1 shipping from ARCsoft Publishers, P.O. Box 132WR, Woodsboro, MD 21798.

ARCsoft publishes books in personal computing and electronics, aimed at the newcomer, beginner, novice, layman and general consumer. Books are designed to bridge the gap between an interest in the subject and getting started. A catalog of all ARCsoft books is available free. □

POWER ANT

One of the most ingenious — and useful — accessories yet to be marketed for the scanner listener is the new POWER ANT from Grove Enterprises, specialists in the manufacture of innovative accessories for scanner and shortwave monitoring receivers.

The POWER ANT is an exciting new breakthrough in antenna design; an electronic marvel that not only amplifies signal strength but also allows the user to increase or decrease this same signal strength and thereby control the level of incoming signals. A combination variable gain antenna preamplifier and active antenna, the unit may be used as a stand-alone amplified antenna system, or in conjunction with an existing external antenna for improved reception.

When used with an existing external antenna, results are truly impressive: gain of 25dB on low and high band, 15dB at UHF . . . even 10 dB at 800 MHz. And all this with low noise level (1.8dB nominal).

Insert the telescoping whip antenna provided and the POWER ANT becomes a unique all-band active antenna for the entire 30-960 MHz range. Designed for mobile, portable or base operation and housed in a fully shielded all-metal cabinet weighing less than one pound, POWER ANT can be of tremendous potential for apartment dwellers and other monitoring posts where conventional all-band antenna arrays are undesirable or prohibited.

The POWER ANT comes complete with 12VDC AC adaptor, all interconnecting cables and complete instructions. This unique unit is only one of the many advanced monitoring accessories illustrated in the *New 1982 Communications Monitoring Catalog* available at no charge from Grove Enterprises, Dept. G, Brasstown, NC 28902. □

Software package

Amateurs who own Heath computers can send and receive Morse code with the new CW89 software package from COMMSOFT. This feature-packed program includes a split-screen display, 4-99 wpm operation, receive autotrack, a 1000-character pretype buffer, 10 user-definable messages, unique break-in mode, on-screen system status, disk I/O, hard copy and a versatile code practice section.

CW89 allows the user to practice code at variable speeds in several formats — alphabet only, alphabet and numbers, or all common Morse characters may be sent with or without random spaces. Practice code can come from one of 100 disk files which can be prepared using a standard text editor. All communications and practice text can be sent to a printer or stored on disk.

The CW89 program runs on the Heath H-8/H-19, H-89 or Zenith Z-89 computers under HDOS. One disk drive and 32K RAM are required. A hardware interface, such as the COMMSOFT CODEM, is also required.

The price of CW89 is $99.95, postpaid. A complete package consisting of CW89, the CODEM, a computer interconnect cable, power supply, complete documentation and shipping is available for $249.95. California residents add applicable sales tax. VISA and Master Card orders accepted. COMMSOFT, 665 Maybell Avenue, Palo Alto, CA 94306 (415) 493-2184. □

Virginia

The Richmond Amateur Telecommunications Society will hold its annual "Frostfest" on Sunday, 10 January 1982, Virginia State Fairgrounds, Richmond, Virginia. Gates open at 8:00 a.m. CW and Homebrew contests will be featured along with many other activities.

Admission is $3 plus table charges for flea market displays and tailgaters. Plenty of indoor space, well-lighted and heated. Major prices awarded promptly at 3:00 p.m.

Call Joe Stern, (804) 737-0333 for information. □

VLF converters

The MFJ-332 VLF converts your ham band transceiver into a sensitive very low frequency receiver. It converts 10 to 500 kHz to 28.010 to 28.500 MHz. The MFJ-331 version converts 10 to 500 kHz to 4.010 to 4.500 MHz. Both give direct frequency readout on your receiver.

Here is what can be heard on the VLF converter: WWVB, ship-to-shore communication, navigation radio beacons and weather broadcasts. You can hear the standard AM broadcast band with reduced sensitivity. It will appear on your receiver above 28.5 MHz or 4.5 MHz depending on your version.

The MFJ-332/331 easily connect between your transceiver/SWL receiver and antenna. Tuning between 28.010 and 28.500 MHz (4.010 to 4.500 MHz on the MFJ-331 version) lets you receive the long-wave band from 10 kHz to 500 kHz. This gives direct frequency readout by ignoring MHz numbers. For example, 28.050 (4.050 MHz) is 50 kHz and 28.375 MHz (4.375 MHz) is 375 kHz.

The MFJ-332/331 VLF converter is housed in a black and eggshell-white aluminum cabinet.

The MFJ-332/331 VLF converter requires 9-18VDC or 110VAC with optional AC adapter, MFJ-1312 for $9.95.

The MFJ-332/331 is available from MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. The MFJ-332/331 sells for $79.95 (plus $4 shipping and handling), has a 30-day money back guarantee (less shipping and handling), with a one year unconditional warranty.

To order, call toll free 800-647-1800 (VISA and Mastercard accepted) or send check or money order to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. □

Code reader

The second generation of code readers is here! Microcraft proudly announces its new all-mode code reader and code converter . . . CODE*STAR.

CODE*STAR is designed for Novices, SWLs and veteran Amateur Radio operators. It should also be very useful to persons learning or trying to improve their Morse code skills.

CODE*STAR's microcomputer monitors the incoming signal and converts it to characters on its large easy-to-read LEDs. CODE*STAR decodes Morse code, Baudot (RTTY) and ASCII code.

This product features two specially optimized Morse code ranges with auto-tracking of speed from 3 to 70 wpm. Special proprietary analog and digital filter methods are employed to substantially reduce errors. An automatic gain control circuit providing up to 16dB gain is used to help maintain signals under fading conditions. A built-in code practice oscillator is handy for code practice and learning the code.

CODE*STAR operates on 12VDC, which makes it ideal for field or mobile applications. An AC adapter is included if you wish to operate it from 120VAC.

As a special option, you can use CODE*STAR to drive a serial or parallel ASCII printer, TV terminal or computer. In other words, CODE*STAR acts as a code converter translating Morse-to-ASCII and Baudot-to-ASCII. For example, CODE*STAR will directly drive an ASR 33 teleprinter operating with a standard 20mA current loop. This ASCII output port option is available as a kit that mounts inside CODE*STAR's cabinet on the PC board.

CODE*STAR is available as a complete kit or factory-wired and tested. The kit, Model CS-K, sells for $169.95 plus $5 S&H. The factory-wired, Model CSF, sells for $249.95 plus $5 S&H. The optional ASCII output port kit, Model CS-IK, sells for $69.95 plus $2.50 S&H.

Shipments are made worldwide and requests for quotes are invited. Microcraft Corporation, P.O. Box 513, Thiensville, WI, USA 53092 (414) 241-8144. □

Zero District QSO Party

The Zero (Ø) District QSO Party will be held 2-4 January 1982, and is being organized by the Mississippi Valley Radio Club. The contest period is from 2000Z Saturday to 0200Z Monday. Stations outside of the Ø District will work Ø stations only; Øs may work any station. The same station may be worked once on each band and each mode. Exception: Stations in the special mobile class may be worked each time they change counties.

All stations exchange RS(T) and ARRL section. Ø district stations also must send county.

To score, add Ø district ARRL sections worked plus Ø district counties, then multiply by contacts. Ø's score by adding ARRL section, Ø district counties, and DXCC countries worked, and then multiplying by total contacts.

Suggested frequencies are: 3560, 7060, 14060, 21060, 28060, and 3900, 7270, 14300, 21370, 28570. Novice: 3725, 7125, 21125, 28125.

Certificates will be issued to all entrants who submit a log and SASE. Endorsements will be given for high score in each ARRL section, DX country, Novice/Technician Class and Special Mobile Class.

Mail logs by 15 February, to Mike Urmie, WØSI, 3518 W. Columbia, Davenport, IA 52804. SASE for log forms or results. □

Worked All Morton

The Morton Amateur Radio Club has announced the Worked All Morton Contest to be held 0001Z 9 January to 2400Z 10 January 1982 and 0001Z 16 January to 2400Z 17 January 1982. The Worked All Morton Award will be issued to those amateurs who have QSOs with five or more members of the Morton Amateur Radio Club or residents of Morton, Illinois.

To receive the award, applicants should send log information, listing at least five Morton contacts, along with a large SASE to Morton Amateur Radio Club, 701 Columbus Ave., Morton, IL 61550. □

International 160M Phone Contest

73 Magazine announces its 3rd annual International 160-meter Phone Contest, to be held 0000Z 16 January to 2400Z 17 January 1982.

The object is to work as many stations as possible on 160-meter phone in a maximum of 36 hours of allowable contest time. Multi-operator stations may operate the full 48-hour contest period. Stations may be worked only once!

Entry category: 1) Single Operator, Single Transmitter, PHONE ONLY; 2) Multi-Operator, Single Transmitter, PHONE ONLY.

Exchange: Stations within the continental United States and Canada transmit RS report and state, province or territory; (i.e., 59 Iowa, 55 Ontario, etc). All others transmit RS report and DX country.

Points: 5 points will be earned for each valid contact with stations in the continental United States and Canada. DX contacts outside the continental United States and Canada score 10 points each. This year, for the first time, an additional 5 points *bonus* may be earned for each contact made during the hours of *1000-1400 local time* on either day of the contest.

Multipliers: 1 multiplier point will be earned for each of the 48 continental states, 12 Canadian provinces/territories and DX countries outside the continental United States and Canada worked during the contest.

Final score: Total QSO points times total multiplier points equal *claimed score.*

Contest entries: Each contest entry must include log sheets, dupe sheets for 100 contacts or more, a contest summary sheet and a multiplier check sheet. Please notate those contacts made between 1000-1400 local time so you'll be sure to get appropriate contest credit.

Entry deadline: All entries must be postmarked *no later than 18 February 1982.*

DX window: Stations are expected to observe the DX window from 1.825-1.830 MHz as mutually agreed by top band operators. Stations in the United States and Canada are asked not to transmit in this 5 kHz segment of the band.

Disqualification: If contestant omits any required entry form, operates in excess of the legal power authorized for his/her given area, manipulates operating times to achieve a score advantage or fails to omit duplicate contacts which may reduce overall score more than 2 percent, disqualification may result.

Awards: Contest awards will be issued in each entry category in each of the continental United States, Canadian provinces/territories and each DX country. A minimum of five hours and 50 QSOs must be worked to be eligible for contest awards.

To obtain information, entry forms or to submit a contest entry, forward a *self-addressed stamped envelope* to: 160-Meter Phone Contest; Dan Murphy, WA2GZB; P.O. Box 195; Andover, NJ 07821 USA. □

'Great North Dakota QSO binge'

This QSO Party will be sponsored by the Red River Radio Amateurs of Fargo, North Dakota on 23-24 January 1982. The time periods for the contest will be: 23rd — 0000 to 0800 UTC; 1600 to 2400 UTC; and 24th — 0800 to 1600 UTC. (That makes 24 hours and should hit all band openings and still give an operator eight hours of sleep — hi!)

Scoring: Phone contacts count 10 points; CW 20; RTTY 50. North Dakota station BONUS: 100 points for working five Novices.

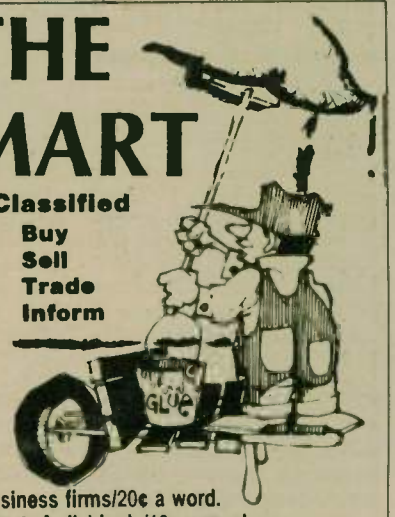
Multipliers: North Dakota stations — multiply score by total of states, provinces and countries per band and mode. Others — multiply by counties worked per band and mode. (Maximum of 53 counties per band)

Suggested frequencies: ±10. **Phone** — 1815, 3905, 7280, 14280, 21380, 28580; **CW** — 1810, 3540, 73035, 14035, 21035, 28035; **Novice** — 3725, 7125, 21125, 28125.

Awards: Certificates to state, province winners. Plaque to North Dakota winner.

Mail logs with usual certification by 28 February 1982 to: Bill Snyder, WØLHS, Box 2784, Fargo, ND 58108-2784. □

THE MART



Classified
Buy
Sell
Trade
Inform

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.

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.

LEARN CODE THE EASY W6PHZ WAY! — Former USAF code champ gives unique, simple system allowing all ages to learn quickly. No tapes, etc.! 17 pg. 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.

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.

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.

CDE 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.

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: $14.00 Year. Twice as many pages as HR Report! (Sample: FREE!) THE W5YI REPORT; PO Box #10101W; Dallas, TX 75207.

TR-9000 MEMORY SCAN — installed - $25. For details write N6HI, or call (714) 539-6555.

FREE QSL SAMPLES — Stamp appreciated. SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239.

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.

CONVERT MORSE from receiver, keyer(er), to logic-level ASCII, other features. Interfaces LEDS, displays, terminals. 5vDC. $169. TELECRAFT LABORATORIES, Box 1185, E. Dennis, MA 02641.

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.

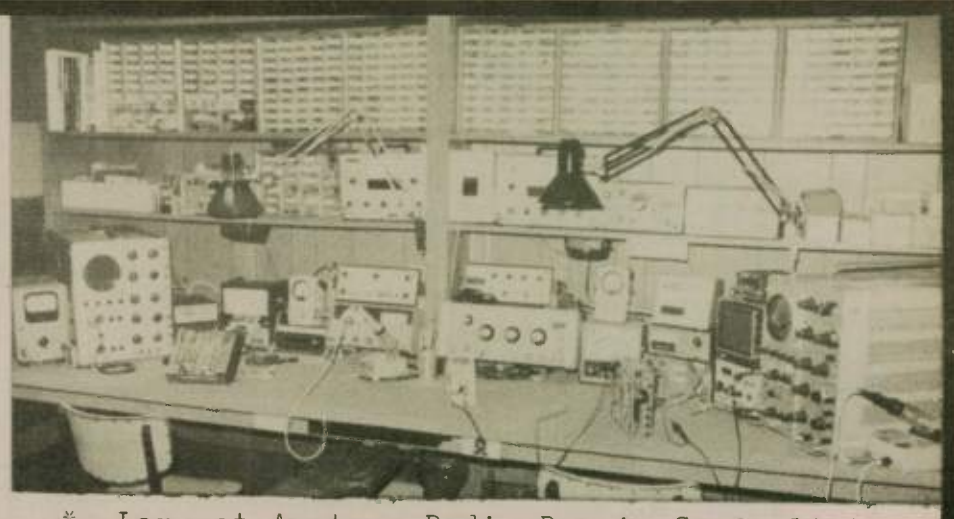
RUBBER STAMPS — 4 lines, $4.25 — fast service. **STAMPS & STUFF,** 324 Oneida N.W., Canton, OH 44708.

COAX CONNECTORS: SO-239 and PL-259. Brand new. 10 for $6.50. LC ELECTRONICS, 10338 Sageplum, Houston, TX 77089.

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.

CALL OR WRITE TODAY!!



KDK

FM-2025A *mark II*

144MHz C-MOS MICROPROCESSOR CONTROLLED DIGITAL PLL FM TRANSCEIVER

10 MEMORY CHANNELS, MEMORY AND BAND SCANNING

* Largest Amateur Radio Repair Specialists in the Country!
* Reasonable Rates - Quick Turnaround
* Fully Equipped Service Lab
* Large Parts Inventory
* Two-meter Specialists

KDK Authorized Dealer for KDK

Amateur Radio Repair Center

INTERNATIONAL ELECTRONIC COMMUNICATIONS, INC.

1020 BROOKSTOWN AVENUE, WINSTON-SALEM, NORTH CAROLINA 27101 (919) 725-7500

KDK official after-warranty repair center

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.

ANTIQUE WESTERN UNION STOCK TICKER, circa 1895, sell or trade for 280Z. Send SASE & 50¢ for color photos to KA7COR, P.O. Box 2304, Wickenburg, AZ 85358.

WANTED . . . TUBES. All types high power microwave nixies or ? Pay cash or trade. WA6LHR, (415) 530-8840.

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.

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.

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.

DELTA/COMM HOLIDAY PACKAGE SPECIALS — TEN-TEC: Century 21, 276 Calibrator, 670 Keyer; $345. 540 Transceiver, 245 CW Filter, 249 Noise Blanker, 215P Microphone, 252G Power Supply; $579. (Add 15.00 for VOX). 509 Transceiver, 208 CW Filter, 206A Calibrator, 215P Microphone, 210 Power Supply; $359. ALDA: 103 Transceiver, (80-20 mtrs., 250W, CW-SSB, Solid state), NB/PC-701, Calib/PC-801, AC/PS-115, Microphone; $329. KDK: 2015R, (15W, Synth., Mem./Scan.) Microphone; $249. ANCOMM: S2-25, (25W, Synth.), TT Pad, BSM-15 PS/Spkr.; $319. — ACCESSORIES — TEN-TEC: 670; $30, KR-5A; $29, KR-50 Ultramatic w/AC supply; $89 (keyers). 277 Tuner; $70. 206A Calibrator; $19. 208 CW Filter; $19. E&G 3.5 amp reg. AC/PS; $29. Also, Larsen, Nye, Unadilla at 25% discount. All equipment is factory fresh with full manufacturers warrantee. DELTA/COMM. 11 Berkley Road, Scotia, New York 12302

WANTED: TEMPO 8010 REMOTE VFO for 2020 transceiver. Reasonable. Also, Vibroplex bug, any model. W9VHN, 1446 So. Palo Verde, C-5, Tucson, AZ 85713. (602) 326-0581 eves.

DX-NEWS-PRESS no ads, no politics, no nonsense. DX information only. MONEY BACK GUARANTEE. $18/yr U.S. $23/yr frgn. Box 3301, Ontario, CA 91761.

WRIGHTAPES. Practice code successfully as thousands have with Wrightapes 60-minute cassettes. "Code groups" or "Plain Language" (specify). W.P.M. speed (specify) (3); (4); (5); (6,7,8); (9,10,11); (10); (12,13,14); (14); (16,18,20); (22); (24,28). FCC type tests (5,6); (11,12); (11,13,15,17); (13,14); (20,22,24). Numbers only (13,15,18); (5,10,13,16,22); (18,20,22,24). Beginners set with voice $7.90. Single tapes $3.95 each postpaid. Instant service. Check, Money order, M/Charge, VISA. Tel. (517-484-9794). WRIGHTAPES, 235 E. Jackson St., Lansing, MI 48906.

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.

"VERTICAL USERS: NOVICE TO EXTRA" — A book dealing with relative efficiencies of all types of installations and complimented by Hustler, Butternut, **Worldradio, Ham Radio, 73,** Bill Orr & Barry Goldwater. A ton of information for $3.95 + $1 postage/handling. DANRICK ENTERPRISES, 213 Dayton Ave., Clifton, NJ 07011-1579.

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.

Be first to know precisely when and where to work all the choice DX. Biweekly 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

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.

QSLS. QUALITY AND FAST SERVICE FOR 21 YEARS. Include call for free decal. Samples 50¢. Ray, K7HLR, Box 331, Clearfield, UT 84015.

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.

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.

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.

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.

SCANNER REPAIR: Two working-day turnaround on most models. BEST COMM, 3300 "O" St., Lincoln, NE 68510.

DRAKE MN-7 ANTENNA TUNER $120.00. Atlas RX-110 receiver $120.00. ICOM IC-215 2m Portable $100.00. UPS Brown incl. W6HVN, Box 833, Altaville, CA 95221.

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.

Happy Holidays

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.

BUY-SELL-TRADE your computer, HAM, electronic equipment in COMPUTER TRADER. $10.00 year subscription 24 issues, Chet Lambert, W4WDR, Box C, 1704 Sam Drive, Birmingham, AL 35235.

WILL TRADE new Cobra Cam 89 base xceiver for Novice xceiver. R.A.Smith, Box 5661, San Angelo, TX 76902. 915/653-5277.

ROSS'S NEW FACTORY SEALED CARTON SPECIALS FOR DECEMBER: KENWOOD TS-130S $660, TS-130V $520, TS-530S $698, R-1000 $389, TL-922A $1025, TR-9000 $438, TR-7850 $389.90. KLM ELECTRONICS PA4-80BL $180. MAGNUS MA1000B $750. Mirage B108 $150, B-23 $69.90. ROBOT 400 $669.80, 800 $747.82. RF POWER LABS A1000 $1100. CUBIC Astro 102BXA $979, Astro 103A $1150. TEN-TEC INC. 444 $1295, 545 $1050, 580 $750, 525 $475. YAESU FT-901DM $1089, FT-101ZD $750, FT-107M $970, FT-707 $680, FT-625RD $598.90, FRG-7 $239.90, FRG-7700 $459.90, FT-207R $259.90, NC-2 $53.90, FBA-1 $6.00, LCC-7 $25. All prices cash plus shipping. Closed Monday at 2:00. ROSS DISTRIBUTING COMPANY, Preston, Idaho 83263 (208) 852-0830.

DRAKE TR-4C and RV-4C remote V.F.O. and Heathkit 2KW LINEAR — $1400.00. (318) 234-9871. No collect calls. Gene Manning, 404 East Pont Des Mouton Road, Lafayette, LA 70507.

TEN-TEC CENTURY 21, xtal calibrator, keyer — all excellent condition — $220. Kim, KA6PYZ, (415) 673-9572.

HEATH SB220 with new 3500Z (ABT 4 hrs) — excellent — $450.00. WA6LSO, Bob, 714/338-5126.

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.

THE ULTIMATE
SUPER—LOG™ II

* For TRS-80 Computers
* Lightning Search & Sort
* Instant Recall of typical log info at your fingertips
* Designed for rag-chewers, DX & Contestors, Award Hunters
* Price includes FREE program, SUPER-DUPER™II

ON CASSETTE —THIS MONTH— **$14.95**

* ADD $1.50 SHIPPING

MICRO-80™ INC.
W-2665 No. Busby Road
Oak Harbor, WA 98277

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.

IC-730 — $685.00, SM-5 — $35.00, Filters FL-30 — $52.00, FL-44 — $115.00, all new. Dentron MT-3000A, 3kW, 1.8-30MHz $235.00. Yaesu FTDX570, FV401, CW Filter, extras mint — $400. HAL2000KSR — $325.00, MR2000 — $99.00, ST5000 — $150.00, custom cables. Package — $550.00. Wanted — TS-120S, VHS recorder, Drake MN2000. Pohorence, 364 Kilpatrick Ave., Port St. Lucie, FL 33452.

COLLINS 30L-1, new 572B's, #41141, flawless with factory manual and box $750.00. Dave, 415/383-4545, P.O. Box 126, Tiburon, CA 94920.

MADISON DECEMBER SPECIALS: Santec HT-1200 — 299.00; 2MTonna 9 el beam — 30.00; Yaesu FT208R — 299.00; Kenwood TR2500-call; All stock Finco beams — 30.00 each; IC720A/AC — 1298.00; IC730 — 729.00; Astro103 — 1095.00; 102BXA — 950.00; 100MXA — 469.00; IC22/U — 250.00; IC25A — 309.00; IC290A — 489.00/Rockwell KWM380/free filter — 3095.00, high S/N, all mods; Robot 800A — 749.00; RG9B/U — 2.00/ft; GE572B — 38.00; Drake 7000 — 949.00; Lunar 2M4-40P — 109.00; HAL CT2100 — 699.00; FT707 — 649.00; FRG7700 — 649.00; FT101ZD, MK3 — 749.00; Collins CP1 crystal pack — new — 400.00; new 70K2 PTD — 400.00; 5SG1 preselector — round — 400.00; 3 book Bash — 27.00; 1981 DX Callbook — 13.00; Vomax processor — 175.00; RF Power Labs A1000, CX500X — 1195.00; Alpha 76A — 1495.00; 76PA — 1795.00; 78 — 2595.00; Coaxseal — $2; Mirage D1010 432 100Watt amp - 289.00; large bookstore; KB5FU QSL list — 6.50; Digitran keypads KWM380 — 12.00; Hygain V2 2Mvertical — 39.00; complete service facilities. Amphenol silverplate PL259 - 1.00. All items personal guarantee, prices fob Houston, subject prior sale. MADISON ELECTRONICS, 1508 McKinney, Houston, TX 77010. 1-713-6580268; nite 1-800-231-3057 6-10 p.m. CST MWF. Call!

FOR SALE — QST, HAM RADIO, CQ, 73. 20¢ each. SASE for list, W8YCG, 7281 Hi-View Drive, North Royalton, OH 44133.

"HOW TO BREAK INTO THE COMPUTER FIELD". Valuable new handbook for computer career seeker. $8.95. Money back guarantee. CARRON PUBLISHERS, 205-KA Ridgewood, Easton, PA 18042.

1982 AMATEUR RADIO RED-WHITE-AND-BLUE 13.5" × 19.5" WALL CALENDARS for sale at $3.25 each. Price includes postage cost. Include self-addressed label and full payment with order. December mailing. W6LS, 2814 Empire, Burbank, CA 91504. Unique gift item.

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.

HONDA GENERATOR model 3500. Never used. Started twice. 115V, 230V, and 12V outputs. 2800 rated Watts at 21.e amps. Electric start with 25' remote control. 200 lbs. Asking $1,000. Contact M. Ognisty, (916) 452-3322 days.

FOR SALE — COMPLETE STATION — mint — Yaesu FT 101B, FV 101B VFO, FL 2100B, SP 101B with patch, Dentron supertuner, SWR bridge, key, paddle, keyer, Hustler 4BTV vertical with 80-meter resonator, all manuals, cartons, etc. SASE for more info to: Harry A. Hodges, WA6YOO, 450 West Vermont Avenue, #502, Escondido, CA 92025.

REPLACE RUSTED ANTENNA BOLTS with stainless steel. Small quantities, FREE catalog. ELWICK, Dept. 430, 230 Woods Lane, Somerdale, NJ 08083.

NATIONAL HRO 500 RECEIVER, mint condition, $500 or best offer. A fine receiver and a collector's dream! First 250 copies 73 Magazine complete, excellent condition, $200 or best offer. W9RVM, RR6, Box 22, Vincennes, IN 47591, (812) 882-2484.

SHACK TIME CLOCKS — Personalized with your call letters. Clocks are cut from pine in the shape of your state or U.S.A. Please specify. Quartz crystal battery operated clocks with one yr. guarantee. Allow 6 wks. for shipment. $49.95 plus $3.50 for postage and handling. FREEPORT WOOD & ART PRODUCTS, Rte. #2 Box 47-C, Freeport, FL 32439. Tel. 904/835-2221.

D & V RADIO PARTS — Variable capacitors, chokes, toroids, etc. Reduced prices many items, stamp please. 12805 W. Sarle, Freeland, MI 48623.

COLD SHACK? HEAT WITH SOLAR this winter and supplement your gas or electric system. Complete instructions on making and ways to install solar heating panels. Send $4.95 check or money order to LOPECO ENTERPRISES, P.O. Box 1267, Joplin, MO 64802. Allow 4-6 weeks for delivery.

COLLINS 75S-3, 32S-3 and 30L1, mint condition, estate sale. W6Y0, (805) 725-8707, or 1416 7th Ave., Delano, CA 93215.

EMPLOYMENT

Classified ads for jobs wanted or positions offered will be run free of charge in Worldradio's MART.

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.

Happy Holidays

ADVERTISERS' INDEX