WorldRadio

Year 14, Issue 6 December 1984 • 85¢

Hurricane Diana

Jerry Murphy, K8YUW

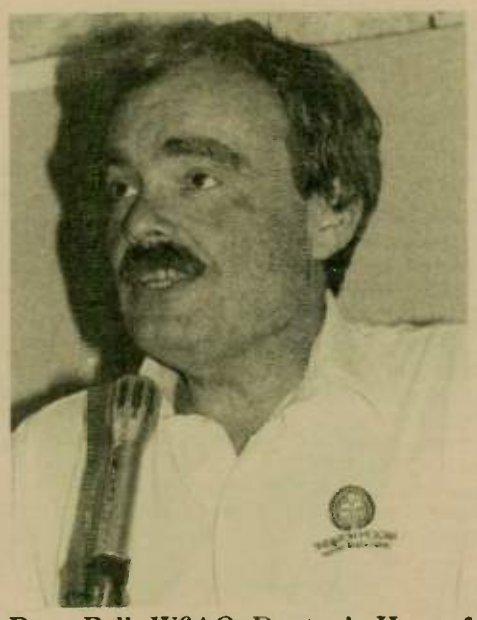
One of the many public service Amateur Radio networks that has survived the test of time is the Hurricane Watch Net (HWN), on 14.325 MHz. Started by K4CRU in 1965, the HWN has served the public well during every hurricane since on the Atlantic side of the Western Hemisphere, and since 1983 on the Pacific side.

Net officers feed weather information to the Maritime Mobile Service Net on 14.313 MHz until a tropical storm becomes a hurricane *and* a threat to populated areas of the Western Hemisphere. Then they move to 14.325 MHz and establish the Hurricane Watch Net, staying on that frequency as long as there is a need and propagation permits. The net functioned in this manner this season for 12 hurricanes and four tropical storms off the West Coast, and three tropical storms and one depression off the East Coast, before Diana formed off the Florida coast on 08 September 1984.

The Intertropical Convergence Zone (ITCZ) is the battle ground for opposing winds from the Southern and Northern Hemispheres. The most active months, June through November, find this imaginary boundary over waters warm enough to cause the formation of tropical storms of the type that might become hurricanes. A beneficial source of rain water, but a serious threat to life and limb because of tidal surges, very high winds and potential for tornadoes. Net officers monitor the ITCZ throughout the season, and keep the maritime community informed of pending conditions.

The storm system that became hurricane Diana was no exception. Diana became organized as a tropical storm the afternoon of 08 September, became a hurricane on the 10th, moved up the East Coast and went ashore near Wilmington, North Carolina, the night of the 12th. After touring southeastern North Carolina, Diana went back to sea over Pamlico Sound the afternoon of the 14th, heading for certain breakup in the northern Atlantic near the Maritimes. From the first advisory to the last, the information was published upon receipt, usually well ahead of any news service, by members of the HWN.

While the domestic news services in the affected areas all along the East Coast tour of Diana did an exceptional job of keeping the local populaces informed, they did not do as well for those folks not in the affected areas, but with interests such as family or property there. These folks kept up to date with information gleaned from the HWN. More importantly, however, was the ability of the HWN to give the advisories and bulletins considerably quicker than the news services, and to provide direct point-to-point communications between the National Hurricane Center and stations in or near the affected areas. When propagation failed on 20 meters between the Hurricane Center and affected areas, the Center moved to 75 meters for continued direct contact, but on the state nets.



Dave Bell, W6AQ, Dayton's Ham of the Year and producer of the films about Amateur Radio, co-speaker with the Colvins at the Southwest Division ARRL Convention banquet, delivered a spellbinding report about his time in Jordan with King Hussein. ***(See article on page 18.)***

Those who assisted

Assistant Net managers Donald Kay, K0IND, and Eleanor Hornor, K4RHL, each took their turns at net control station (NCS) duties, along with John Harrison, N5BHU, and Janice Weaver, N7YL. Assisting them at various times were long-time participants Joseph Hertzberg, N3EA, and Joseph Miller, K4MM, along with net manager Jerry Murphy, K8YUW.

Others drafted into relay duties were many, including Stan Cable, K4LPT; Russ Frary, W7LMV; Jack Williams, W4VQX; George McCulloch, WA3WIP; Jack Daugherty Jr., WA2DGS; Boyd Atkinson, W5YLP; Richard Morrow, W5RPC; Don Woodson, N4ECM; George Hall, KA4EIN; Clement Roberts, W5ZPJ; Tom McDermott, W6GAZ; and a host of others.

Under the able leadership of Andrew Clark, W4IYT, Emergency Coordinator for Dade County, Florida, Dade County ARES members manned the Hurricane Center station at various times throughout the storm, including Julio Ripoll, WD4JNS; WV4A; Joel Kandel, KI4T; Joseph Schmidt, W4NKJ; Bill Rheney, NA4X; Charles Leisy, W4OOH; Charles Bukoski, WD4LKY; and Ernest Feist, WA4CCP.

Some of the stations that provided local ground-truth weather observations to the NHC, or who were assisted in some way by the publication of the advisories and bulletins, included: Lynn Freeman, *(please turn to page 54)*

Antenna protection

ARRL seeks preemptive ruling

On 16 July 1984, the American Radio Relay League, Incorporated (ARRL) filed a *Request for Issuance of Declaratory Ruling* requesting the Commission to exercise federal preemptive authority over state and local zoning regulations which affect transmitters and antennas used by Amateur Radio operators.

Specifically, the ARRL seeks a declaratory ruling preempting all local ordinances which provably preclude or significantly inhibit effective, reliable amateur communications, and which are not clearly necessary to insure the safety of a proposed antenna installation.

The Private Radio Bureau seeks comments on this filing. Parties wishing to file formal comment on the issues raised therein should do so by filing an original and four copies with the Secretary, Federal Communications Commission, 1919 M St. NW, Washington, D.C. 20554, on or before 09 November 1984. **Reply comments may be filed on or before 14 December 1984.** Comments and reply comments should refer to the following number: PRB-1.

Copies of the ARRL's Request for Issuance of Declaratory Ruling and any subsequently filed documents in this matter may be obtained from International Transcription Services, Inc., 1270 Fairfield Rd. (Route 116 West), Gettysburg, PA 17325, (717) 337-1433, or 4006 University Dr., Fairfax, VA 22030, (703) 352-2400/(202) 296-7322.

Any documents related to this matter will also be available for inspection and copying in the Private Radio Bureau Public Reference Room, 1270 Fairfield Rd. (Route 116 West), Gettysburg, PA 17325. □

Ordinance dies, thanks to hams

Arcadia, California will not be enacting the nation's most restrictive anti-antenna and anti-tower ordinance after all. The decision to abandon the ordinance was made on 18 September, at a meeting of the Arcadia City Council that was attended by nearly 100 licensed amateurs.

One of the leaders in the anti-ordinance fight, Wendel Chapman, W6VIF, said the groundwork that was done well in advance of the meeting led to the demise of the proposal. Chapman told *Westlink Report* that he and other area radio amateurs had been in direct contact with every councilman quite some time before 18 September and presented each with a carefully prepared written presentation that they were urged to read. The document not only contained an explanation of the Amateur Radio Service and its need for antennas, but also contained letters from various civic groups and emergency service organizations that *(please turn to page 54)*

40-meter shortwave broadcast unwanted

ARRL has filed comments in MM Docket 84-706 opposing the FCC licensing of any shortwave station outside Region 2 (the Americas) in the band segment 7100-7300 kHz. ARRL admits at the outset that FCC would be within its legal rights to do so, but it would not be wise.

ARRL points out that at WARC-79, the U.S. delegation led the fight to keep this segment strictly for Amateur Radio in Region 2, even though it is assigned to the Broadcast Service in Regions 1 and 3.

As far as the League has been able to determine through its contacts within the International Amateur Radio Union (IARU), all countries in Region 2 permit their amateurs primary and exclusive use of this band segment.

ARRL notes that the band has unique propagation characteristics for amateurs and has been quite valuable during emergency situations, but that broadcasters already enjoy several bands with similar propagation characteristics.

ARRL points out, "While the United States does represent interests outside Region 2, it is first and foremost a Region 2 country and is viewed as such by the other countries of the Americas.

"While the authorizing of non-government broadcasting from U.S. territory in Region 3 at 7100-7300 kHz clearly is permitted by the International Radio Regulations, such would be inconsistent with overall U.S. policy concerning 7 MHz. It might also be regarded as a breach of faith by the other countries of the Americas, who willingly followed the lead of the United States in 1979 in defending the amateur allocation."

Should the FCC be so unwise as to proceed with this course of action, ARRL then recommends that broadcasters be forced to meet stringent technical criteria designed to minimize interference to amateur operation in the Americas.

One long-time FCC observer has this to say about the situation: "It's sort of like the local president of the Women's Christian Temperance Union going over to the next county and buying a fifth of gin. Legally she is entitled to, but boy, it's not the kind of behavior you expect."

— *The ARRL Letter* □

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December 1984 Vol. 14, 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.

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Second-class postage paid at Sacramento, CA.

QZX — journal for ham/computer buffs

The Timex Sinclair Amateur Radio Users Group is made up of computer users who are interested in putting their Timex or Sinclair computers to use in Amateur Radio operations. Most of the members are not computer experts, but they do have a good technical background in electronics, so they quickly learn a lot about their computers.

Most, but not all, members are licensed by the FCC to operate in the Amateur Radio Service, and one of the main reasons these amateurs bought their computers was to use them in their radio operating activities.

The journal of this group is called *QZX*. The name was patterned after some of the abbreviations for operating procedures used by amateurs and after some other magazines with which amateurs are familiar.

The journal is the main benefit of membership. It is sent monthly by first class mail to all members. Membership costs $12 per year (with a $7 postage surcharge for members who live outside of the United States, Canada and Mexico). The journal publishes complete programs and hardware projects submitted by members. The journal also publishes personal items about the members and information about operating events, such as nets in which the members might be interested.

The group is a small but active collection of people who are working hard to expand the usefulness of their computers by writing programs and buying and inventing hardware additions. There are members in almost every state and in about 20 different countries.

Those who wish to join (and they need not be licensed amateurs) can do so by sending $12 dues to Alex Burr, K5XY; 2025 O'Donnell Drive; Las Cruces, NM, 88001. □

•••••

When submitting photos, please *DO NOT* write on the backs of them — they often stain the fronts of other photos, making them unusable.

Pitcairn Island fuel fund

C.J. Casebeer, K6CE, San Carlos, CA
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Frances Haag, NI7E, Hillsboro, OR
A.G. Russell, K4ECC, Sarasota, FL
George Alfano, W2NHZ, Little Ferry, NJ
Tom O'Connor, NI8G, Milan, OH
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Dick Whisler, WA6SLO, So. San Francisco, CA
John Green, K4BOE, Eufaula, AL
Dr. John Irwin, K7SE, Tucson, AZ
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Joe Hintz, NA4J, Leesburg, GA
Gerhard Jaeger, DF2RG, Schwandorf, West Germany
Dieter Dippel, DF4RD, Nuernberg, West Germany
Dr. Tom York, N6DFL, Carmichael, CA
Gordy Clark, W4PTH, Dublin, GA
Total $46.00

— Received by Charles "Mert" Moser, W6HS □

VI3WI on DX bands

A special commemorative call sign VI3WI will be on the DX bands until at least 30 April 1985. The call sign is part of the 150th anniversary celebration of European settlement in Victoria, Australia.

VI3WI will be activated on a roster basis by selected members of the Wireless Institute of Australia and its affiliated clubs. All DX bands and all modes will be used.

A commemorative QSL is available, either direct or via the VK3 QSL Bureau. A special award certificate is also available for radio contact with Victoria between November 1984 and 30 April 1985. Contact (SWLs log) one station in VK3 during the award period to qualify.

A QSL card for the qualifying contact, endorsed with a congratulatory message on Victoria's 150th anniversary, plus $2 or equivalent, should be sent to: Victoria 150 Award, Wireless Institute of Australia, 412 Brunswick St., Fitzroy 3065, Victoria, AUSTRALIA. □

The deadline for news releases and special announcements is the 10th of the month, *two months prior to issue date.* Example: Deadline for the August issue is 10 June.

HF transmitter contest

A $20 prize has been offered by Al McMillan, W0JJK, for the best homemade HF transmitter brought to the late January '85 meeting of the Southwest Iowa ARC in Council Bluffs.

The requirements are:

1) 10W maximum input HF transmitter.

2) No additional money spent. Homemade with parts on hand or acquired at no cost.

3) Accompanied by QSL card from random contact.

Al insists that a one-tube rig would be simplest, while Rich Swig, WA0ZQG, who's scared of electricity, likes transistor designs. *— Richard Swig, WA0ZQG* □

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New England ARRL Convention

Alan Kline, KB1DJ

The 1984 New England ARRL Convention was held at the Sheraton Convention Center Inn at Boxboro, Massachusetts, 29-30 September. It was the third biannual hamfest held there. The site was easily accessible from I-495, which helps to draw amateurs from all of the New England states. A license plate check of the parking lot showed it drew many hams from the New York-New Jersey area, as well.

The convention is sponsored by the Federation of Eastern Massachusetts Amateur Radio Associations (FEMARA). The president of FEMARA is Gene Hastings, W1VRK. He has also served as the convention chairman for the past 20 years. Once again, Gene and his committee put on one of the finest regional conventions.

The weekend event includes a varied program of talks, raffles, FCC exams, flea markets, hidden transmitter hunts and a banquet. The talks, lectures and panel discussions were varied for both the ham and non-ham.

This year's show has 83 exhibitors' booths, including the QCWA, IMRA, MARS, CAP and the Region 1 QSL Bureau. Many commercial exhibitors said it was such a great show for retail sales that they wanted more booth space for the next convention. The exhibit areas were open from 9:00 a.m. to 5:00 p.m. on Saturday, and 10:00 a.m. to 2:00 p.m. on Sunday to paid registrants only.

Jack Wilson, W1QXX, did a great job of selling out all of Saturday's flea market spaces. I tried to check out the tented flea market area a few times, but wasn't willing to fight the crowds. The flea market vendors said they were very pleased, as sales were up and brisk. One of the best bargains in the flea market area was a 432 loop Yagi kit for only $29.95 that was being sold by East Coast Amateur TV.

For the first time in six years, FCC exams were offered by North Shore Services. It was run as part of the new ARRL's VE program. We gave over 200 exams. That made us the largest exam session since the Boston FCC gave up giving exams.

One of the highlights of the exams was giving Jacky Mandary, 3B8CF his United States exams. It seems his homeland of Mauritius and the USA have no reciprocal agreement, so he wanted a stateside license. He took the Novice, General, Advanced and Extra exams in one sitting and passed the 20 wpm code, but missed the Extra written by only a few questions. (For more on the VE program, see 'Teacher' column.)

The Saturday night banquet program started with an informal poolside cocktail party, and then the dinner was held in the main ballroom. The MC of the evening was Eli Nannis, K4JMH. He is a longtime member of the convention committee and comes home from Florida to help out at the convention. Head table guests included Boston FCC's Vince Kajunski and Jerry Sarno; ARRL SCM Rick Beebe, K1PAD; and ARRL NE Director John Sullivan.

The banquet entertainment was a magician and an ESP expert. The primarily all-ham crowd was not especially thrilled with either of them. The ESP expert did do some amazing tricks with numbers, but the numbers the amateurs wanted him to predict — the MUF and propagation — weren't mentioned.

The banquet lasted till about 11:00 p.m., with dancing and eyeball QSO's. The social activities ended there for some, but at midnight the Radio Society of Norwich, Connecticut put on the Wouff Hong Ceremony.

Programs for the amateurs included talks by Gary Field, WA1GRC, of Wang Labs on 9600 baud RF modems; Dana Atchley, W1CF, of MACOM on phased arrays for low frequencies; Richard Austin of Multiband VHF/UHF Verticals, plus many more. DX programs included Bill Poellmitz, K1MM, on XU1SS and BY1PK; Ellen White, W1YL/4, DX editor for QST; and Jacky Mandary, 3B8CF.

Program activities for the non-hams and YL's included a talk by regional TV personality Bruce Schwoegler of WBZ-TV — a noted weatherman. Among the other activities were many slide presentations and a fashion show.

Once again, Gene Hastings, W1VRK, and his committee did a great job. General attendance was at an all-time high, there was plenty to do and see for the ham and non-ham. The convention wrapped up on Sunday afternoon at 2:00 p.m. with a raffle drawing for over $13,000 in ham gear. □

Simulated Emergency Test?

P.A. Reed, K6DMF

Maybe more like the real thing, during the last week of August and the first two weeks of September, the Placer County area had three large fires in a row. Amateur Radio operators from several different organizations banded together to assist the California Department of Forestry (CDF) with their communications work load. The Placer County Sheriff's Communications Reserve, (PCSCR) hams, along with the amateurs from the Volunteers In Prevention (VIP) program, were commended by Robert Paulus, ranger in charge, for their outstanding assistance.

All communications were handled through WA6ZNM 146.745/146.145, the PCSCR repeater located in Foresthill which covered the fire area thoroughly. The able group of amateurs from the sheriff's communication reserve who operated their mobile command center from the fire camp were: T.J. Cantrell, WB6FNT; Frank LaMoglia, WB6DKZ; Jack Crusinberry, WB6BPO; Jerry Unruh, WB6GWZ; Bob Baker, WA6MCT; and Harold Hansen, KA6FTV.

Representing the VIP's at the fire scene and taking care of the fire information and news media were the Sacramento Valley Section Manager, Ron Menet, N6AUB; Grover Cleveland, KC7IW; and Dave Percival, WB6GOM. Tying it all together at CDF headquarters in Auburn were VIP's Mary Ann Simmons, N6HJA; Marjorie Haviland, KA6PTL; and P.A. Reed, K6DMF, Emergency Coordinator for Placer County.

After the last ember was out and everyone had caught up on their sleep, the feeling among the Amateur Radio operators of the area was that they could handle any communications emergency that arose in the foothills. □

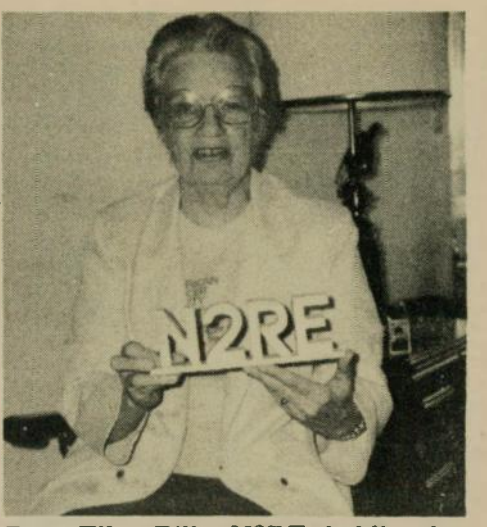
YLRL president elected for second term

YLRL has elected Rose Ellen Bills, N2RE, for a second term as president for the year 1985. Her motto selected for the second term is "PROGRESS".

Rose Ellen was first licensed in 1957 and is ex-WA2FGS. She has held an Extra Class license since 1970. Joining YLRL in the year 1968, she has been active as new member editor of *YL Harmonics* (the official magazine of YLRL) from 1972 to 1975; receiving treasurer 1976-1977; secretary 1982; vice president 1983; and president 1984-1985, and is the only member to have held all offices.

YLRL has a big year with "COME ALIVE IN '85" being the theme for the Convention to be held in Las Vegas during the latter part of June. A large attendance of the DX members is anticipated.

Other club activities include being the only YL to have been president of Gloucester County ARC, Inc. and Salem County ARC, Inc., along with having held the other offices in both clubs. She is an associate member of TOT's, PJYL and Buckeye Belles. She's a full member of SAYLARC and AWARE and is currently serving as one of the volunteer examiners in her area.



Rose Ellen Bills, N2RE, holding her call letters. The letters are made of wood, by Doris Bedford, K4AOH.

Other interests include organ and piano music, sewing, bike riding, swimming and square dancing.

Rose Ellen is employed as a secretary at Du Pont Company, Wilmington, Delaware. □

Correction

Contrary to the front-page article in the October issue of **Worldradio** ("Third-party agreement"), there is *NO* third-party agreement with Anguilla. This was confirmed by Richard Palm, K1CE, Acting Manager of ARRL's Membership Services Department.

The St. Maarten Amateur Radio Club (PJ7A) of Sint Maarten, Netherlands Antilles, has informed us that St. Kitts-Nevis celebrated its first anniversary of independence on 19 September 1984, and has dropped the VP2K prefix and is now using V4 prefix.

Effective this year on Anguilla, according to the St. Maarten ARC, all reciprocal operating licenses will have the applicant's home call followed by /VP2E.

Equipment needed

The front-range Mile High Chapter Red Cross maintains a radio communications center which operates as base for several outlying regional offices. Our main station, W0OUI, is operated by contractual agreement with the Denver Radio Club which provides a pool of ARES operators and resources.

Our main station is well equipped with HF radio units but is in need of updating certain outdated or non-functional VHF and UHF equipment.

The Mile High Red Cross needs the following equipment: 2-meter synthesized multi-mode base station with 12VDC capability; 440 MHz synthesized multi-mode base station with 12VDC capability; 440 MHz synthesized mobile unit; 6-meter synthesized multi-mode base station with 12VDC capability; or a VIC-20 or Commodore-64 computer set up for RTTY (also need printer).

Interested parties may contact "Woody" Linwood, KC0UD, at home at (303) 937-0606, or at work at AT&T at (303) 698-5814. Inquiries or donations may be mailed to: Mile High Chapter, American Red Cross, ATTN: Woody Linwood, Disaster Services Division, 170 Steele St., Denver, CO 80206. □

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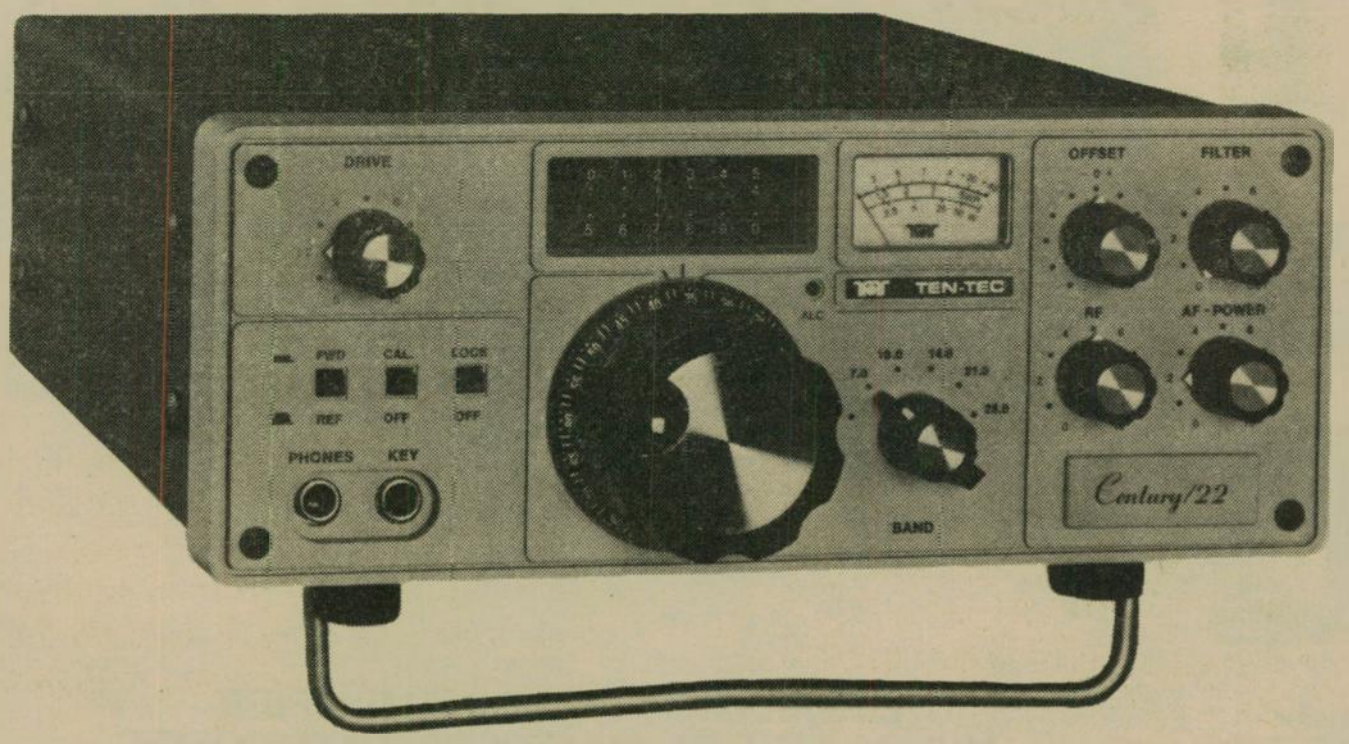

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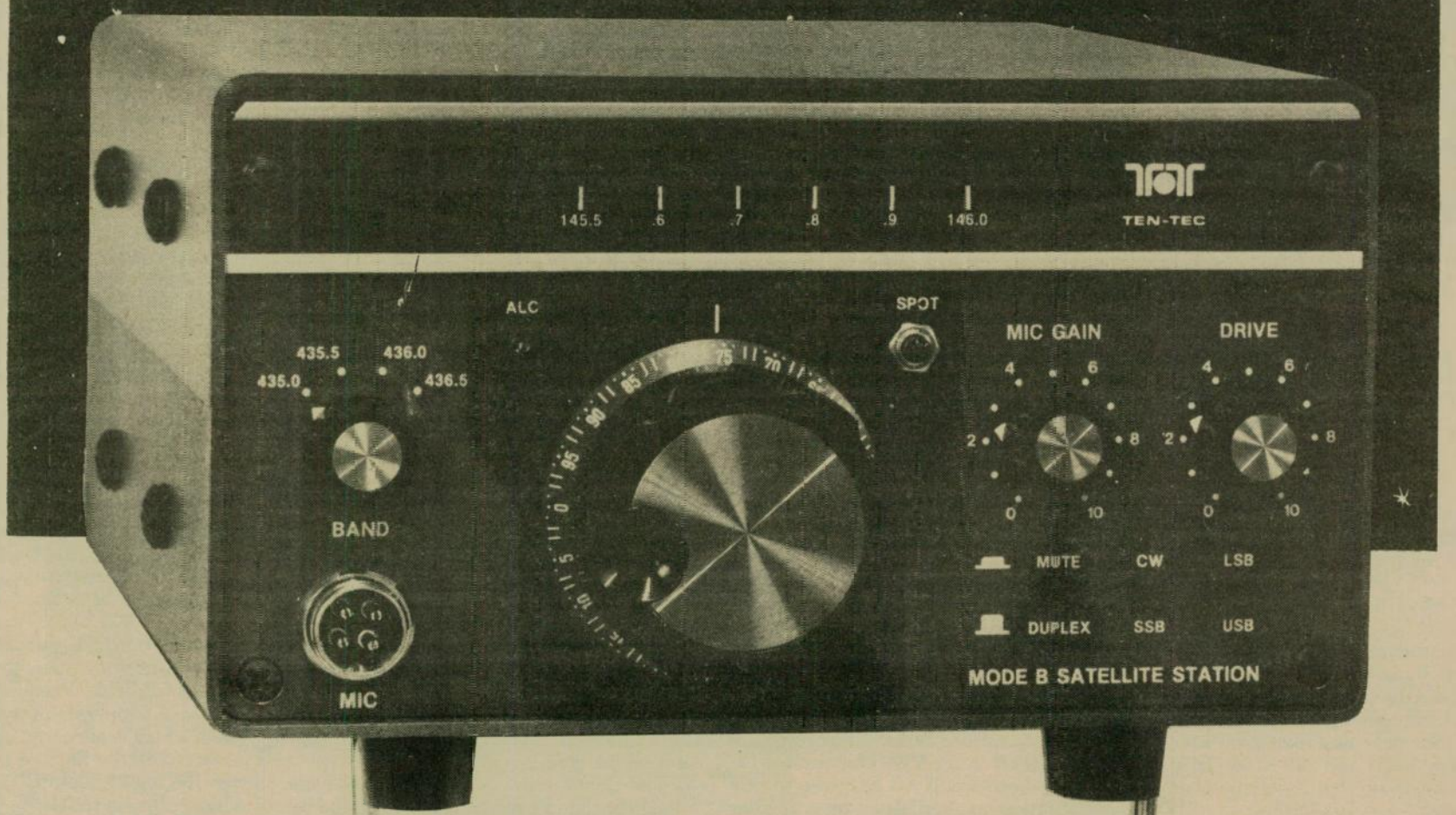
TITAN 425 consists of two sections — amplifier and power supply. The amplifier is styled to match modern transceivers and is extremely compact for its ratings. The amplifier section contains all operating controls and indicators. The power supply is housed in a utility type hide-away enclosure.

TEN-TEC, INC.
SEVIERVILLE, TENNESSEE 37862

Here's the easiest, lowest-cost way to use the OSCAR 10 Satellite



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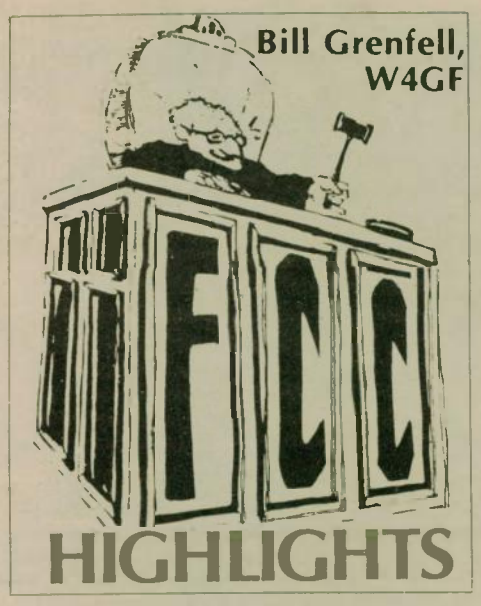
Exclusive single knob tuning. Provides tranceive-type operation.

Just add antennas, rotators, and go. The 2510 transmitter section has a frequency range of 435 to 435.5 MHz (up to 437 MHz with optional board), adjustable ALC, and full controls. Main Tuning sets uplink frequency. Spot Control helps find your downlink signal. Drive Control, Microphone Gain, Band Switch, and Push-Button switches complete the front panel. Push-Button switches are: DUPLEX/MUTE (for duplex operation or for disabling receive converter during transmit); CW/SSB selects mode; USB/LSB selects sideband. The receive converter frequency coverage is 144 to 146 MHz (converted to 28 to 30 MHz) with dynamic range of 85 dB typical. Rear panel connectors are provided for antennas, amplifiers, key, 12Vdc input, and HF receiver.

Enjoy the most exciting event in Amateur radio today — with the new TEN-TEC Satellite Station. See your dealer or write for information to TEN-TEC, Inc. Sevierville, TN 37862.



The FCC has proposed to shift the primary radio service allocation of the 1900-2000 kHz half of the 160-meter band from radionavigation to radiolocation (Notice of Proposed Rule Making No. 84-874).

LORAN A is an example of radionavigation and was in the 160-meter band on a protected basis from the beginning of World War II until early this year, as an aid for determining the position of ships.

LORAN C has been implemented on 100 kHz, and because of its superior coverage and accuracy is being used by aircraft as well as ships. Radiolocation systems, primarily used for off-shore oil exploration, have been operated within an allocation which provides 1625-1705 kHz on a secondary basis and 1705-1800 kHz on an equal basis of sharing with other radio services.

Subject to regional planning, 1605-1705 kHz is available for possible (AM) broadcasting expansion. According to the ARRL however, "... the earliest time at which broadcasting could occupy its new space would be about 1990, (only) after two sessions of a Regional Administrative Radio Conference on the subject."! For example, the Commission said in its Second Report and Order in Docket 80-739 (11/08/83) that the 1900-2000 kHz "... allocation was made for reaccommodation purposes and not to provide additional spectrum for radiolocation needs ..." and that the process should take a number of years.

There appears to be little, if any, interest in the 1625-1705 kHz frequencies for broadcasting expansion, so one may wonder what is the need for initiation of rule making at this time? One FCC official is quoted as saying, "By 1990, no one may be interested in new BC frequencies!"

ARRL advises that the day before the Docket 84-874 NPRM was released, it filed a Petition for Initiation of Inquiry Procedure on the present use of the medium frequency bands by non-government users.

"The purpose of this inquiry is twofold: first, to define the spectrum requirements of individual users, and second, to find the number of radiolocation stations needed in a given geographical area. The League requests that the Commission take a look at the spectrum efficiency and the technical need for the use of the 1900-2000 kHz band by non-government radiolocation users."

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ARRL has filed opposing comments on a petition seeking to amend the amateur rules to allow an applicant to re-take a license test within seven days after failing an exam. The petition was reported in last month's 'Highlights'.

The League wrote: "... it is possible for an examinee to take the same test with the same questions many times, depending on how often the VEC changes the exams. Furthermore, if a VEC were to provide amateur examinations on a regular basis, it would be forced to change examinations weekly in order to ensure that the same test is not given in a successive examination session.

"The League also feels that amateur exam candidates should prepare for examinations in advance by studying the material rather than relying on rote memorization through repeated test-taking." *(ARRL Letter,* 09/13/84)

•

The new "Application for Amateur Radio Station and/or Operator License" FCC Form 610 is now available. Dated 10 June 1984, availability of the new 610 was delayed by the Office of Management and Budget paperwork approval procedure and by the Government Printing Office.

The new version of the 610 is geared for use by the new volunteer examiners for Technician through Extra Class operator examinations. Novice applicants and examiners are also provided for on the new version of 610. However, the examination procedure for the Novice test remains as it was before the higher classes were available via volunteer examiners. The new form should also be used for renewals and modifications.

In addition to (postpaid) availability from the FCC's Field Operations Bureau offices, the form may be requested from the ARRL or W5YI, provided you include a self-addressed, stamped business-size envelope (SASE) with the request.

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A manufacturer of illegal citizens band equipment has been charged with violation of the Communications Act of 1934. On 09 August 1984, with the aid of personnel from the Norfolk, Virginia FCC Field office, U.S. Marshalls seized "... over $140,000 worth of illegal radio equipment destined for use in the Citizens Band Radio Service. The ... equipment included numerous linear amplifiers, components and subassemblies which were being manufactured in Shelby, North Carolina, and distributed to retailers in several states." (*W5YI Report,* 09/15/84)

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In addition to Congressman Jim Bates, Senator Barry Goldwater has introduced legislation to make willful or malicious interference a statutory offense. (See "Goldwater introduces bill", page 1, November **Worldradio.**)

•

The FCC has proposed to authorize spread spectrum and other wide-band emissions on frequencies above 70 MHz "... under conditions that prevent harmful interference to other authorized users of the spectrum.

Released 21 May 1984, the Commission's Further Notice of Inquiry and Notice of Proposed Rulemaking (Gen. Docket No. 81-413) stated, "We anticipate that this authorization will stimulate innovation in this technology, while meeting our statutory goal of controlling interference." The Notice explained that "Spread spectrum is a term applied to communications systems that spread radio frequency energy over a wide bandwidth by means of an auxiliary spreading code."

The several methods used are "... commonly referred to as: direct sequence (or pseudonoise), frequency hopping, time hopping, pulsed FM (or chirp) and hybrid systems. The spreading or dilution of the energy in spread spectrum systems over a wide bandwidth results in several possible advantages: short-range interference-free overlays on other emissions, resistance to interference from other emissions, and low detectability."

The Commission's Notice is a 26-page document, and I recommend it be read by everyone interested in the technique and the rules proposed for management of its use. FCC's mail address is Washington, D.C. 20554. According to the *W5YI Report* (09/15/84 and 10/01/84), comments have been filed opposing spread spectrum by non-amateurs on amateur bands (above 70 MHz), on the basis that FCC has greatly underestimated the potential for interference, that the interfering noise would be difficult to detect and locate, and that the proposed rules appear to offer no legal or procedural recourse to the Amateur Radio operator.

•

Some petitions for reconsideration of the Amateur Station Power Limit and Measurement Rule have been denied by the FCC. Effective in August 1983, station power was to be measured at the antenna terminal and to be limited to a maximum of 1500 watts PEP. Users of amplitude modulated full carrier telephony are allowed to use the 1kW DC input to the final amplifier limit until 29 August 1990. The denial was essentially on the basis that the petitioners had not presented any information not already considered by the Commission in its original decision. (FCC Report and Order in PR Docket 82-62, effective 08/29/83)

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The questions for the Amateur Radio operator license examinations may be obtained from the FCC field district offices as follows: Study Guide, PR Bulletin 1035; Novice Class 1035A; General/Technician Class 1035B; Advanced Class 1035C; and Extra Class 1035D. Bulletin 1035 contains a list of the general subjects covered by each examination element. Bulletins 1035A through 1035D list pools of questions from which each individual examination is composed.

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A petition to eliminate all subbands in the amateur bands was denied by the FCC last September. Among the considerations for the denial was that the petitioner, Gary Mitchell, KH8AC, had recently requested that a CW-only subband be *created* in the 160-meter band!

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Should the FCC authorize U.S. broadcast stations on Guam and Saipan, which are in World Frequency Allocation Region 3, to operate in the 7100-7300 kHz band, which is allocated exclusively to the Amateur Radio Service in World Allocation Region 2? The FCC proposes it. The ARRL objects to it!

Current FCC high frequency broadcast station rules do not provide the 7100-7300 kHz band for assignment to its HF broadcast station licensees. The FCC Mass Media Bureau's Docket No. 84-706 Notice of Proposed Rule Making (NPRM) would add that band to the others listed in rule Section 73.702(f) — available, however, only to U.S. stations located in Region 3. This is in consideration of a petition, RM-2959, filed by Trans World Radio Pacific, FCC licensee of International Broadcast Station KTWR, Agana, Guam.

While admitting such use is clearly permitted by the International Radio

Amateur Radio call signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of 01 October 1984.

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

Radio District	Group A	Group B	Group C	Group D
	Am. Extra	Advanced	Tech./Gen.	Novice
0	NI0I	KD0SV	N0FTN	KA0TNC
1	KX1B	KB1PK	N1DGG	KA1MDQ
2	NG2T	KD2JJ	N2FEE	KA2VZK
3	KU3E	KC3PG	N3EBV	KA3NFH
4	AA4FG	KI4TN	N4KVR	KB4LPO
5	NS5L	KE5SD	N5HIT	KA5USF
6	WC6Q	KG6LN	N6LDA	KB6GMJ
7	NJ7R	KE7AS	N7GPP	KA7TVV
8	NJ8U	KD8UB	N8GBB	KA8VKH
9	NB9V	KD9LA	N9EUB	KA9SMT
N. Mariana Is.	AH0D	AH0AC	KH0AG	WH0AAG
Guam	AH2T	AH2BA	KH2BR	WH2AEF
Johnston Is.	AH3A	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Hawaii	WH6U	AH6FQ	NH6CI	WH6BAW
Kure Is.			KH7AA	
American Samoa	AH8B	AH8AB	KH8AD	WH8AAO
Wake Wilkes Peale		AH9AB	KH9AB	WH9AAB
Alaska		AL7GD	NL7EL	WL7BEP
Virgin Is.	KP2L	KP2AT	NP2BE	WP2AEA
Puerto Rico	WP4D	KP4HZ	NP4LG	WP4DSI

Regulations, ARRL contends it "... would be inconsistent with overall U.S. policy concerning 7 MHz." In addition to the alleged increased flexibility to FCC licensees in Region 3, the petitioner alleges their use of a 7 MHz frequency will also ease congestion on the other frequency bands shared with international broadcast stations in the continental United States.

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A former FCC amateur licensee whose licenses were revoked and suspended cannot operate as a third party in the presence of a licensed operator.

"The presence or absence of a licensed operator makes no difference. You ... were formerly a licensed Amateur who forfeited the right to operate an Amateur station. Therefore, you are not in the class of persons intended to be exposed to Amateur Radio by virtue of Section 97.79(d)." (It permits third-party communications.)

"We remind you that, at such time as you file an application for a new station license, your actions during the period that you were under suspension and revocation will be taken into consideration. A course of action which is essentially a sham and subterfuge to evade the effect of the Summary Decision against you would reflect adversely on any future Amateur application you may file."

The foregoing was extracted from FCC Special Services Chief Raymond Kowalski's letter in response to a September 11, 1984 letter of inquiry from Calvin Plageman, ex-WD6DSV. Plageman's licenses were revoked and suspended, effective 19 September 1984 for willful and malicious interference to the operation of other Amateur stations. See last month's 'Highlights' for other details.

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2310-2390 MHz of the 2300-2450 MHz band, which is available to the Amateur Radio Service on a secondary basis, was assigned to the aviation service for flight test telemetry stations, when the FCC adopted a Report and Order in General Docket No. 84-186, on 26 September 1984.

ARRL reports: "Part 97 has not yet been affected. However, this action is one of several in a string of procedural assaults on continued Amateur Radio occupancy of 2310-2390 MHz. Radio amateurs presently enjoy secondary status over the entire 2300-2450 MHz band.

"ARRL continues to oppose elimination of amateurs' secondary status in this segment. The Southern California Repeater and Remote Base Association (SCRBBA) also opposed these actions." □

Audio guidelines for volunteer examiners

Gordon West of Radio School, Inc. suggests some important guidelines to volunteer examiners who will administer the Amateur Radio code tests. His timely recommendations will help eliminate examination disputes between the VE and a disgruntled applicant who claims he couldn't hear the code properly.

If you decide to use your own 5 minute code test, make sure that the code is generated at the exact speed and dit-dah ratio as outlined by the FCC. Your code test tape must meet these guidelines precisely:

The international standards for the relative duration of elements and spacing

(please turn to next page)

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• Help a friend become a ham! •

Audio

(continued from page 9)

employed in the Morse code are defined in CCITT Recommendation R.140, as adopted by the VIIth Plenary Assembly in November 1980. The 13 and 20 wpm Amateur Radio test tapes conform to these standards.

The 5 wpm Amateur Radio test tapes are constructed using Morse letters sent at 13 wpm, but with additional spacing between characters and words to provide an effective rate of 5 wpm. This method is favored for slow telegraph speeds because it is believed to facilitate the attainment of higher speed.

Modulation rates: Morse code is generated isochronally, with modulation rates calculated from the desired code speeds using the following formula:

Modulation rate (in bauds) at desired code speed (in words per minute) ÷ 1.200

The above formula is based on the standard word "PARIS," which contains 50 unit intervals. The duration of the unit interval can be calculated using the formula:

Duration of unit interval (in mS) = 1200 ÷ desired code speed (in words per minute).

For the 5 wpm tapes, the modulation rate and duration of unit interval are calculated using 13 wpm as the desired code speed.

Duration of code elements: Dot — 1 unit interval; Dash — 3 unit intervals.

Duration of spacing for 13 and 20 wpm: Space between elements — 1 unit interval; space between characters — 15 unit intervals; space between words — 39 unit intervals.

Accuracy: Notwithstanding accuracy implied by the above formulas, the timing accuracy of actual test tapes may vary ± 2 percent.

Audio frequency range (pitch of CW note): The audio frequency used is no lower than 700 Hz and no higher than 1000 Hz.

The typical text you may use may be a transmission from one ham to another. This would include an exchange of call signs, names, QTH, rig, weather conditions, occupation, type of antenna, outside temperature, class of license, upcoming schedules with specific stations, and any other pertinent data that is found in a typical QSO.

You would be well advised not to develop any QSO with illogical statements. It's not fair to any test-taker to give him a weather report that indicates sunny and dry weather at 105 degrees with snow falling all around you. This simply isn't playing fair. Misspellings are also taboo. The FCC has never deliberately misspelled words — nor should we.

Although you could develop a QSO made up of nothing more than random letters, this again is not fair for the code test-taker. If you were testing for a commercial license, possibly yes. Since most amateurs communicate in Q codes as well as plain English, the code test should be developed around this format, too.

Of course, you can always buy preprepared code tests that we have available here at Radio School; but if you still want to make up your own examinations, here are some additional guidelines.

While recording the actual code test on a tape cassette or reel-to-reel recorder, double-check again that your tones and dit-dah ratios meet the above published specifications.

Don't acoustically pick up the sounds from your code oscillator to the tape recorder mike — this creates echo and a hollow sound. The tones must be hardwired from your code generation equipment into your tape recorder.

It's also recommended that you use an automatic keyer. Sending by hand key might be unfair if you have a distinctive rhythm that does not meet the exact FCC code test specifications.

After you have recorded your 5 to 6 minute code test, play it back and make sure you don't have print-through. This is common with extra-long length tapes. Avoid thin tape. If you detect any print-through (sounds of code before they are actually sent), the tape is not acceptable.

Once you have a good sounding tape message that meets the FCC test specifications, try it out on someone else's tape player. It must be clear as a bell and sharp as a tack; muffled sounds are out.

The next step is to check the acoustics of the room where you plan to generate the code test. If it has a hardwood floor, it's probably going to echo. This, again, is unacceptable to the exam-taker.

Ideally, you will be in a small room with curtains and a carpet. At normal volume, there should be no echoes from your tape player.

It's much better to use multiple speakers at a low volume setting than one speaker at a loud volume setting. The one-speaker method tends to cause echoes in the back of the room. Multiple speakers will allow students to hear the code test tape without disturbing echoes.

If you plan to use multiple sets of earphones, all the better. Double-check each earphone to insure that the code test sounds clear. While earphones are always advised over everything else, they are usually the most expensive and the biggest hassle to set up.

Don't even consider generating your code test over the airwaves using 49 MHz communicators, inductive receive headphones, or anything else that travels through the air. The more inquisitive students outside the test area will devise means to pick up your wireless code transmissions!

Finally, let your fellow volunteer examiners listen to the code test in the exact room where it is to be given. Until all three of you can agree that this is acoustically correct, the test should not be given to the students.

Yes, it is difficult to generate a fair and accurate code test. Ask the FCC — people have been complaining about their examination tapes for years.

Here at Radio School we make tapes available to you as volunteer examiners. You are permitted by Radio School, Inc. to duplicate volunteer examiner test tapes for your own testing purpose. However, keep your test tapes secure from unauthorized use.

Finally, pat yourself on the back for helping out the Amateur Radio Service. Without your unselfish efforts as a volunteer examiner, the Amateur Radio Service would have nowhere to grow. The hours you put in will reflect a steady growth in the Amateur Radio population.

Your efforts to offer applicants a fair examination will certainly be reflected by the type of Amateur Radio operators that go on the air. We welcome any suggestions you may have on how we might help you in preparing test material — especially code tapes.

Again, congratulations to you all as volunteer examiners. □

Upgraders comment on VE program

Alan Kline, KB1DJ

During the 1984 New England ARRL Convention, I found the time to interview two upgraders, so we could get some insight into the new VE program from the viewpoint of the examinees. Here they are:

JEANE CARIRI, KA1LLB

KB1DJ: Jeane, what class license did you have?

KA1LLB: Novice

KB1DJ: What class did you apply for?

KA1LLB: Advanced

KB1DJ: Did you pass?

KA1LLB: Oh yes, and I'm very happy.

KB1DJ: How long did the exams take?

KA1LLB: Just under three hours.

KB1DJ: How did you prepare for the 13 wpm code exam?

KA1LLB: I, regularly listened to W1AW; I found that worked the best. The one-sided QSO was much the same as the FCC used and was easy to copy.

KB1DJ: As you must've known, the tests were made up by the ARRL using the latest FCC-approved question pools. Those publishers who normally print question-and-answer guides haven't yet and there is little study material around. How did you prepare for the theory portions?

KA1LLB: I got a copy of the approved question pool from the FCC and read them over. They were easy to research by reading the ARRL License Manual, and then I asked a few friends to tutor me.

KB1DJ: Do you think the new VE program will work?

KA1LLB: Yes, it did for me. The VE's were courteous and orderly.

KB1DJ: Any complaints at all?

KA1LLB: Yes, as you know, the room we were in was crowded, hot and the air conditioning wasn't the best, so I appreciated the no smoking rule. I didn't appreciate the fact that many who finished before me chatted to their friends, while I was still taking the exam.

KB1DJ: Thanks, and see you on 20M.

JACKY MANDARY, 3B8CF

KB1DJ: What were you doing in the United States?

3B8CF: On Mauritius, I work for the weather bureau. I came to visit the United States to study modern computer techniques and weather forecasting.

KB1DJ: Jacky, as you now know, when I received your 610 form, I had no idea you were a famous DX'er. Did you expect any special treatment?

3B8CF: No, I only hoped to get my U.S. license, as our countries have no reciprocal agreement. I purposely extended my stay to come to Boxboro to take the Extra Class exam and speak on DX'ing.

KB1DJ: You were in one of the 9:00 a.m. sessions on Saturday and word traveled fast that you had copied the 20 wpm code test flawlessly. That was no surprise, but you failed the Extra Class theory. Do you know why?

3B8CF: Technically, I had no problems with any of the U.S. exams. However, on the Extra Class, there are now questions about the new VE program, and I got those wrong.

KB1DJ: Your exams were rechecked and it seems that the only type of questions you got wrong were the rules and regulations types. Does this bother you? you?

3B8CF: Well, Alan, I am still very happy. Not many can sit down and take all the U.S. exams in one day and pass the Advanced. Now I have a good reason for returning to the United States soon to pass the Extra.

KB1DJ: Thanks, Jacky and remember to call during your next pile-up on 20M. □

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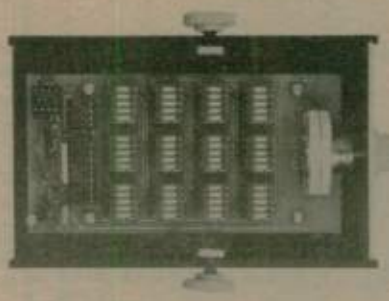

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The Legal Forum — Part II

Norm Brooks, K6FO

This is the second and final part of an article written about the Legal Forum, held at the Pacific Division ARRL Convention, Santa Clara, California, on Saturday, 01 September 1984.

Malicious interference

Kip Edwards led off the discussion on malicious interference. First he took a poll and found that everyone in the room but one had heard or was subject to malicious interference. As to the one person who had never encountered malicious interference, someone suggested he must be on 1296 MHz!

Kip said he would not cover what malicious interference is, nor the fact that it's prohibited. He'd talk about what to do about it, instead. What works and what doesn't seem to work, and how you can bring to bear the FCC and other helpful agencies. It is personally time-consuming and moves at a snail's pace, so you'll just have to be patient.

The first step, which alone is sometimes successful in driving away jammers, is to educate your repeater group users on two things: don't respond, and don't jam the jammers. If you jump all over the guy and tell him what a clod he is, the predictable happens — it goes on and on. Then, out of frustration because it appears nothing is being done, it seems the only thing to do is to resort to jamming the jammers.

In the meantime, in an attempt to clear up the complaint, the FCC tracks down the interference and ends up citing the repeater user who is jamming the jammers. I know of two recent cases of this kind. People have lost their licenses for this.

The next step is finding out who they are. Sometimes you know, but in most cases you won't. The biggest thing the jammers have going for them is anonymity — you don't know who they are. If you can find out who they are, and let it be known that you know who they are, that might work and they'll go away.

Begin to gather as much data as you can as to what's going on. There's a lot of knowledge on the technical aspects of finding these people and finding them to the satisfaction of the U.S. Attorney. It's very important to keep records of what you're doing. Who is on the DF team that goes out, the kind of equipment they use, where did they start, where did they end up, what frequencies were being used, and the content of the jamming (coordinate the phone stations to tape it). You need as much information as possible to prove who was doing it, as well as the fact that they were doing it.

If you call the FCC at Livermore and report a jammer, they'll take down your name and other information you give them, and that's it. Nothing happens. We have had a number of discussions with Marty Brokoff, in charge of the San Francisco (California) FCC office, and he is quite candid.

"You guys are close to the bottom of the totem pole of our CC resources," he'll say. "You're supposed to be a self-policing service, after all, and we've got far greater problems with other services."

But if you come to them with a well-documented case, the kind of information I mentioned previously, they will act on that. Up until recently it was very frustrating, because even though you brought them information that clearly identified the culprit, they had to reinvent the wheel; they had to catch the person themselves. Sometimes they'd find him; sometimes they wouldn't. I am told that now, the Commission is beginning to accept volunteer data and will act on it without the need for catching the jammer themselves.

I want to again emphasize the importance of documenting everything you're doing and finding out. It is important to fill Marty Brokoff's file at the FCC office. A lot of complaints can be made by telephone calls to the FCC office, but Brokoff can say, look, I opened this file two years ago and there are but two pieces of paper in it. It can't be all that serious. Write letters; make that file as large as you can.

What happens when you're faced with an FCC guy who, certainly well-intentioned, doesn't have the resources to resort to our particular problem? You have a problem. You've done all the right things, you've kept all the records, you've gathered reliable data, you know who it is, and you turn to the Commission time after time and nothing happens. If you get to that point, there are two people's names you should remember. One is Chris Imlay and the other is Perry Williams. They are the guys who can put the heat on in the right places and get some action. The field guys take their directions from their bosses in Washington.

When you get someone on the Commission in Washington to call up your local field office and say, "Look, pay some attention to the such and such repeater problem," they will, but you've got to make sure that when that happens they have a good, comprehensive file already in their hands.

Another frustrating factor is that even when the FCC levies fines against jammers, there doesn't seem to be any action in collecting these fines by the U.S. Attorney. Sometimes the jammer stays on the air, with or without a license. There is a ray of hope in such cases, however.

Chris Imlay described pending legislation that would provide for increased criminal penalty for malicious interference. The U.S. Attorney could go directly against the offender without waiting for Commission license revocation proceedings. The FCC likes that bill, but it is still in draft form and has not yet been introduced. Tacked on is a provision for seizure of radio equipment of a licensed amateur based solely on a search warrant and information that the guy is a jammer. Senator Goldwater is interested in this too, and will prepare his own version in the Senate.

Present administrative procedures allow the FCC to seize equipment of unlicensed offenders, but the law is unclear on the seizure of licensed equipment. Licensed equipment is never seized until the FCC goes through all its administrative procedures. It will be interesting to see if the new law, allowing the U.S. Attorney to go directly after a licensed jammer, will actually be passed.

Kip added that it is important that one person be the liaison between your club or repeater group and the FCC office. Otherwise, there will be a lot of conflicting information going to the FCC.

Antenna ordinances and federal preemption

Chris Imlay brought us up to date on the big picture of fighting restrictive antenna ordinances. He said it is a dismal business, that courts don't seem to want to overturn local city or county zoning ordinances.

Recently, the state of New Jersey tried to license and put prohibitive restrictions on Satellite Master Antenna TV Systems such as serve hotels and apartment houses. The FCC came in and said, "No, sorry, you're restricting interstate communications, and we're preempting that regulation." The ARRL said that's a great idea. It's about time you applied that to Amateur Radio as well. The FCC said we understand you have these concerns, but yours is a different situation from that which we dealt with in the SMATV decision. Come in with your own request for a declaratory ruling and we'll deal with it on its merits. We did just that.

The Commission has now come out, asking for comments on this subject. You will be hearing a lot about it in the amateur press. It's dangerous because it's taking the offensive in asking the Commission to preempt. They could say no. And if they say no, every court in the United States could say even the FCC doesn't want to preempt local antenna ordinances. Why should we? This will give local government complete jurisdiction, and they will regulate our towers down to the ground.

This is going to require a lot of public comment, and you're going to have to do it. You can bet the municipalities are going to flood the Commission with comments, too. Our basic argument is that the regulations interfere with the reliable performance of our antennas. We don't want to take all the jurisdiction away from municipalities, but we want the FCC to say there are circumstances where the Commission is going to preempt local government and make it a matter of evidence for the amateur to prove he can not effectively operate with the restriction such as it is.

If the FCC is going to deregulate, we will have to make sure that local regulations don't fill in the gaps left by the federal government.

Multiple distribution systems

Chris Imlay was asked to comment on the situation where almost 10,000 amateurs in the San Francisco Bay area were experimenting on 2.3 GHz. They have been receiving mail from a local MDS company about the kind of dish antennas they have up in the air.

His response was, "If you have an amateur license, you have a legitimate right to have an antenna on your roof or tower. If it's cut for microwave frequencies, that's fine — you have microwave privileges. If you get a note from the local MDS company, saying 'you're unlawfully pirating our signals, and we're coming after you unless you pay us $300, and agree never to do this again and take your antenna down,' you're among this group just referred to.

The lawyers sitting up here don't care whether you're watching HBO or experimenting with your amateur license. The point is that the MDS companies are more than happy and willing to exclude amateurs from their "hit list" of people because you will establish to them you have an amateur licesne. They are willing to take you off their hit list if you send them a copy of your amateur license and explain that you are not receiving their service, and instead are operating your Amateur Radio in accordance with your license.

Ask them to take you off their list, "or will have to institute civil proceedings against you for defamation of character. Something friendly like that will usually result in their taking you off the list. (Laughter)

If you're actually receiving the service

(*please turn to page 14*)

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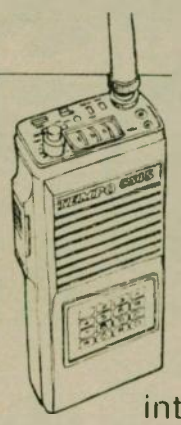

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14.100	KH6O/B	Honolulu, HI
14.100	OH2B	Espoo
14.100	W6WX/B	Stanford, CA
14.100	ZS6DN/B	Pretoria
14.100	4U1UN/B	New York
14.100	4X6TU/B	Tel Aviv
28.175	VE3TEN	Ottawa
28.200	*	common
28.202	ZS5VHF	Durban
28.205	DL0IGI	Mt. Predigtstuhl
28.207	W4	Florida
28.210	3B8MS	Mauritius
28.212	ZD9GI	Gough Island
28.215	GB3SX	Crowborough
28.217	VE2TEN	Chicoutimi, Quebec
28.220	5B4CY	Zyyi
28.222	HG2BHA	Tapolca
28.225	VE8AA	
28.230	ZL2MHF	Mt. Climie
28.235	VP9BA	Bermuda
28.237	LA5TEN	Oslo
28.237	ZS3HL	Tsumeb
28.240	OA4CK	Lima, Peru
28.242	ZS1CTB	Cape Town
28.245	A92C	Bahrain
28.247	EA2HB	San Sebastian
28.250	Z21ANB	Bulawayo
28.252	OH2	
28.252	VE7TEN	Vancouver, B.C.
28.257	DK0TE	EH26C Konstanz
28.260	VK5WI	Adelaide
28.262	VK2RSY	Dural
28.264	VK3RWA	Perth
28.265	VK	
28.266	VK6RTW	
28.270	VK	
28.270	ZS6PW	
28.272	9L1FTN	Freetown
28.275	VE3TEN	
28.277	DF0AAB	Kiel
28.280	YV5AYV	Caracas
28.282	W9	
28.284	KA1YE/B	Henrietta, NY
28.285	VP8ADE	Adelaide Island
28.287	H44SI	Solomon Is.
28.287	W8OMV	Tuckasegee, NC
28.290	VS6TEN	Mount Matilda
28.292	JA2	Mount Asama
28.295	VU2BCN	New Delhi
28.296	W3VD	Laurel, MD
28.302	ZS1STB	Still Bay, S.A.
28.312	ZS6DN	
28.888	W6IRT	N. Hollywood
28.894	WD9GOE	
28.992	DL0NF	FJ47A
50.005	H44HIR	Solomon Islands
50.010	ZS1STB	Still Bay, S.A.
50.010	ZS6STB	Verseniging
50.015	SZ2DH	Athens
50.020	GB3SIX	XN49E
50.025	ZS6SIX	Kempton Park
50.025	6Y5RC	Jamaica
50.030	ZS6PW	
50.035	ZB2VHF	XW64G
50.039	FY7THF	Fr. Guiana
50.041	WA8KGG	NE Ohio
50.050	GB3NHQ	ZL29C
50.060	ZS6DN/B	Pretoria
50.062	PY2AA	San Paulo
50.062	W3VD	Laurel, MD
50.075	VS6HK	Hong Kong

Legal Forum

(continued from page 12)

and they can prove it, you have a problem, because there are a number of district courts in the United States that have now held that individuals who are receiving any pay TV service without paying for it are subject to civil liability and damages to the MDS company. You're violating Section 605 of the Communications Act which provides that no one may receive and disclose radio communications which are not intende for use by the general public.

The commission has determined that MDS signals are common carrier and are non-broadcast. They are point-to-point and are intended only for providing service to paying customers, not for the use of the general public. The courts are willing to buy this, although it is based on a statute that was never intended to apply to this situation, and is basically outdated in the circumstances of today's technology.

It may not seem fair. It seems that the signals are coming into your house and you should have the right to receive them, but that's not what the statute says and that's not how it's determined by the courts, which are willing to protect the MDS business. □

Product Review

Kenwood TS-130

Dave Witt, KA9GVI

Strange to report on a 10-80-meter, SSB and CW, rig that has been on the market for several years, but have you checked the low prices lately? Just page through **Worldradio**. Prices can be found for new TS-130's under $550; and used, ranging $100 or $200 lower. Comparing the nine-band rig to others with similar coverage, the TS-130 can be purchased with all the necessary accessories at a cost that is still lower than the basic cost of many of the newer rigs now surfacing on today's market.

The TS-130 series of transceivers covers 80-10 meters, including the three new bands and all of 10 meters. It is very compact, with such standard features as digital display, VOX, RIT, IF shift and speech processor.

There are two basic types of 130's — low- and high-power.

The low-power model TS-130V is rated at 25 watts, with an actual input power of 10-15 watts, depending on the band. All features and operations are the same between the "V" model and its high-power brother. The only difference is the power and physical depth, as the large heatsink required for higher power is omitted.

This 25 watt version still has the same fine receiver as the higher power model. The maximum current draw is 4 amps, and Kenwood offers an optional PS-20 power supply in the same attractive color pattern.

The high-power model rated at 160 watts DC on CW has an input power of 80 to 100 watts, depending upon the band selected. It was initially offered with a fan on the final heatsink (Model S), then without a fan (Model SE), and finally, the current "SE" with a fan. The fan is almost a necessity, and it can be easily installed should you purchase a model without a fan.

Kenwood offers the PS-30 power supply to allow this model to be used as a home station. The "Off" and On" switch on the high-power model will control the power supply, and the PS-30 has a 5 amp auxiliary output on the back that can easily power a 25 watt, 2-meter rig.

Other than a power supply, the other most worthwhile additions are the filters for narrow band CW and SSB. The CW filter is a joy for even the casual CW contact, for — when in use — interference must be on the same operating frequency to cause QRM.

To operate the TS-130 is sheer pleasure with no-tune finals and a lack of useless controls. Facing the operator is one neat package, with the operator mainly exercising the volume, RF and tuning controls. Sideband (USB and LSB) and AVC time selection are an automatic function of the band and mode selected. The speech processor and noise blanker are either off or on with no adjustment required. The processor can be used continuously as it provides the extra punch without noticeable clipping. Adjustment of the power output is simple, by watching the built-in meter and adjusting the "ALC" for CW or "MIC GAIN" for phone.

I have used both the "S" and "V" models, fixed and mobile. No malfunctions or TVI complaints have been experienced. I did, however, take the precaution of using a Drake 1000 watt TVI filter with adequate grounding for operating at home. Contacts have been made with both low- and high-power all over the world using Delta loop and long-wire antennas.

My station accessories include CW filter 500HZ, PS-30, and AT-230 antenna tuner, Drake filter, and D-104 microphone. This makes for an extremely neat appearance, and the Kenwood gray colors match and blend perfectly.

True, there are many newer rigs on the market offering many other features, but if you are mainly interested in compactness, operating with a minimum of fuss and maximum value, the TS-130 is my choice. □

Product Review

'Stop-Scan' for Kenwood TS-430S

Craig Graham, KC9IY

I purchased a Kenwood TS-430 recently and have been extremely pleased with the operation of the rig with the exception of the scanning feature.

Whether you're in program or memory scan modes, the scanner does not stop on an active frequency. In the memory scan mode, it pauses for about one second on each channel and then continues on to the next one, whether the frequency is busy or not. In the program scan mode, it scans a band of frequencies between an upper and lower limit set by the operator. In this mode, it just sweeps right past a busy frequency without any delay.

Needless to say, this makes listening to a QSO in either mode very difficult because you only hear a maximum of one second or so of the transmission before it jumps on to the next channel, unless you're fast enough to hit the manual "hold" button.

At a local ham-swap, I saw the answer to my scanning problems. The JABCO company had a booth selling a PC board that stopped the scan whenever a signal broke the squelch, whether in program or memory scan mode, and it worked on AM, FM, CW and SSB too!

I bought the kit version, and after about 40 minutes of assembling and installing the kit, my Kenwood was scanning just like a police scanner. The kit came complete with illustrated instructions, and assembly was pretty simple.

There are only two IC's and a small handful of other parts that fit neatly on a 2″ × 2″ PC board. Adding a couple of IC sockets for the two IC's might not be a bad idea. Six wires connect the Stop-Scan to the 430S. Four of the wires plug down into the small PC sockets located on the top PC board in Kenwood (everything is located under the top cover of the 430S). Two of the wires are soldered to the trace side of the same PC board.

This doesn't involve any more effort than it takes to add an accessory filter, and although the Stop-Scan instructions are quite clear on where all the interconnecting wires go, the Kenwood manual also has very clear instructions on opening the top cover and gaining access to the trace side of the PC board on page 21. (Fig. 6-4 Filter disassembly detail)

Once the top PC board is flipped, the Stop-Scan instructions show where to solder the two wires with a drawing of the traces showing them soldered in place.

After about 40 minutes and a cup of coffee or two. I was installing the cover back on the 430S. JABCO makes no recommendations as to mounting the Stop-Scan PC board, but since it's so small, I simply taped it up and found one of several spaces to place it. It's pretty snug inside there, but there was ample room for the Stop-Scan and once the cover is on, it stays right in place.

The Stop-Scan works exactly as advertised and has performed flawlessly. It is completely automatic in operation (no on-off buttons to mess with) and requires absolutely no modifications to the Kenwood. Nice for the warranty! It is also well isolated from the 430S by using rather high value resistors in series with the line coming from the Kenwood.

The resume scan delay time is adjustable from about one second to about 10 seconds by a small PC-mounted pot. I usually have it sit at about two or three seconds. The stop action is controlled by the squelch circuit so that whenever the squelch breaks, the scan will stop.

It doesn't use anything from the audio circuit so that the AF gain (volume-controlled) can be set anywhere with no effect on the Stop-Scan. The PC board is well made, the instructions are clear, the Stop-Scan works, and now I have a complete dream rig!

The kit sells for $18.95, but we Indiana residents have to add 5 percent sales tax. The kit is available through JABCO, R1, Box 386, Alexandria, IN 46001. □

Book Review

For would-be amateurs

Amateur Radio, Super Hobby! Vince Luciani, K2VJ, New York, McGraw-Hill, 275 pages, paper, $9.95.

Subliminal Code Learning, Vince Luciani, K2VJ, P.O. Box 682, Cologne, NJ 08213. One cassette with instructions for use; $10.95 plus $1.50 postage and handling.

Vince Luciani, K2VJ, has many years of experience in radio, both as operator and as technician, and has successfully taught classes for aspiring amateurs. He has incorporated some of his experience in these two publications, in the hope they will help others. Neither of them is a course in itself; rather, they are both intended as aids to help students who are following courses composed by others, or studying on their own.

Amateur Radio, Super Hobby! is the kind of book you would give to someone who wants to know what it's all about, or to one who is about to embark on a course of study in preparation for a Novice Class license. While it does have many valuable tips for the student, its main thrust is inspirational, tells the student what to expect once the ticket is obtained, and how simple it is to obtain it — provided one will make the effort.

Chapters deal with various activities: DX, contests, ragchewing, traffic, repeaters, emergency preparedness, and selecting or building equipment; several of these are topics often neglected in beginners' literature. He also gives profiles of the amateur population, showing there is no age, sex, racial or cultural barrier; anyone who passes the test can join.

He includes more detailed chapters on several well-known amateurs, and others not so well known, beginning with his own son, Jim WA2JNN, followed by Senator Barry Goldwater, K7UGA, General Curtis Le May, W6EZV, and others.

Vince did allow a few errors to creep into the text, however. On page 33, discussing call signs, he says it was not until the 1930's that the FCC began issuing call signs with a prefix; before then W1AW was merely 1AW. Sorry, it began earlier than that — in the middle 1920's, to be exact.

When amateurs began working international DX, country indications became necessary and were adopted first informally, then officially by the international radio conference held in Washington, D.C., in 1927. They were put into effect by the Federal Radio Commission the following year.

Harry Kuhlemeier, W7WV, once told me about how he was first licensed in 1924 as 8BNU, then became u8BNU, nu8BNU, and finally W8BNU. Then in 1932, a few weeks before all licensing was transferred to the Washington office, Harry went to the 8th district office in Detroit and obtained the call W8HA.

On page 93, Vince gives some typical questions that might appear on a Novice examination. Number 9 reads: "What term describes the electric circuit failure that causes excessively high current? (a) open circuit; (b) dead circuit; (c) closed circuit; (d) short circuit." He lists (c) as the

correct answer, but it obviously should be (d). But that could be merely a typographical error.

The book is well printed, as one would expect of a large publisher such as McGraw-Hill, and the fact that such a publisher accepts it says something for the book's contents. It should serve as a source of inspiration and motivation for a new generation of amateurs.

A suggestion: donating a copy to your public library, with a note added about your Novice license class, could be a good investment for your club, and could well repay itself several times over by attracting new members.

Subliminal Code Learning is a cassette far different from code courses offered by others. It's not a course at all. Listening to it you won't hear any code at all, just soft music. But Vince assured me the code is really there, even though you can't pick it out, it works on your subconscious.

The idea is that you listen to the tape twice daily for the first week. Your ear is adjusting itself to recognize the code characters. The second week you listen to the tape once a day, then listen to a regular practice tape once a day without trying to copy it. The third week you listen to each tape daily, but try to copy the regular code tape. After that you practice in the usual way.

Does it work? I have no way to know. A real test would require two groups, one with the subliminal tape, the other with an imitation without the subliminal code, and see if the Luciani tape helps. It would be interesting. But if you're having trouble learning the code, it might help, and you might want to try without any such test to support its claims. — *Chuck Clark, K4ZN* □

The UHF Compendium

John Henry, KB7CH

The UHF Compendium, Parts 1 and 2, was written by Karl Weiner, DJ6HO, and others, and was translated by Paul Schmalenbach, DK7LF. It is a quarter-size paperback, 413 pages long, and is available from Ham Radio Magazine's Book Store for $28.95, plus $2.50 postage and handling.

Purpose

The Introduction states, "A compilation of building instructions to the home constructer and reference material for technical presentations . . .". This minimally introduces one to a book of instructions, projects, references and what really is state-of-the-art UHF (much applicable to VHF also) in central Europe by a group of German amateurs.

Physical aspects

The volume is massive, weighing 2.5 pounds on our home scales and is 8" × 11.5", by 1" thick. The cover has a color photo of a meteorological inversion from Rauschenberg hill, south of Munich. The cover and back are plasticized paper, the inside 413 pages are about 16 weight copy paper. The entire package is held together with four heavy-duty staples and binder tape.

Contents

An extensive table of contents keyed to sections and subsections makes location of individual references easy as the pages are paginated from 1 to 413, and also with the section and subsection markings — a nice touch. There is no index.

The first section — UHF Basics — presents briefly a course in inductance, capacitance and ohmic resistance in both wire and on printed circuit (microstripline) with formulas, charts and examples, which make the construction of UHF modules readily calculable. Though of vital importance, I have not run across a full explanation of these techniques in Amateur literature before.

There are 15 additional sections (chapters?) covering amplification, mixers, test equipment and its construction, filters, converter circuits, power amplifiers, transverters, aerials and more.

The diagrams and photos, which constitute an extensive portion of the volume, are models of clarity and quality. Several of the photos show a full understanding of the commercial technique of "painting with light," with which photos can be made superbly clear; such results can be obtained in only this way. Hardly a page in the volume does not contain one or more excellent diagrams or photos.

All this adds up to an extremely well-done and complete presentation of how things from 432 MHz through the UHF spectrum are done in Germany and central Europe, where much more of this activity has been going on than in the United States. I have only run across eight others on 432 SSB here in Arizona.

Negative aspects

These are the things I found that might be improved in the volume:

1) There is no index. This is my most severe criticism.

2) Staples and binder tape are used as binding. This I can live with, considering that it reduces the ultimate cost of the volume.

3) Those photos that had the original German on the negative were not translated. This I found a bit disconcerting at first. Upon examination, I found them usually quite understandable and amusing since they were in German Amateur jargon.

4) Components named were of types available in Europe. This may take some thought, but with the excellent descriptions and photos, proper U.S. substitutes should easily be found.

5) References are to German publications in the original language, in most cases. Here you may be stuck, so good luck with finding the references and reading them.

Conclusions

This is an outstanding effort, with exceptionally clear writing and a superb translation. It is by far and away the best illustrated Amateur publication I have ever seen. Its only close rival is *The*

VHF Handbook from the Radio Society of Great Britain.

This is **not** a volume for Novices. Of course, you don't run across Novices in the UHF spectrum. The writers take you by the hand and lead you through the projects in a most helpful way. This can save a lot of grief for even the experienced amateur, particularly one just entering the UHF spectrum.

Overall, I would recommend this as a most useful and valuable addition to the library of any person planning to deal with the UHF section of the spectrum. It is a fine example of German technical work, and is a model of quality and clarity.

The price is high enough to receive your full and undivided attention. Remember, commercial volumes of similar content in any technical field will run from two to four times this cost. This volume is quite inexpensive, considering its quality and content. □

Radio Communications Receivers

by Cornell Drentea

Here's a sourcebook that thoroughly explores the latest state-of-the-art in radio receivers . . . with plenty of practical guidance for constructing an actual receiver from design to packaging. Includes all the latest information on the superheterodyne, conversions, implementations, modern receivers, dynamic range, mixers, oscillators and automatic gain control. Plus, there's a wealth of data on signal processing problems that resemble radio processing, including signal mixing and the RF process.

Written for Amateur Radio enthusiasts, radio collectors and hobbyists, as well as for communications professionals and engineers, this book leads off with a brief history of receivers including information on the coherer, the first true radio receiver, the decoherer, practical coherer/decoherer receivers, the Galena crystal discovery, the audion and the regenerative receiver, and the tuned frequency receiver.

Single, multiple and direct conversions of the superheterodyne are fully discussed and there's plenty of practical data on image problems, selectivity, crystal filters, mechanical and ceramic filters, surface acoustic wave filters, and technological trade-offs in intermediate filters.

System design considerations for modern receivers are thoroughly documented with data on understanding intermodulation products used in receivers, design tools for predicting intermodulation distortion, how-to's for using computers to support product charts, and a system analysis for a general coverage communication receiver. Mixers are given equally complete coverage, including information on the diode mixer and the doubly balanced mixer, harmonic intermodulation of mixers, amplitude modulation noise suppression, conversion loss in diode mixers, two-tone intermodulation ratio, isolation in balanced diode mixers, plus facts on image rejection and image recovery mixers, and J-FET and IC mixers.

Phase lock synthesizers, the frequency synthesizer as a VFO, multiloop, direct, harmonic and the mixer PLL synthesizers are covered along with synthesizer pitfalls in communications receivers. Other topics include automatic gain control, assembly of the receiver and other equipment, packaging and mechanical consideration, an in-depth look at today's receiver technology and changes shaping up for the future.

Radio Communications Receivers is available in hardbound ($19.95) and paperback ($13.95) from TAB BOOKS Inc., Blue Ridge Summit, PA 17214. Order No. 1393.

(**About the author:** *An electrical engineer with over 12 years experience in the design and development of RF communications equipment, including synthesized communications and data and communications networks. Cornell Drentea lives in Minneapolis, Minnesota.)*

The TAB Handbook of Radio Communications

TAB BOOKS Inc. introduces *The TAB Handbook of Radio Communications*, by Joseph J. Carr, K4IPV. This 1,056-page volume sells for $45 hardbound and $28.95 paperback. For information on ordering, write to: TAB Books Inc., Blue Ridge Summit, PA 17214.

Here is the communications guide that will become the "bible" for amateurs and professionals alike! Much more than just another book about radio, it's the total information source on every aspect of radio communications, from the first "wireless" telegraphy to state-of-the-art microwave communications . . . *over 1,000 pages of vital, useful data!* This *giant* illustrated sourcebook belongs on *every* radio workbench!

It's a complete, self-contained course in basic electricity and electronics. It's an ideal study guide for anyone preparing for amateur or commercial radio operators' licenses. It's also a detailed examination of radio receivers and transmitters, operation modes, the fundamentals of radio wave propagation, transmission lines, antenna matching and tuning. Even RTTY and television basics are covered. And best of all, the author has presented this wealth of invaluable material in easy-to-follow plain English, using non-technical language whenever possible.

Leading off with a look at the basic building blocks of physical science, the author brings the world of electronic circuits into practical focus — from resistors, capacitors and batteries to magnetism, electro-magnetism and alternating current. Amplifiers, filter circuits, transistors and semi-conductors, oscillators, power supplies and digital electronics are clearly explained.

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(**About the author:** *Joseph J. Carr, K4IPV, holds a Master of Science in electrical engineering from George Washington University and is employed as an electronics engineer. He has written numerous books on electronics and Amateur Radio topics for TAB, including* ***Antenna Data Reference Manual — including dimension tables,*** *and* ***The Complete Handbook of Radio Receivers.*** *He lives in Arlington, Virginia.)* □

Jeff Gornstein, KD2BE, operating station W1AW

Teen ham cyclist handles traffic

Last August, Jeffrey Gornstein, KD2BE, was one of 14 teenagers who spent three weeks touring Cape Cod, Nantucket, Martha's Vineyard, New Bedford, and Plymouth, Massachusetts. Traveling in a different style than most people, the group was participating in an organized bicycle touring program.

Packing a 2-meter handi-talkie along with 50 pounds of luggage, Jeff operated in his spare time from beaches, campgrounds, laundromats and hostels. An active traffic handler back home, Jeff explained the radiogram procedure to the group members and helped them originate traffic to their homes in such places as New York City; Newport, Rhode Island; Quebec, Canada; Chicago, Illinois; and Tucson, Arizona.

Even though many of the messages were written on small pieces of scrap paper and sent from inside a tent with a flashlight, all outgoing traffic moved smoothly with the outstanding help of the Cape and Islands 2-Meter Traffic Net. Not being able to key the net repeater for almost a week from the islands, special arrangements were made to meet NTS liaisons on other local repeaters.

Despite handling instructions for delivering stations to get a reply from the addressee and originate traffic back, few incoming messages were received. Needless to say, the incoming traffic that was received thoroughly impressed the group of the wonderful capabilities of Amateur Radio!

(Notes about author: Jeff Gornstein, KD2BE, is an Extra Class licensee residing in Springfield, New Jersey. Jeff is in his junior year of high school and enjoys bicycling. He is active on HF VHF and is an OES, ORS and EC, and is involved in ARES and RACES.) □

Tom O'Hara, W6ORG, of P.C. Electronics, demonstrated the fun you can have with amateur television.

Anita and Bill Talanian, W1UUQ/6 with Don Riebhoff, N7ZZ. Don, of Spratly Island DXpedition fame, just finished a tour in the U.S. Embassy in Iraq. Next assignment is Portugal.

Iris (W6QL) and Lloyd (K6KG) Colvin, told about DX'ing from all parts of the world, including wandering around in Nigeria during a war.

Southwestern Division Convention

The 13th and 14th of October saw Santa Maria, California wondering why so many cars in town had antennas sticking out of them.

Well, a lot of amateurs were gathering for the fun and fellowship that are part and parcel of a convention.

The seminars covered such topics as: Antennas that keep the landlord happy; Should I let my computer marry my radio; Reducing TVI and VCR RFI; Amateur Radio and digital satellites; Amateur Radio and the law; Designing and producing your own PC boards; The future of the amateur satellite program; Amateur Radio in space; The volunteer examiner program; and forums on DX, contesting and ARRL. And naturally, there was the "flea market".

Various groups had their special-interest breakfasts, licensing tests were given, and one could wander around taking in all the exhibits — a "wish-book" come to life.

Many of the leading lights such as Don Wallace, W6AM, of rhombic farm fame, perennial contest winner Jim Rafferty, N6RJ, and a raft of others were on hand.

Next year's Southwestern Division Convention will be held on the *Queen Mary*, in Long Beach, California, 11-13 August. — *N6WR* □

(More pictures on page 56.)

Mike Lamb, N7ML, demonstrates the spectacular "Doctor DX". Later, famed contest operator Chip Margelli, K7JA, operated the totally realistic contest machine and drew a massive crowd admiring a true musician at work.

The well-known Mert Moser, W6HS. That's who sends you your Pitcairn Island QSL's. Mert also runs the fund-raising project to keep VR6TC in fuel for the generator which powers the station.

One of the most popular figures in Amateur Radio, Herb Johnson, W6QKI, explained his new products which are shortened 80-meter and 40-meter slopers.

A man who did a *LOT* of work, convention chairman Ernie Kapphahn, WB6HJW.

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DON'S CORNER

Boy, we ran out of space in a hurry on this ad. We still had a bunch of RTTY items to list. If you don't see what you are looking for, give us a call. Looking for a neat accessory for the station? You must try the HEIL SS-2 powered speaker; that toy works GREAT. TRY IT! Til next month, 73

Handicapped? Ha!

Nick Peterson, NG7V

25 May 1982. I can remember it was a bright sunny day. I was having some serious problems walking and was also having severe pain in my left leg. I immediately consulted an orthopedic surgeon, who informed me that I had a problem which could only be remedied by performing a fusion.

On 24 June 1982, I underwent a five-hour operation which caused several complications. For the first four days after surgery, my right arm was totally paralyzed. Six days after surgery, the hospital staff had me up trying to walk and I collapsed. When I awoke, I had to have two emergency transfusions. Finally, I was discharged for three months. I had severe difficulty in walking during this period.

After reading one of the Amateur Radio communications magazines, I decided to obtain my Novice license. At this point in time, not being able to walk, I would sit on the couch on two pillows, with two pillows behind me, and listen to code tapes and study theory. I received my Novice license on 15 September 1982 and became KA7OIX.

While I was waiting for my Novice license to arrive, I began to study for my Technician Class license. On 23 September 1982, I received my Technician license and became N7EPM.

At this time, I had an HF station set-up. To operate it, I would have to sit on two pillows with two pillows behind my back. I was so determined to get my General Class license that I would sit at the radio just as long as the pain would allow and then go lie down. To build my copy speed, I had over 600 QSO's in 28 days to finally achieve my General Class on 17 December 1982.

Nick Peterson, NG7V, manager of Two Way Talk Shop

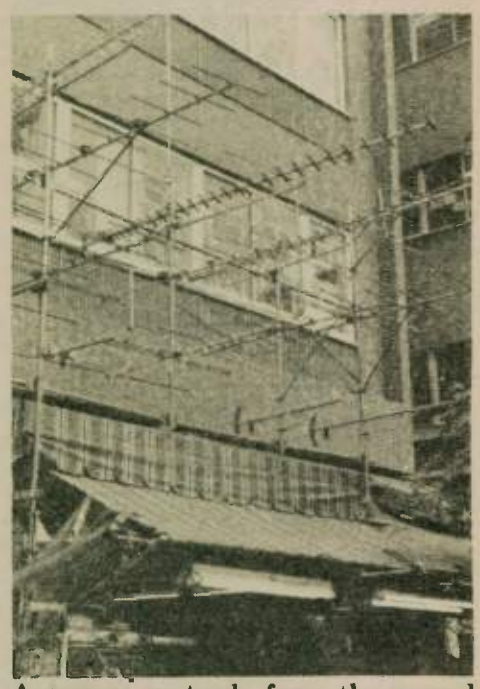
On 01 January 1983, I was admitted back into the hospital for six days and was put on morphine every three hours around the clock. Upon release, I spent two weeks in a body cast. All of this to no avail. My medical bills were going up, and it finally got to the point where I had to sell my entire HF station so we would have some money for food.

By August 1983, I could not walk at all. I consulted a specialist in Tacoma, Washington who found, after x-rays, that my entire lower spine was gone due to fusion being out of alignment. I lost three discs, and a major nerve had been sealed up in the first fusion.

After 12 hours of surgery, I was able to walk to some extent. I was discharged on 01 September 1983, at which time I decided to go for my Advanced license. On 23 September 1983, I became KD7QC, where I stayed until January 1984. I then decided to try for my Extra Class. On 27 February 1984, I upgraded to NG7V.

Since that point in time, I have been permanently confined to a wheelchair. I am still very active in Amateur Radio, even though I still have not been able to purchase an HF station, but I now manage the Two Way Talk Shop, Inc. and with the help of my Assistant Manager Rick LaFrance, we are very active in sales and service of Amateur Radio equipment.

I would very much like to hear from anyone who feels they cannot upgrade for some reason, or has a handicap which they feel might prevent them from getting their Novice license. You can call me at (1-206) 479-9736 COLLECT. □



Antennas protrude from the second floor of this building, in which an Amateur Radio store is located. Location is Akihabara in Tokyo, Japan. ***(K6WK photo)***

OFF THE AIR

Modification info needed

I'd like to have information on MARS and 8 to 16-memory modifications on Kenwood 930S. Thanks very much.

JOE UEBELHER, KF4XC
2938 Shoreward Ave.
Orange Park, FL 32073 □

School address needed

When I was at the Ohio Belles' meeting at the Findlay, Ohio hamfest, they said you can get free tapes for the blind (to prepare for license tests) from Hadley School for the Blind.

What is the address for this school?

MILDRED ROBERTS
714 Poinsettia
Sebring, IL 33870 □

Don't forget 10 meters

With the decline of sunspot activity depressing many DX'ers, 10 meters is often thought of as the *last* place to be, especially if all of the published propagation charts are thought to be correct these days. But you might recall being told as a Novice that often when a band *seems* closed, it could be that nobody's transmitting and making an effort to use the limited band openings that often exist.

An answer to this is to monitor some of the several beacons operating worldwide. These operate from 24 hours a day to very sporadically. Writing the station, even if not heard, will usually result in finding out its operating schedule, and may encourage its operation over longer hours or consistent schedules like weekends. Often, monitoring that frequency with a beam will give you a good indication that your signal will get back to that region.

Typically, beacons send a brief recorded CW message, including QTH and QSL information. Many times, frequencies adjacent to beacons are excellent DX calling frequencies or DX "windows" when bands are open.

We are in need of any stations — especially DX — to continue operations of beacons they have operated in the past, or for new stations to plan to operate them as much as possible. I've recently worked DX stations that say they often hear 10-meter stateside QSO's, as well as the QRM on 11 meters. Too often it's more of the latter!

As some might recall, Norm Lefcourt, W6IRT, in Hollywood, California ran his 7 watt CW beacon continuously on 28.888 MHz for about two years and received lots of QSL's worldwide from DX stations who regularly copied his QRP beacon.

For stateside stations, operating a beacon has been greatly simplified by the FCC. See sections 97.87 and 97.88 for the latest rules to comply with. No special authorization is needed! You mainly need to set up your station with part 97 regulations with a memory keyer, and lower power would be recommended. Groundplane verticals like modified CB antennas are effective if mounted high, and beams can be used to target regions of interest.

Enclosed is a list of some current 10-meter beacons to listen for. If any others are known on 10 or other bands, please notify John Mahagan, WB4JHS, at 333-8-U.V.S. Gainesville, FL 32603; (904) 377-9595.

With some patience, 10 meters can be an exciting DX band, and operating a beacon can lead to many a surprising QSL found in your post office box!

JOHN MAHAGAN, WB4JHS
Gainesville, Florida □

Special Events

The Mayflower Event

The Sidmouth Amateur Radio Society in Devon, England, is finalising its special event station, GB2UST, in the astronomical observatory 200 feet above the town, which is set in the heart of Devon's Sir Walter Ralegh* country. For the fourth year, the UK will join in a hands-across-the-sea commemoration of Thanksgiving on 22 November.

The U.S. station, WA1NPO, will be located in Plimoth* Plantation, a living history museum near Plymouth, Massachusetts.

WA1NPO will be looking for calls from any UK station, and is offering an attractive certificate featuring the *Mayflower* for confirmed contacts. GB2UST will be calling for stateside contacts on 20M and 15M, for which a special QSL card will be available, and they will also be carrying publicity for the event on 80M and 40M, inter-UK, throughout the day, under the call signs GB4UST and GB0UST.

The 20M and 15M operating schedule will be: 14180 or 14255 kHz SSB from 1300 to 1400; 14180 kHz CW from 1400 to 1500; 14180 or 14255 kHz SSB from 1500 to 1600; 14345 kHz SSB from 1600 to 2000. On 15M: 21260 kHz SSB from 1300 to 1430, and 21385 kHz SSB from 1700 to 2000. *All times GMT.*

Amateurs on both sides of the Atlantic are cordially invited to call in and make this year's Mayflower Event the best yet. (*Both spellings are authentic.)

— Peter Jackson, G3ADV □

Santa Claus, Indiana

The Pike County ARC of Winslow, Indiana will operate station W9CZH from Santa Claus, Indiana from 1700Z, 01 December, to 1700Z, 02 December. The frequencies will be: 3.925, 7.265, 14.265, 21.395 Phone; 7.133 CW; and 146.52 FM. All frequencies approximate.

A special QSL/Christmas card postmarked from the Santa Claus post office will be sent upon receipt of an SASE to W9CZH, RR1 Box 311, Winslow, IN 47598. □

Christmas, Florida

The Coronado Wireless will operate the 5th annual special event station at Christmas, Florida on 15 and 16 December. This special event will run from 1400Z until 2200Z, with the call K4HML. The frequency will be up 5 kHz from the lower end of the General band.

QSL for a large size SASE to: Duane Van Winkle, K4HML, P.O. Box 1, Edgewater, FL 32033. We would enjoy your QSL also. □

Christmas City USA

The Delaware-Lehigh ARC (W3OK) in conjunction with the Christmas City — Bethlehem, Pennsylvania — will, in order to extend to the world the hand of good will as an expression of the warmth of the season to all, will operate 21-23 December 1500Z-0200Z on the following frequencies: 3.990, 7.299, 14.225, 21.325 and 28.525 MHz.

Send large SASE for a colorful certificate of contact, via DLARC W3OK, Greystone Building, Gracedale, Nazareth, PA 18064. □

'Pow-Wow Days'

The Victor Valley Amateur Radio Club assisted at the annual Apple Valley (California) "Pow-Wow Days" parade, on 15 September. With 103 entries, this was the biggest and best parade ever.

Club members helping were: Dick Carmody, WD6CHR; Diz (K5EDS) and Joyce (KB6BLD) Price; Tom Cole, K6EPS; Harvey Renfeldt, W6FHY; Dave N6KNA; and Ray Hughes, WA6ICA.

The parade stepped off right on time, and ran smoothly through the total length of 1½ miles, largely due to the efforts of the above mentioned amateurs.

— Dick Carmody, WD6CHR □

Midwest Threshers Reunion

Dave Schneider, WD0ENR

Many Amateur Radio operators joined nearly 200,000 in attendance at the 35th Annual Midwest Old Threshers Reunion in Mt. Pleasant, Iowa from 30 August to 03 September.

This event, which takes place on over 40 acres of land, featured hundreds of antique tractors and cars, steam and gas engines, a narrow-gauge railroad, electric trolley car system, large flea market, craft demonstrations, entertainment, and much more.

Members of the Mt. Pleasant Amateur Radio Club manned a ham shack on the grounds with 131 amateurs from 16 states signing the guest book. In addition, special event station W0MME provided over 200 contacts on 75, 40, 20, 2 meters and 70cm, as well as providing communications on the grounds and message handling. Those working with this were Gary McMeins, N0FIB; Bill Barber, KA0BTE; Don Campbell, W0SWY; Dave Schneider, WD0ENR; and Van Fisher, KA9HVZ.

Numerous amateurs, many from throughout the country, were part of Old Threshers, such as craft demonstrators Priscilla Novotny, WB5FBK, of Deming, New Mexico with dolls, and Jim Willingham, K0ARS, of Bevier, Missouri, copper work.

There was also a gas engine display by Paul Kesselring, K0JGI; Randy Balzer, N0AEF, antique tractors; Mike Folta, WB0GOA, gas engine; Pete Buyaki, K5GV, working as a trolley car conductor; Fenton Powell, W0ARD, demonstrations of large diesel engines; and Scott Augsburger, WD0AQC, working with the narrow-gauge railroad.

Paul Heaberlin, K0KMP, served as an official photographer: Wilbur Sater, K0CRG, installed several public address systems; Steve Pacha, K0JWO, and Don Carlson, KA0EPA, dealt with events using horses, while Dave Ruby, KA0FBL, and Fred Neff, KA0PMW, were on the security team.

There was a good number of amateurs camping in the adjacent campgrounds, some stringing up dipoles between their campers. Many visiting amateurs wore their call letter pins and caps, and most carried their 2-meter hand-helds.

Even though Amateur Radio was just a small part of this huge event, it was very much in evidence throughout the grounds. □

Cool? You bet! But these men were actually taking advantage of the break in the weather in Appleton, Wisconsin. Standing at 65 feet are Gary Van Ryzin, KB9XG (right) and Dave Baldridge, N9BMS. The temperature? -10 degrees F with 20 mph winds.

PUBLIC SERVICE

Operation Santa Claus

Paul Wert, W6AOP

What does Operation Santa Claus mean to me? When asked that question, the first thing I think of is the Christmas we covered 30 hospitals, when Santa Claus talked to 551 children. We had 92 volunteers who said they would help us with the program. Then, when reality set in, the frustrations started. Out of the 92 people, only 58 would commit themselves, and when we started to schedule the hospitals, only 42 people participated. Scheduling the hospitals was a chore in itself, and with only 42 people I had to ask some of the hospital teams to cover more than one hospital.

While all of this was going on, I had to prepare the North Pole. I wanted sound effects such as the North Wind, the sound of reindeer and a toy shop. I had a record with these sounds on it, but the wind sound lasted only 19 seconds, the reindeer 17 seconds, and the toy shop 21 seconds and I wanted 30-minute tapes of each of these sounds. It wouldn't take much to figure out the hours I spent on this project.

My wife, bless her heart, held the ladder while I climbed to the roof to install two additional antennas. I used three transmitters — one for Santa Claus with the sound effects, one for the base station, and one as a backup and to coordinate the hospital teams with Santa Claus.

Here I am feeling sorry for myself, and I haven't given a thought to the work the hospital teams were doing — getting their equipment ready, going to the hospitals to check out the location.

Then I thought of my very first assignment. I went to the Methodist Hospital in Arcadia. There were only five children at that time, but afterward, when I had both hands full of equipment and started to leave, a young lady with a 4-year-old child in her arms stopped me. She said, "Lisa wants to say something to you." Before I knew what was happening, this little girl put her arms around my neck, kissed me and said, "Thank you, Santa Claus."

I was so choked up, I couldn't speak. I tried to say something but couldn't. I managed to nod my head and Lisa smiled and waved her hand goodbye; then her mother took her back to the ward.

When I got home, I told my wife about Lisa. My wife bought a little doll, and we went back to the hospital two days before Christmas, only to find out that Lisa had passed away the day before. Now, when I think of all the work that goes into Operation Santa Claus, I think of Lisa and all the other Lisas confined to hospitals at Christmas time, and then everything falls into its proper perspective. That makes it all worthwhile.

Please sign up this year as a volunteer. You will be glad you did.

— Mt. Wilson Repeater Assn., CA □

Run To The Sun

The Valley Isle Road Runners, sponsor of the annual Run To The Sun, again asked Maui County ARES to assist with public safety communications on 05 August.

The Run To The Sun is a 36.2-mile ultra marathon that begins at sea level at the Maui Mall shopping center in Kahului, and ends at the 10,023 ft. summit of Maui's Mount Haleakala.

The race began before dawn at 5:30 a.m., with Bill Heyde, KH6UU; Gary Fuchikami, WH6C; and Bruce Hughes, KH6HA, providing mobile communications between the course marshall, race director and aid station director respectively.

Courtland Trist, KH6MX; Wesley Herr, AH6DV; Dave Judd, NH6H, and Terry Clayton, KH6SQ, provided communications for selected aid stations above 3,000 ft. elevation. In addition to providing aid station communications, Melvin Fukunaga, KH6H, was stationed at Haleakala National Park headquarters, and provided liaison with the National Park rangers. Dave Clothier, AH6EE, performed similar duties at the summit finish line.

Les Hieda, AH6AM, relayed finishing times from the summit of Mount Haleakala to Ken Dorland, NH6O, and Randall Sherman, KH6MD, at race headquarters on the campus of Seabury Hall in Makawao.

As the race neared its end, KH6UU picked up a runner who had apparently become dehydrated. A call was made to KH6H at Haleakala National Park headquarters, who they relayed information to the course doctor via the park service radio system. KH6SQ, who was stationed at the 8,000 ft. level, also assisted by relaying medical advice from a doctor who was at his aid station. Thus, officials were able to administer first aid to the downed runner before he was taken to the medical tent at the finish line.

All mobile and aid station communications took place on the 146.16/.76 KH6HHG repeater located near sea level, while the KH6H 147.63/.03 repeater near the summit of Mount Haleakala was used to relay finishing times.

The 1984 Run To The Sun was officially closed at 3:30 p.m., after over 150 runners had completed the grueling course.

— Melvin Fukunaga, KH6H □

Bicycling across Iowa

The Mount Pleasant, Iowa ARC, along with other amateurs across the state of Iowa, provided message handling for nearly 8,000 bicycle riders participating in RAGBRAI XII — the Des Moines Register's Annual Great Bike Ride Across Iowa, 21-28 July.

An Amateur Radio station was set up at each of the seven host communities along the 474-mile route: Glenwood, Shenandoah, Creston, Adel, Pella, Ottumwa, Mt. Pleasant and Burlington. The riders, who were from not only Iowa but all parts of the nation and several foreign countries, sent messages to family and friends back home. For many, it was their first exposure to this facet of Amateur Radio.

Over 1,500 messages were generated from this effort, both outgoing from the riders and incoming to the bikers. It was enough to keep the state's traffic handlers busy all week.

Traveling by car along with the riders was Iowa Section Public Information Officer Larry Kebel, KBØZP. He handled much of the incoming traffic and saw that the entire operation ran smoothly. Also working with the project was Bob McCaffrey, KØCY, Section Communication Manager, and Mary Ann Lenth KAØX, Section Traffic Manager.

Those who helped with the Mt. Pleasant operation were Bill Barber, KAØBTE; Dave Schneider, WDØENR; Dean Frish, WØQJF; Gary McMeins, NØFIB; Mike Johnson, WBØSWQ; Dave Van Gorkom, WØOAM; Rowland Rees, WBØECR; Floyd Reif, KØVJO; Randy Balzer, NØAEF; Dan Harland, KAØJHL; Jeff Westbrooks, KAØEIW; Dick Ward, KAØNSW; and Larry Newby, WBØBHF.

— Dave Schneider, WDØENR □

Help Illinois veterans

Jack Bell, N9AQB

This information has been gathered by a recent visit to the Hines Veterans Hospital by the following members of Hamfesters Radio Club: Ed Sala, N9BRV; Will Glime, N9BFK; and George Gruenthaler, K9PBN. The purpose of the visit was to talk with John Crisman, N9BHQ, who is the Assistant Director of Hines. We also met Walter Schaeffer the Recreational Director.

We were escorted to the radio room where we met Crisman, and I must say at the outset that he was very enthusiastic about starting a radio station and having it run by the patients. He told us that if they could show the government they had emergency capabilities, they could probably get money from the government for equipment. His purpose is to get the patients interested enough to run the station, thereby giving them some incentive to occupy themselves.

They have some old equipment, but would like some newer equipment to induce greater interest. Some of the older rigs will be given to the patients who are sent home, so they may continue to enjoy Amateur Radio.

Crisman has started a committee headed by a doctor who is an Amateur Radio operator. The committee will be made up of members from the hospital staff from various departments, who will be able to determine what will be needed in the station so the patients will be able to use the equipment.

The hospital engineering department will do the construction and set-up. However, what is needed from the Hamfesters Radio Club is volunteers to install the radios and make sure they are working. Crisman has requested that a club member also be on the committee to inform them as to what the club can or cannot do to help them.

The immediate need from the club is to provide teachers. There is no one presently teaching the patients, and they would like to get started as soon as possible. This would give the patients some incentive and allow them to provide future teachers from their own ranks.

Crisman indicated that there is plenty of room for a tower and various wire antennas. He also said the tower must be at least 90 feet high because there is a diathermy room close by, and the antenna must be above that to prevent interference.

At the present time, there are only two radios there. One is a 2-meter rig and the other is a low-band rig, donated by one of our members. Crisman is looking forward to the day when they will have four or five hand-helds to loan out to the patients. This would allow some of the other patients in the hospital to see Amateur Radio in operation.

Some final notes: Crisman was very enthusiastic, as I have said, and would like the club to gather as many members as can be assembled and hold a meeting at the hospital so the patients can see what it's like.

The visit was not a long one, but it provided some information as to what we can do as a club to help the patients there. I believe this is a worthy project, and deserves our attention and thought. If we (as a club) can provide the necessary people to help them, I say let's do it. I believe it will take commitment from many club members, as well as time and continued support. All of us must be ready to help.

— Hamfesters RC, Chicago, IL □

Need filled by Salem hospital

Most people would call Charlie MacPherson, KS1C, an electronic technician because of his job and interest in the subject, but there is at least one doctor who is more likely to call MacPherson an electronic magician.

MacPherson — of Lynn, Massachusetts — spends his days repairing, trouble-shooting and creating electronic equipment for Beverly Hospital, then goes home and spends his evenings using electronics to communicate with other Amateur Radio operators around the world.

And because of this hobby, Dr. Stanley M. Godshall and the Shirati Hospital in Tanzania, will receive a needed piece of medical equipment, gratis, from Beverly Hospital.

MacPherson, an employee of the clinical engineering department at Beverly, got his Novice license from the FCC in April 1980. Now, MacPherson holds an Extra Class license.

His "meeting," as he calls it, with Dr. Godshall, 5H3SG, formerly of Lancaster, Pennsylvania, happened as many do — by chance.

"I first talked to him (in June), and he said he was a doctor in Tanzania and we just got to gabbing," MacPherson said.

"I told him I worked in a hospital and he mentioned he needed a spectrophotometer to diagnose renal (kidney) failure to use with a dialysis machine someone had donated. I asked around the hospital and found we had one we could donate," he said.

He also plans to donate a microscope of his own ("it was just collecting dust in a closet") to send the hospital, located along Lake Victoria in northwest Tanzania.

To help him get through proper channels at Beverly Hospital, Dr. Godshall sent a letter explaining his hospital and its history, which began as an outgrowth of Mennonite missionary work in the Mara Region.

"The missionaries arrived in 1934 and the hospital began in the late 1940's," the letter reads. "In 1960, it was turned over to the Tanzania Mennonite Church and is an institution run by the church with some assistance from North America in the form of personnel.

"In 1970, the hospital was renovated and expanded with an aid grant from the people of Germany to its present form. We now have 120 beds — 30 men's ward, 30 women's ward, 20 children's and 40 maternity, plus a 30-bed leprosarium."

Dr. Godshall explained the hospital is a private, voluntary agency, although it is subsidized by the government. Its address is Shirati Hospital, Private Bag, Musoma, Tanzania.

He said the hospital gets limited electricity through a diesel generator, still uses kerosene for some lighting, and pumps water from Lake Victoria two miles away.

MacPherson said he took the letter and his request to Community Relations Director John L. Good, who brought the request to the hospital management which gave it approval.

The machine, if purchased now, would cost about $1,350, MacPherson said, but has been replaced in most hospitals by more sophisticated equipment. At Beverly, it would probably never have been used again, only being kept as a third backup.

"This has been replaced by a better device," MacPherson said, "but for his purposes, this thing is gold."

MacPherson said he also asked the doctor if he needed any cardiac monitors. "He said no, there's no heart disease there."

Good said he was also asking around the hospital to see if other, unused equipment may be sent to the Tanzania facility.

In the meantime, MacPherson is readying the spectrophotometer and instructions for the journey to East Africa, which will be shipped by the Pennsylvania church which sent Dr. Godshall to Tanzania. The trip is expected to take one year.

— Salem, Massachusetts, Evening News; Jo Stewart Lennox; submitted by Marguerite Moran, KA1HVC □

Amateurs active after train/tanker crash

With the memory of Carolina tornados still quite vivid, South Carolina radio amateurs again responded to their public service obligation on Wednesday, 11 July, about 0730. An Amtrak passenger train and a truck tanker loaded with fuel collided and caught fire, dangerously close to the center of McBee, South Carolina, in Chesterfield County.

Radio amateurs working in concert with state and local emergency preparedness teams, rescue squads and fire companies sprang into action. Dillon's NN4N repeater became active with conversation about the situation. One listener — Betty Walker, wife of the South Carolina Section Manager, contacted her husband, Jimmy WD4HLZ, who in turn contacted several area hams to be on standby status to provide assistance.

Already at work on the situation was Jack Peguees (pa-geez), KA4ABW, Emergency Coordinator of Chesterfield County, who — working closely with local, county and state personnel — was getting the emergency operations center manned by Tom Freeman, KF4AK. Meanwhile, some of McBee's residents, all train passengers and their baggage were hurriedly evacuated to the McBee school, which served as a temporary shelter.

Other amateurs who provided first-line communications from the shelter and elsewhere in the emergency area included AA4CB; Charles Maxwell, WA4QOY; John Williams, WB4RAM; and WB4WEY. *— John Miller, W0IKT* □

Weather watches and hams

The most severe weather system in the 10-year history of the Lincoln ARC spotters service occurred in the late afternoon and evening of 12 June. An intense storm with damaging winds, large hail and multiple funnel spottings slowly passed through Lancaster County, Nebraska, causing activation of the spotters net, for a record five-hour watch.

Before the storm had passed, flash flooding from torrential rains had occurred throughout the area. Post-storm estimates put damage in the county alone at nearly $1 million.

These five hours proved the worth of the training and organization of the spotters network. Thirty-nine amateurs participated.

•

Two days later, 36 spotters from LARC were called out at 7:10 p.m., following reports of a squall line west of the county moving to the east. Spotters were deployed, but the storm dissipated and the net closed at 8:30 p.m.

•

At 4:30 p.m. on Sunday, 17 June, an afternoon weather net was started by Reynolds Davis, K0GND, in order to watch a growing front in eastern Nebraska that developed several funnel sightings. Larry Bymer, N0AJQ, took over as NCS and continued the flow of information that was relayed into the National Weather Service's North Omaha station, through the Aksarben ARC, W0EQU operation.

Twelve amateurs participated. — *Reynolds Davis, K0GND* □

Thanks offered to WPSS

The Western Public Service System (WPSS) received this letter from Michael Mideke, WB6EER, regarding emergency traffic passed on our net.

Jim Moody, KB6ZO
Campbell, California

Dear Jim,

Members of the WPSS requested that I send you a written statement re WPSS involvement in the search and rescue operation I initiated via WPSS at approximately 1930 PDT on 30 May 1984. So, here it is:

I wish to thank the net for your assistance and patience during a difficult crisis. Thanks especially to Bill Rudd, W6LIO, and others for their help in contacting the Monterey County Sheriff's office and in relaying sufficient information to that office to initiate search for a 10-year-old boy who had strayed from his hiking party in the rugged coastal mountains of southwest Monterey County.

Myself, the boy's teacher, members of the Monterey Search and Rescue unit and my neighbor, Paul Rivers, were in the field throughout the night of 30-31 May.

After about 13 hours of solo search, Rivers found the boy in good condition. (The lost child did not panic — he stayed put, had a long night's sleep and was reading a book when Paul found him!) A two-hour walk brought them to Rivers' home, and I was alerted by CB.

After several attempts to obtain assistance on 40 meters, I contacted Richard Dewey, K6HMG, in the Pasadena area. K6HMG was willing to make a long-distance call, so within 11 minutes of my notification by Rivers, the ongoing helicopter search was cancelled and the copter was directed to my location, simultaneous with Rivers' delivery of the boy. The boy was flown to Fort Ord, where he was reunited with his mother.

All aspects of the back-country operation were complete by 1130 PDT on 31 May.

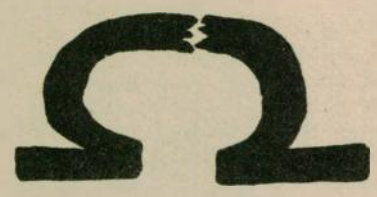
I realize that many of the stations involved in this operation probably did not understand that my QTH is an hour's very hard traveling from the nearest telephone. In emergencies, my dependence on radio is complete, so your help is especially appreciated.

MICHAEL MIDEKE, WB6EER
San Simeon, California

— Llona Raftery, NJ6M, WPSS Secretary

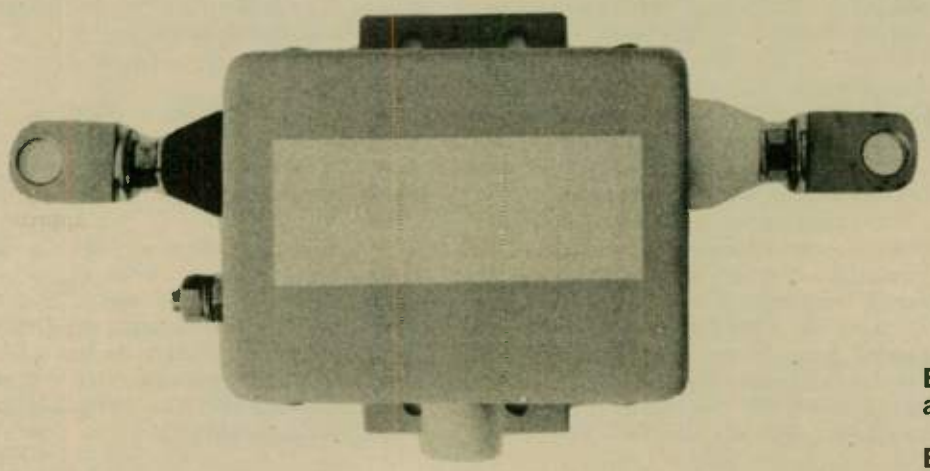
Ohm-Brew

James B. Pemberton, KA7FCN, of Grants Pass, Oregon, wins this month's Station Appearance award. If you're stumped for the answer, see page 55.



All "Ohm-Brew" entries should be neatly drawn on 3" × 5" cards, for easy handling. On the backs of the cards, print or type your name, address and call sign. Entries not used will not be acknowledged, due to the volume of entries received. □

SPACE AGE ANTENNA TECHNOLOGY



Wide-Band Instant Antenna Tuner

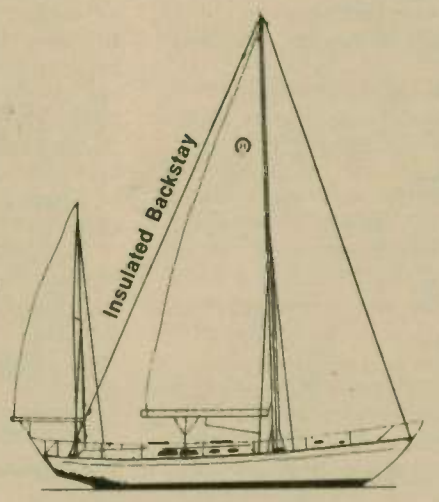
Eliminate the complexity and expense associated with conventional automatic antenna tuners.

Eliminate tuning time and interference associated with manual tuning.

Compact size, lightweight, weatherproof, passive, wide band, instant response, low SWR, high power.

"THIS IS IT"

THIS IS IT "The all new Automatic Antuner."
THIS IS IT "The all new antuner."
THIS IS IT "An affordable one."
THIS IS IT "It's rated at 750 watts p.e.p."
THIS IS IT "It operates at 250 watts key down."
THIS IS IT "It tunes from .1 MHz to 30 MHz."
THIS IS IT "It's great for frequency hopping."
THIS IS IT "It covers the WARC bands."
THIS IS IT "An all band dipole with 50' one end 25' at the other."
THIS IS IT "End feed a long wire add a ground go all bands."
THIS IS IT "It has no transistors, no diodes, no moving parts."
THIS IS IT "This has a 50 ohm input."
THIS IS IT "Use it for amateur, marine, avionics, military, commercial."
THIS IS IT "It's small, efficient, weathertight, waterproof, lightweight."
THIS IS IT "Antuner was used by the fellowship amateur Radio Club on Field Day with excellent results on all bands."
THIS IS IT "Antuner carries a 5 year conditional warranty."
THIS IS IT "Remember 750 watts p.e.p. — 250 watts key down."
THIS IS IT "Buy direct from the manufacturer."
THIS IS IT "We cut out the manufacturers representative's commission."
THIS IS IT "We cut out the distributor's profit margin."
THIS IS IT "We cut out the dealer's profit."
THIS IS IT "That is how J.L. Industries is going to be able to sell the Antuner for only **($199.95)**."



1) Insulate backstay
2) Attach insulated wire from backstay to Antuner white insulator.
3) Run a 2" copper strap to metal keel for good ground from Antuner ground.
4) Use coax line from Antuner SO-239. Suggested coax RG8U or mini RG8X.
5) You are now ready to tune your radio from band to band. Antenna follows automatically.

A) Mount Antuner to Bulkhead

Specifications

- HAM antuner 0.1 MHz to 30 MHz
- Tunes instantly — no moving parts
- No external power is required
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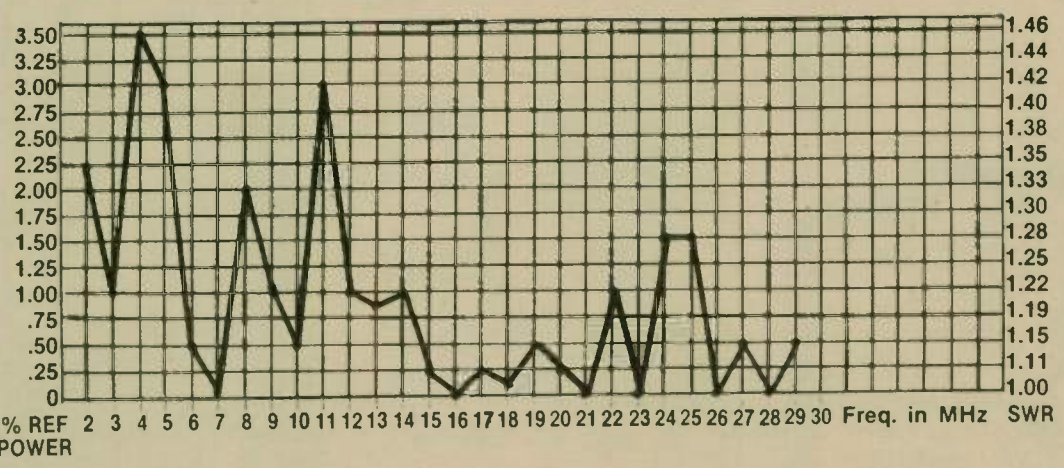
- Dimensions: 3"W x 4"L x 2"D
- Weight: 1.4 lbs.
- Connector interface PL-259
- Operational on land, sea, or air
- Excellent where space is limited
- Recommended coax is RG8U, RG8X, or RG213.



J.L. Industries, P.O. Box 547, Hallandale, FL 33009

All orders prepaid, payable in U.S. funds, $3.00 shipping U.S., Florida residents add 5%. All Foreign shipments $10.00 U.S. funds.

The Communications Van of the Downey (California) ARC. Ray Welton, WA6LVO — one of the members who made it available to public service — waits ready to answer questions from visitors to a recent convention.

Ready, willing and able

Lenore Jensen, W6NAZ

The Downey ARC can be proud of its communications van, dedicated to public service to its own and nearby communities.

The vehicle is equipped with 10 to 80-meter rigs, 2 meters, as well as antennas ready for 220 and 450 MHz. There is even a CB transceiver available for cooperation with a REACT group which is seriously interested in public service. Arrangements have been made for interaction with ARES, RACES and NTS.

The idea for the van originated with Ray Welton, WA6LVO, who first spotted the vehicle for sale for $1,000. He and the club president, Reed Craven, WB6BFK, agreed it had great possibilities and soon, five others enthusiastically chipped in with them to acquire it. The number has since doubled. In fact, the club took over the project later.

A handful of members pitched in to repair and refurbish the van. The Women's Auxiliary had a yard sale, raising $300 as a generous aid. By now, approximately $2,000 has been invested, plus at least 800 man-and-woman hours of work.

It now can be proudly displayed in public, as it was at the Anaheim ARRL Convention, and probably also will be seen at upcoming Southern California gatherings.

Importantly, excellent arrangements have been made with the local police and fire departments for assistance to those organizations. In fact, their portable radios can be added, if desired. There is a base station on 2 meters at the police department. The van has a public service scanner, too. RTTY is available. The van is, therefore, available to all public service organizations — official or civic.

Ray commented, "Fortunately, we have some contributions: ICOM has given us a nice 2-meter rig, Henry Radio donated a low-band Drake TR4 line and we have a very good antenna from Ham Radio Outlet. We'll use them well!"

"So far, we've acquired nine golf cart-type batteries, six of which we carry. We're also looking into solar panels for back-up.

"The possibilities for us to help the community are great — both serious (disaster) and joyful (parades, etc.). Let's hope we never need the van for a major disaster, but we're ready. That's what ham radio is all about!"

Congratulations to the hard-working members of the Downey ARC. Perhaps more clubs will join the few already possessing such communications vans. □

Blood bank system

Keith Crandall, K6QIF

The California Blood Bank System, hereafter called CBBS, is a system of Amateur Radio operators in 17 blood banks in California, with a primary station located in Northern California and one in Southern California. Sacramento will be the area control station in the north, with Stockton (Delta) as alternate. A station in Southern California will also be designated as area control station, with an alternate.

The plan is that if a catastrophic disaster would happen in Southern California, the northern area control station would become NCS and handle the distribution of needed blood supplies into needed areas, handling all requests to coordinate these supplies. The reverse would apply if the disaster were in Northern California.

Equipment has been installed and tested at the Nor-Cal area control station in Sacramento. The first test did not work too well, but it is hoped that future tests will be better.

A near total blackout of communications fell over the Sacramento Communications Center, but we are sure it was only a temporary blackout. (Noise occurred.)

Units in other areas had a great amount of the same noise, but they managed to pass traffic. (A 2-meter link could have helped.)

Tests are planned on a quarterly basis. These tests will be held at different times, days, evenings and nights. We hope to prove that quality communications can be handled this way. SARC, Inc. will be the sponsor of this system, and a team will be set up to handle this.
— *Sacramento ARC, CA* □

Holiday greetings

Carl Zelich, AA4MI

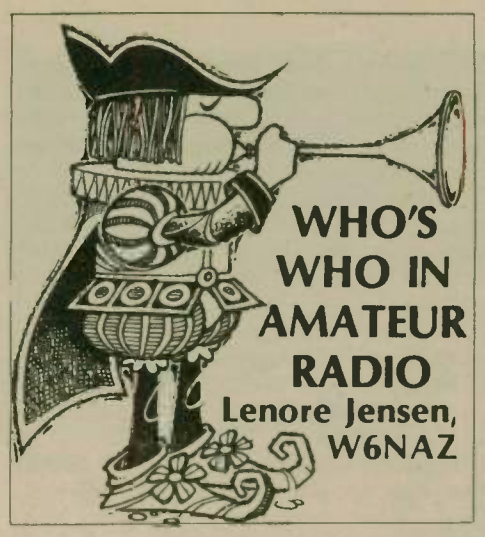
Here are foreign phrases for use on QSL's or during those DX QSO's:

(English)	
Merry Christmas	Happy New Year
(French)	
Joyeux Noel	Bonne Annee
(German)	
Frohliche Weinachten	Glucklich Neu Jahr
(Italian)	
Allegro Natale	Felise Nuovo Anno
(Spanish)	
Felices Pascuas	Feliz Ano Nuevo
(Swedish)	
God Jul	Gott Nytt Ar
(Yiddish)	
Freylekh Nitl	Gliklekh Nay Yor

I have found that by using these phrases during the holiday period, I can increase my signal reports *at least* two S units. Also, my QSL return rate is much improved. I find my mail box just stuffed with QSL's and you will too! □

Beth Taylor, W7NJS of Milwaukie, Oregon is wearing a pink sweater with burgundy trim, knit by Dorothy Staffeldt, WB9NCT. On the pockets are pictures of a microphone and a transceiver.

Back view of Beth Taylor, W7NJS in a sweater that was knit by Dorothy Staffeldt, WB9NCT.



You may not realize it, but you often see the work of Peter Sherry, K2AUO, on your evening news. He's the president of Broadcast News Service, Inc. (BNS), of New York City, a supplementary news-gathering service to TV stations nationwide.

Nightly, his company's crews tour the crowded city, videotaping newsworthy events — explosions, murders, blazing fires, goings and comings of celebrities, etc. — all the things TV (and radio) stations clamor for.

Peter feels that Amateur Radio influenced his career. "I used to love radios and my original partner chased fire engines," he recalls.

Growing up in Brooklyn, Peter and his high school friends dabbled in radio.

By age 15, Peter had earned his call letters. "But I veered away from it when I went to Pace College, although I still was fascinated with radio." He'd come back, later.

Peter wanted to get into TV — understandable, as one cousin is Woody Allen and another is a VP of CBS. But it's hard to break in, especially in Manhattan.

His friend, Harry Ryttenberg (now KA2UZL), still loved to chase fire engines, and they started doing freelance film work. It became apparent that TV stations could not maintain sufficient crews to cover everything that happens, especially in the wee hours.

"We started with only $5,000 seven years ago, and today BNS does a couple million worth each year." But it hasn't been easy. Professional TV cameras, sound recorders, dubbing equipment and countless scanners, two-way radios all come high. And it has all demanded the expenditure of enormous energy and sleepless nights.

Networks, local stations, the Ted Turner Cable News Network, BBC, Fuji TV and many stations across the country have come to depend on BNS to have tape of newsworthy events should they need it. "We don't get air credit," says Peter, "but you see our stuff all the time."

Sometimes, BNS is the only service to have footage, "like the time Castro was in town and our crew was on hand, along with about 26 others. A heckler started trouble with a Cuban secret policeman who suddenly pulled a gun. All the other crews ducked and backed away, but our man stood his ground and got it all on tape. Everyone bought it."

They did the same when the Shah of Iran left this country.

Another was during a prisoner escape, involving hostages, in upstate New York. "We had an exclusive."

"There was a shooting and we have so many that they are hardly considered news, but our crew had taped the aftermath. A few days later it was learned that a participant was the son of an important diplomat. So the stations were frantically asking if we had anything. Sure we did. They now consider us a sort of video UPI or AP. You see, we give them a lot of flexibility so they can cover other news. We are specialists in what is called *breaking news.* But we are a fully accredited news service."

Radios are everywhere. Banks of scanners, 24 hours a day, blare out the busy city's happenings. He and his skilled people have learned how to detect the important items and to instantly dispatch camera and sound men to the scene. Again, two-way radio is the vital link to the assignment desk. In their vans, they speedily dodge through congestion, "knowing the streets of New York like the backs of their hands."

Once there, experience has taught what to tape and the years have given them understanding relationships with police and other officials. "But it takes a strong 'street sense' to survive."

Such news gathering is not without danger, such as when attempting to get close as possible to a burning building which might collapse at any moment. (One did, killing many firemen.)

Amateur Radio was destined to come back into Peter's daily life. "You probably know that radio and TV stations are filled with good hams. Their little 2-meter FM's intrigued me, so I was caught up again.

"Now I work the repeaters in Manhattan, especially 13/73, but at my home in Vermont I have great fun on the low bands, sending out QSL's which seem as prized as those from Wyoming."

Peter has a fine station in his office. The receiver and beam have often come in handy to listen to foreign broadcasts."

Amateur Radio was the focus of all stations, countrywide, as we all found during the Grenada expedition. "I heard about it through Steve Mendelsohn, WA2DHF, who was working Mark. He gave me the frequency, and I tuned in to listen. Before I knew it, I was besieged with stations wanting the audio. Well, you know the story."

Peter Sherry, K2AUO, president of Broadcast News Service. ***(Photo by Bob Jensen, W6VGQ)***

Crews are dispatched out of country, too, as to Nicaragua when newsman Bill Stewart was killed. Political coverage is common. "And also stories with a laugh, happily," Peter reminds us. "Like when crates of turkeys break open and the birds are all over the city. We like that sort of thing for a change."

BNS basically tapes the picture and sound, then makes copies for all stations needing the story and rushes the material to the studios. The individual stations edit and add their own commentary.

Now operating in at least five U.S. cities, BNS has become the largest of its kind. But Peter, busy as he is, still considers Amateur Radio a vital part of his life.

So as you watch your evening news, you may wonder which of the stories being aired may have been captured on tape by a ham-run business! □

The Elder readers on the air

Joseph Boris

Are you an Amateur Radio operator? Would you like to communicate with "ham" readers of **The Elder?** If so, type or print your name, call letters, date you were licensed, hours you are on the air, home address and telephone number on a postcard and mail it to The Elder, P.O. Box 984, New Haven, CT 06504.

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Dr. Arthur Fern, WA1AAN, of Bloomfield, who practiced dentistry in Hartford for many years and is now retired, received his Amateur Radio license in 1919.

Dr. Fern has been a member of the Medical Amateur Radio Council (MARCO) since 1967 and is chairman of the Bloomfield Center Fire Commission.

•

Dr. Alson Braley, W0GET, a retired ophthalmologist of Iowa City, Iowa — was co-founder of the Eye Emergency Net. This network of more than 79 eye banks was organized to facilitate exchange of information on the need for and availability of human eyes for emergency corneal surgery.

Dr. Braley is on the air daily from 1:00 to 2:00 p.m. on 3978 kHz and from 9:00 to 10:00 p.m. on 14225 kHz. He is a member of MARCO and received its first Achievement Award in 1967.

•

Robert Wahlstrom, K4UY, was first licensed in 1920 at the age of 17. A year later, he received his first class commercial license and worked as a wireless operator on cruise ships during summer vacations until graduating from the University of Illinois School of Engineering.

He represented Western Union during Harry Truman's "Whistle Stop Campaign." During the Truman and Eisenhower administrations, he was responsible for having radio operators and wire companies carry presidential

(please turn to next page)

AWARDS

Computer student wins scholarship

Emily Wolfe, WA6ZKC

Linda Nguyen, a second-year student majoring in computer science at Palomar College, is the 1984-1985 recipient of the Palomar Amateur Radio Club, Inc. scholarship award.

Linda came to the United States nine years ago with her family and settled in Escondido, California. In the fall of 1984, she transferred to the University of California at San Diego (UCSD) and is working toward her goal of obtaining a degree in computer science.

This is the fifth and final $200 award being presented to a local college student. In the future, the Palomar ARC — through its affiliation with SANDARC (San Diego Amateur Radio Council) — will be supporting the Barry Goldwater Scholarship, which is a $5,000 award to a student with an Amateur Radio license. □

Linda Nguyen, a computer science student at Palomar College, won Palomar ARC's $200 scholarship award. ***(Photo by Jane Rice, AD6Z)***

ARRL plaques were awarded by Southwest Director, Fried Heyn, WA6WZO, to four who worked long hours to turn out the video presentation, ***Amateur Radio's Newest Frontier,*** **which documents the exciting flight by astronaut Owen Garriott, W5LFL. Receiving the plaques were (left to right): Bill Pasternak, WA6ITF; Roy Neal, K6DUE; "Frosty" Odin, N6ENV; and Alan Kaul, W6RCL. Made to the highest professional standards, the tape "sells" Amateur Radio to both young and old, and runs a bit under a half hour. All amateurs are urged to find groups who would enjoy seeing it. Tapes are available from the ARRL.** ***(Photo by Bob Jensen, W6VGQ)***

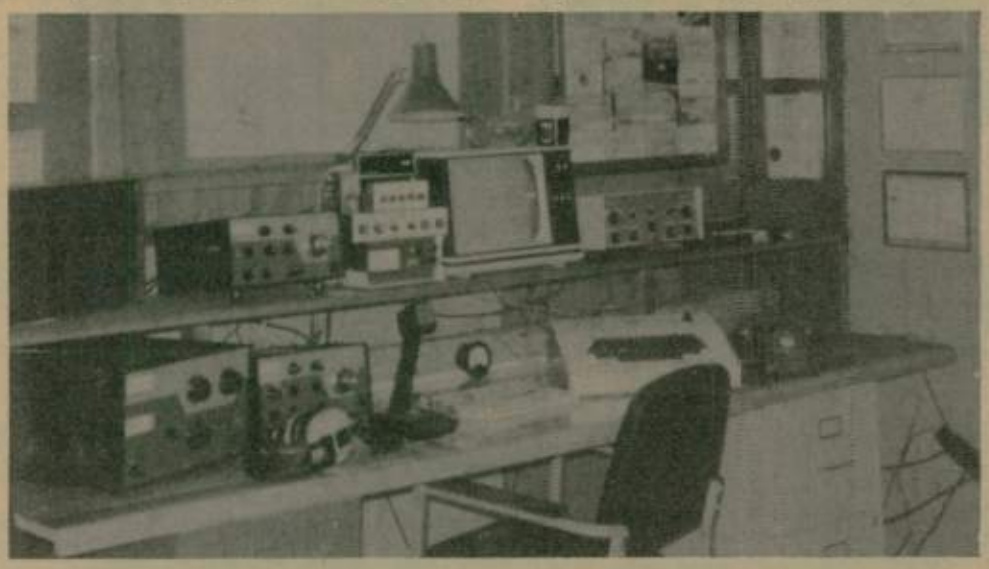
STATION APPEARANCE

J. Jarouce Carr, W9JBR, of Downers Grove, Illinois wins the Station Appearance award for December. The QSL cards in one corner and the certificates and awards hanging on the walls testify to W9JBR's ham activity. Not seen in the picture are the shelves of beer cans, which Jarouce has collected over the years — 1,400 of them, all different. Also not visible are the colors in this shack. The walls and file cabinets are painted yellow, green and orange.

The equipment used includes: Drake R-4C receiver, T-4XC transmitter and L-4B amplifier; Robot 800 keyboard and 400 SSTV converter (monitor is 12" Zenith); MFJ 8043IC electronic keyer and Signal Enhancer 11; CDE H-3 CD-44 rotor; Hy-Gain TH6-DXX 6-element beam; Heights Mfg. 60-foot fold-over tower; and 40 and 160-meter dipoles.

W9JBR will be receiving a free year's extension of his subscription.

We encourage other readers to send in photos of their stations, too. We're running low on Station Appearance entries.



Lee Roy Kent, N0EMN — creator of the Amateur Radio Operator's Yearbook

Missouri ham has unique idea

A Malden, Missouri ham operator has put an idea into operation which should be of interest to other ham operators the world over.

Lee Roy Kent, N0EMN (ex-WD0FFZ), a 33-year-old gospel song writer and producer, has started the annual Amateur Radio Operator's Yearbook, which is different from anything of its kind in today's market. This publication contains the photographs, call signs and addresses of ham operators throughout the world. It will be available to anyone who wishes to have his or her photo included in it.

Kent, who has been a ham operator since 1977, says the publication should be of interest to most operators as it will allow them to "see" the people they have been communicating with.

"I'm sure many operators are curious about what the people they talk to look like," Kent said. "This will help to make our hobby just a little more interesting."

Kent became a ham operator in 1977, obtaining a Novice license. In January of 1978, he upgraded that to a General license. He is a member of the International 10-10 Club, the International Amateur Radio Society, and the ARRL.

"One of the main reasons I became a ham operator," Kent explained, "is because it is the best means of communication for meeting people from all walks of life the world over. I really enjoy listening to ragchew on my radio, and working DX countries is probably my favorite." He has confirmed 140 countries, but has worked 275. He has received various awards for countries he has worked. □

The Elder

(continued from page 27)

news and speeches to wire services and newspapers.

Now retired at 81, he is a member of the Gator Chapter of the QCWA. He is on the air Mondays from 9:00 to 10:00 a.m. (local time) on CW at around 14.135 MHz.

•

Brother Bernard Frey, WA2IMP, O.P.M. CAP, has been operating since 1960. Br. Ben, as he is known, was president of the International Mission Radio Association and is now chairman of its membership committee.

He is on the air Monday through Saturday from 2:00 to 3:00 p.m. He is retired and lives at the Trinity Retreat in Larchmont, New York.

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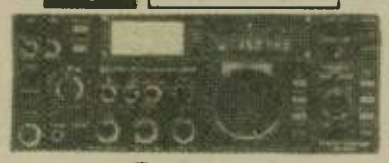

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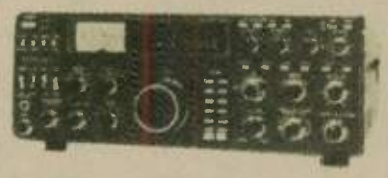

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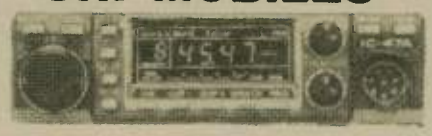

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The Sport of Contesting

Support the 'sport'

Chris Robson, KB3A

In Amateur Radio, there are many different ways to enjoy the hobby. One which is damned by some and praised by others is contesting. Anyone who has operated Field Day in recent years has seen some really fantastic operators, like Bill Perkins, KC4D; Don Quiggle, WA3UNX; and Dave Burgess, K1DB, just to name a few. What makes these operators stand out from the rest is their masterful ability to send the coded word (CW).

The key and paddle in the hands of these operators are like a brush in the hand of a painter. In a contest, these amateurs show their proficiency and skill in the art of CW, which in itself is a true art form.

Ever scan across 20 meters and listen to some of the QSOs? One QSO I listened in on, I heard two hams on a sked. One of the hams was complaining about the contest that went on last weekend. In the next sentence, he made mention that his antenna is broken and that he will have to get around to fixing it someday. The other ham in the sked said he was having a hard time copying; maybe they should switch bands and wondered which band would be good.

I couldn't help but chuckle at the QSO I was listening to, because if they did any contesting at all, they would know what band to operate for their sked in the first place and their equipment would be up to par.

The science of propagation is one of the contester's best tools. Knowing what band to be on at the right time can mean the difference between having a winning score or a wasted effort.

The old line, "You can't work them if you can't hear them!", is a fact, and is taken very seriously by anyone who has ever attempted a contest. That is why contesters try to use the most efficient antennas they can afford and keep their equipment on a par with the latest technology in receiver dynamic range, selectivity and sensitivity.

A contester doesn't wait to improve his station. It is always being upgraded and improved and tested. Isn't that what science is?

When you think of a sporting event, I bet no one thinks of Amateur Radio contests as a sport. But serious contesters spend a good deal of time training — both physically and mentally — for that important contest.

Personally, I made a point to join a fitness center three months before the Pennsylvania QSO Party so I would be in top shape, which paid off in increased stamina and less fatigue. Also, mental preparedness is important in a contest event, such as memorizing contest rules, knowing how to pace yourself so as not to get "burned out" too early and lose that contester's edge, needed near the end when the going gets tough.

Contesting is a true athletic event, and as participants, we are athletes of a true competitive nature.

So, next time you hear a contest, don't put it down. Support it — you'll be supporting the arts and sciences and will be helping to keep our Amateur Radio athletes in shape.

—Radio Association of Erie, PA □

QRP contesting

Bradley Wells, KR7L

Here we are in the middle of the contest season and many of you are still fretting about your score in the CQ World Wide. Before contesting ends for another year, you can still be in the winner's circle. I'm not talking about running out and buying the latest Alpha amplifier. It's something even more radical. I'm suggesting that you do your contesting with only 5 watts of output power!

There are several advantages to operating with such low power. No more will you entertain thoughts of second mortgages to finance a good contest station. No worries about the neighbors closing you down in the middle of a good JA run. No longer will you have to think about a second job to pay the city light bill. Best of all, you will be competing only against other QRP stations.

The ground rules of limited-power contesting are simple. First, make certain that the contest includes a QRP operating category! Second, plan to beat the competition. Notice I did not say "stomp" the competition. You don't stomp anybody with 5 watts. The power differential is overcome with cunning and intelligence. Successful QRP contesters must have a high degree of operating savvy.

A cardinal rule of QRP contesting is "Never Call CQ." This is probably the biggest pitfall for those QRO types who take up this sport. Nobody will pay attention to a 5 watt CQ — unless your prefix is BY, 1S or XZ. To be successful, you must become proficient in the "search-and-pounce" technique. With practice, your QSO rate will be as high as many of the high power stations who only call CQ.

A corollary to this rule is to keep an up-to-date dupe sheet. Making duplicate contacts is a total waste of time . . . nothing more, nothing less. Your time is valuable, so use it making new contacts.

Know the areas into which you can work the most efficiently. For hams in the Pacific Northwest, we're talking Japan, the South Pacific, Australia, South America, Europe and Africa . . . in that order. Maximize your JA contacts. Then look for multipliers when the bands are not open toward the Northwest. Don't bother trying to work Europe on Saturday morning. Wait until Sunday, when many of the Europeans have worked out the East Coast and are beginning to strain for a contact.

Most QRP contesters are CW operators at heart. Your chance of a big score is much better in this mode than with SSB. Contacts will come easier and your 5 watts will be better heard. The difference in scores between QRO and QRP is much less in CW contests than in phone contests.

A final reminder. There is no such thing as a Big-Gun Killer QRP station. Everybody is on the same footing. The winner will be the operator with the greatest expertise and determination. What you lack in power will surely be made up in awards and recognition!

— Western Washington DX Club □

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QUARTER CENTURY WIRELESS ASSOCIATION INC.

Esther Given, W6BDE

The QCWA held its annual meeting in Windsor Locks, Connecticut on 21-23 September 1984, at the Howard Johnson Conference Center.

The first day of the convention included a meeting of the Board of Directors, at which a full agenda of association business was conducted. Friday evening, a no-host bar and sing-along with Leo Meyerson, W0GFQ, at the piano attracted conventioneers to the hospitality room.

On Saturday, a breakfast featured Father "Chuck" Tardiff, W3EHC/5H3JR, who related experiences in Tanzania. A VHS tape about the Antique Wireless Association preceded an open meeting of the membership in attendance. In the afternoon, a tour of ARRL Headquarters in nearby Newington, Connecticut was well attended.

Saturday evening events included an Attitude Adjustment Hour, the annual banquet with John Johnston, W3BE, Chief of Personnel, Radio Branch of the FCC, as guest speaker and presentation of the 1983 QCWA Hall of Fame Award to Don Wallace, W6AM, in recognition of his many contributions to Amateur Radio and communication fields in his 72 years of active hamming. The banquet was attended by 110 QCWA members and friends, and concluded with the awarding of many worthwhile prizes.

The major activity on Sunday was an authentic New England Clam Bake served poolside at noon.

Yankee Chapter 112 of QCWA was host sponsor of the Convention. Co-Chairpersons were Gladys Chase, W1VPF, and Milt Chaffee, W1EFW. Chapter president, Norm Dias, W1UHY, served as emcee at the banquet. The many committee members who assisted in planning, preparation and presentation of the convention program did an excellent job and are to be congratulated for their endeavors.

•

In 1983, QCWA members voted to add five directors to their governing board, making it consist of four officers and 10 directors at-large. The first meeting of this larger group was held in Denver in September 1983. At this time, board members were given committee responsibilities and special assignments to be carried out during the year.

The major goal established at that meeting was to make every effort to open better lines of communication between the chapters and the board of directors. As a result, two important guidelines have been prepared by board members to supply information and assistance in chapter operation.

The first publication is a chapter manual edited by Director Wade Holland, W4AZT. Its 45 pages are filled with information pertinent to chapter functioning and will prove invaluable to chapter officers and members. The manual will be released early in 1985 and will be mailed to each chapter secretary of record.

A second publication — *QCWA Convention Guidelines*, edited by Lew McCoy, W1ICP — gives useful information on how to plan and host a convention. This handbook is scheduled to be printed in the spring of 1985 and sent to chapter secretaries.

The QCWA directory will also be published next spring and will include all members in good standing as of 31 December 1984. The Board of Directors voted at their September 1984 session to rescind a previous action which would have charged a fee for the directory. All QCWA members will receive a copy as part of the membership service, and new members will be given a directory as long as the supply lasts.

The three publications outlined above will supply much-needed information both to chapters and members, and it is anticipated these initial steps of communication will establish good rapport within the association.

•

QCWA Activities Chairperson, Onie Woodward, W1ZEN, announces two QCWA QSO parties are planned for 1985.

The 28th Annual QCWA QSO Party will hold CW contacts between members on 09-10 February, and phone contacts on 09-10 March 1985. Full particulars on rules and regulations will appear in this column at a later date.

The Fall QSO Party will be an invitational event open to all licensed amateurs. It will run for a week beginning 1200 UTC, Monday, 09 September, through 2000 UTC, Sunday, 15 September 1985. Other pertinent information will be publicized prior to the event. □

Battery hint

Lots of amateurs have several batteries and are confused as to which they have charged — all look alike. **Solution:** Get (from hobby shop) a small bottle of yellow paint and mark each battery A, B, C, etc. for positive I.D. — *George Burnley, WA6DZD* □

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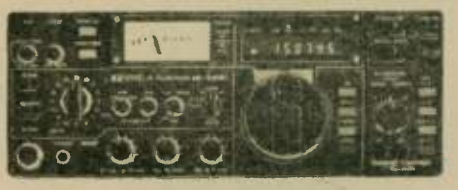

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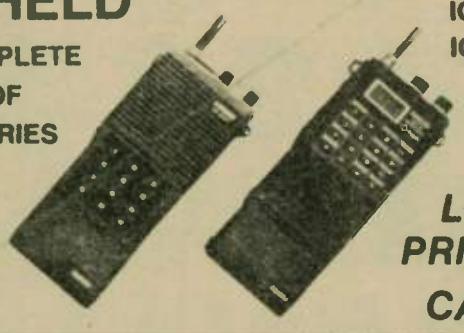

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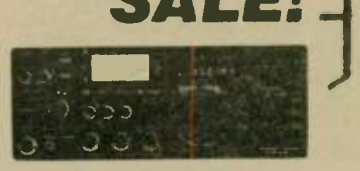

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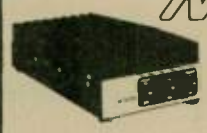

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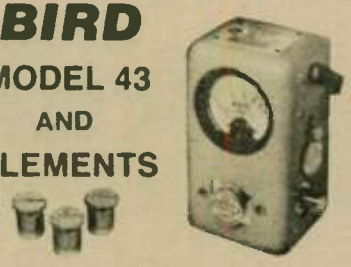

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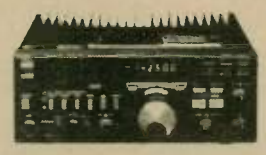

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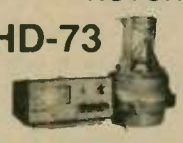

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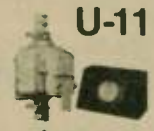

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DX WORLD

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

Activities Calendar

24 - 25 November	CQ World Wide DX Contest (CW)
01 - 02 December	ARRL 160-Meter Contest
08 - 09 December	ARRL 10-Meter Contest

W-100-N
241. N3CYC Millard J. Martin
242. N3BGY Robert F. Tunnicliff

Botswana (A22)

This country has been well represented recently. Dave Harris, A22BX, has been active on 14.089 MHz at 1730 UTC, handing out RTTY contacts to those handy with the keyboard. Dave, whose home call is G3XBX, is the chief engineer for National Radio Botswana.

Hans A22WZ has been worked on 14.187 MHz around 1300 UTC, and also on 15 meters on 21.199 MHz at 1030 UTC working Europeans. Keeping him company on this band is Mel A22ME, who operates both CW and SSB. Look for Mel on 21.022 or 21.335 MHz from 1400 UTC. Mel's wife is Tammy A22TE, who prefers CW and is busy playing the new keyer she just finished building.

Other stations reported active from Botswana include A22CP, who has been worked on 14.195 MHz at 1200 UTC, A22DP who has been found on the same frequency from 1330 UTC, and ZS6BUX/A22, who has been operating CW on several bands. This one has been worked on 3.509 MHz at 0415 UTC, 7.002 MHz at 0100 UTC, and 21.022 MHz at 1400 UTC.

China (BY)

Three of the present four stations in China have been busy handing out contacts. Two of them, BY4AA and BY5RA, have been operating list-style on 14.180 MHz between 1200 and 1400 UTC on Wednesdays and Saturdays. Look for DU9RG, who has been MC for this operation.

If you are looking for a CW contact, listen for BY5RA on 14.030 or 21.030 MHz after 1330 UTC. This station has also been reported on RTTY on or about 14.081 MHz between 0800 and 1100 UTC. If you miss BY5RA on CW you might grab BY1PK, who has been on the low end of 20 meters at 14.020 MHz at 0115 UTC. He has been known to wander out of "Extra" territory as he has been worked on 14.030 MHz at 1330 UTC.

On SSB, BY1PK has been found on 14.159 MHz around 1300 UTC. Tom Wong, VE7BC, was back in China early October and was busy operating this station at times more favorable for those who go to bed early and rise late. BY1PK is expected to appear on RTTY soon.

Nothing has been heard from the fourth station, BY8AA.

Socializing at the Long Island DX Association (LIDXA) hospitality suite during the ARRL National Convention at the New York Penta Hotel, three DX'ers smile for the *Worldradio* camera. Left to right: Harvey McCoy, W2IYX, Editor of *The Long Island DX Bulletin;* Father Dave Reddy, CE0AE, from Easter Island; and Shelly Weil, K2BS, of the LIDXA. (*N6JM photo*)

Wallis Island (FW8)

On Saturdays around 0300 UTC on 14.236 MHz, FW8AF shows and has been worked by many of the deserving. He has also been found on 14.183 MHz around 0715 MHz working Alaska. He has also appeared on Sundays and was worked on 14.222 MHz at 0345 UTC.

On CW, FW8WK was working into the western reaches the end of September, on 7.012 MHz from 0330 UTC.

Guinea-Bissau (J5)

Vlad, UB5WAD, has been reported to be on daily operating from Guinea-Bissau as J5WAD. His usual frequency is near 14.157 MHz from about 1900 UTC. He has also been reported near 14.033 MHz on CW. Vlad is there on an assignment and should be there for a year. QSL this one to UA4PW through the standard Soviet route, (P.O. Box 88, Moscow, USSR).

Peter I Island (3Y0)

QRZ DX reports that a group of Japanese operators have permission to activate Peter I Island. Several Japanese operators — including those whose calls are JR1HHL, JF1IST and JA1MIN — have received permission to operate from the island using the call 3Y0AA during two periods. These periods are listed as 01 January through 01 March 1985 and the following year at the same period. Bob Winn, W5KNE, editor of *QRZ DX,* says cross your fingers, too (but not while you are sending, ed.).

Kerguelen Island (FT8)

Rafik Djandji, F6EUX, is expected to be on Kerguelen Island in late November, signing FT8XA. This is the new prefix for Kerguelen, which was formerly FB8X.

Kuwait (9K2)

Derick 9K2BE has returned to Kuwait for his final tour of duty and will leave around the middle of December to return to England, where he will be using his home call, G4BWP. No operating times or frequencies were given, but if you are desperate, you can call him on the telephone. His number in Kuwait is 5314242.

Rwanda (9X5)

Jan 9X5BJ is a newly-licensed amateur in Rwanda operating with an FT-1 and a Windom antenna (we haven't heard of anyone using one of those in years). He hopes to construct a beam if he can get the materials.

Jan has been worked on 14.218 MHz after 1800 UTC.

Taiwan (BV)

A group of amateurs from the South Florida DX Association sent a DXpedition to Taiwan to operate as BV0W during the early part of October. The operation was geared for DX'ers with no list or net operations. Six meters was to be included as band conditions permit. If you worked this one, send your QSL cards via Don Murray, W4WJ, and be sure to include an SASE.

Macao (XX9)

Steve Gecewicz, K0CS, headed for the Far East for some activity in the CQ World Wide DX Contest. Steve, who is the secretary of the Kansas City DX Club, was scheduled to depart on 23 October for Macao and was accompanied by fellow club members, Larry Mills, WB0UXI, and Clark Stewart, W8TN. They will be operating from the top of the Sintra Hotel, an 11-story structure. The hotel manager is familiar with Amateur Radio and will permit operation as long as it doesn't interfere with the hotel's sound system.

Steve K0CS will concentrate on 75 meters and will begin as early as 1000 UTC. With little or no activity ever from Macao on this band, Steve should be a new country for many of the deserving.

W8TN will be operating either a 20-meter or a 40-meter single-band effort for this contest. We are not sure what WB0UXI will be doing, but the KCDXC reports that he will be conducting scientific research on the social customs of the natives, as well as helping with the technical aspects of the DXpedition.

The calls they will be using are not known at this time, although Steve did receive confirmation via registered mail from the Post Master General in Macao that his license will be waiting for him when he arrives. No QSL information at present, although we assume K0CS and W8TN will handle their own contacts.

Fiji Islands (3D2)

Look for 3D2MP on 14.200 MHz at 0600 UTC and again at 1200 UTC. Also on the islands is 3D2MO, who has been reported on 3.799 MHz around 0700 UTC.

This station is operated by Mike Orchard, ZL1AXU, after a long stay on Wallis Island. He is there with his wife, Lynn ZL1BJL, who is signing 3D2LJ.

Swaziland (3D6)

Several stations have been reported active from this African nation. The following have been gleaned from the various DX newsletters we receive:

3D6AA	14.170 MHz	1230 UTC
3D6AJ	14.200 MHz	1345 UTC
3D6AK	7.001 MHz	1430 UTC
3D6AL	21.257 MHz	1800 UTC
3D6AN	3.791 MHz	0430 UTC
	21.309 MHz	1800 UTC
3D6AV	14.159 MHz	1400 UTC
3D6DY	14.153 MHz	1300 UTC

If you need this one, check for the above as you may pick up the band and mode of your choice.

Sri Lanka (4S7)

Many DX'ers still need this island nation off the southern coast of India. Look for 4S7NE, who has been worked on 40-meter CW on 7.007 MHz around 1400 UTC. We have seen at least three reports on this one, and it appears that he shows about that time on or about that frequency.

On 20 meters operating SSB, 4S7NMR was reported mid-September on 14.185 MHz at 0130 UTC along with 4S7PVR on 14.174 MHz at 1900 UTC and 4S7VK on 14.210 MHz between 1800 and 2000 UTC.

On CW, JA3YKC/4S7 was found on 14.022 MHz at 1700 working into Alaska at the end of August.

Lesotho (7P8)

Len Hognert, 7P8CL, has returned to Lesotho after vacationing at home in Sweden. Len, whose home call is SM5KDM works for the United Nations in Maseru and should be there through March. *QRZ DX* reports that he is active on all bands, both SSB and CW, and expects to be active on RTTY very soon.

Also active from Lesotho is 7P8AF, who has been worked on 21.326 MHz around 1630 UTC along with 7P8DC on the same band at 1600 UTC on 21.354 MHz. 7P8CI has been reported on 21.335 MHz from 1700 UTC and on 20 meters on 14.148 MHz at 1900 UTC working Europeans.

Baker and Howland Islands

Although the DX Advisory Committee (DXAC) recommended that the Baker and Howland Island group become a new DX-CC country, to the surprise of everyone, the ARRL Awards Committee rejected the idea.

The DXAC had recommended that the former Baker, Howland and American Phoenix Islands group be deleted as the Phoenix Islands came under the jurisdiction of Kiribati. The new Republic of Kiribati did not include Baker and Howland Islands, which was the justification of creating the new DXCC country. This was initiated by the Northern California DX Foundation.

The Awards Committee rejected the proposal by a vote of 6 to 1. Therefore, the present listing remains but no longer includes the American Phoenix Islands. No deletion or addition to the DXCC list will occur.

It is interesting to note that all of you who have credit for Baker, Howland and American Phoenix Islands most likely never worked the former islands of Baker and Howland, but Canton Island on the latter. Therefore, in effect, anyone working Baker or Howland in the future will have worked a spot most DX'ers have not worked before, even though they already have credit for it.

Any of you not happy with the decision made by ARRL headquarters employees should express your feelings to your Director.

Remember when you made your simultaneous contacts with this one and the British Phoenix Islands? This was from Canton Island, now part of what DXCC calls Central Kiribati.

QSL Manager, Anyone?

Wayne Menge, WA0RUD, writes:

After mailing another batch of QSL's bound for distant lands, I again wished I would have kept track of the time and monetary expense of such an operation over the years.

All those postage stamps, IRC's and SASE's with foreign return postage on them, not to mention the tense weeks and months just waiting for those elusive QSL's to show up confirming contacts it took months if not years to make.

I would be willing to wager though that the expense of QSL'ing is even greater at the DX end. I often wonder how many of the DX stations can cope with it and still find time to operate.

I sigh in relief when a DX station instructs me to QSL to a QSL manager in the United States, knowing I don't have to deal with long waits due to bureaus and mail delays, and even occasional mail losses. I am also relieved of the burden of international postal fees.

Since a great number of DX QSL requests come from the United States, I am confident in saying the same relief could be applied to the DX station using a stateside manager as well.

Enough said about the problem. I just wanted to let our DX friends know that I am again available to handle QSL manager responsibilities. Any DX station interested in a reliable manager should write me at 3820 Dallas Lane, Plymouth, MN 55441.

Chagos (VQ9)

Gary VQ9SK has been found around 1530 UTC between 14.220 and 14.240 MHz, and later on 14.262 MHz at 2015 UTC. Sharing the band with him is Steve VQ9DX, who has been worked on 14.235 MHz from 1800 UTC working into Europe. Steve also offers RTTY contacts on or about 14.083 MHz from 1600 UTC.

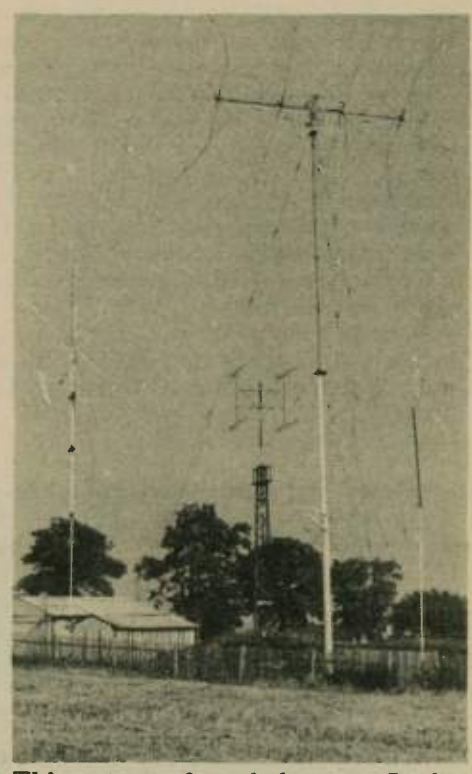
Other stations busy from Chagos include VQ9AC reported on 14.270 MHz at 1400 UTC and VQ9CS on 21.265 MHz from 1300 UTC. Several reports on Phil Rainey, VQ9CI, show him on 14.170 MHz at 1930 UTC, 14.258 MHz at 1800 UTC and 21.186 MHz at 0900 UTC. No CW activity has been reported from this one.

Gibraltar (ZB2)

On 20 meters you may land a CW contact with ZB2EO, who has been reported on 14.010 MHz from 2200 UTC. For SSB contacts, look for ZB2HT on 14.189 MHz at 2300 UTC and ZB2NX on 14.207 MHz around 2145 UTC.

Crete (SV9)

Hal Cantrell, W0PU, and his wife Lynn KA0CYR, have been busy on Crete signing with W0PU/SV9. *The Long Island DX Bulletin* reports that 90 percent of their operation is CW between 2200 and 0400 UTC near 14.030, 7.005 and 3.504 MHz. The team also operates some SSB



This antenna farm belongs to Lothar "Lar" Wilke, Y24UK, of Erfurt in the German Democratic Republic. Lar is presently building up a new antenna for 40 meters that was discussed in an article in *Worldradio* in 1978. They have an active contest team consisting of four operators — Y24TK, Y21YK, Y23EK and Y24UK. Incidentally, Lar was *Funkameteur* DX Editor for eight years. (*Photo courtesy of Y24UK*)

and RTTY work, and sometimes some 160-meter activity on 1833 kHz.

Another station, SV0AC/SV9, should be on the island by now.

Clipperton Island (FO0X)

This one is still on schedule with the team scheduled to depart from San Diego on 27 March this spring. They should be arriving on the island around 03 April.

Libya (5A)

According to *QRZ DX*, there is a station signing DK9KX/5A on 7.008 MHz around 0300 UTC. Nothing more is known concerning this one.

San Felix Island (CE0AA)

As this column is being written (14 October), the San Felix DXpedition has about two weeks left. Although the team does work free-style without the lists, there still are list operations. We were listening in to the 10-meter run where they had several different lists that didn't seem to end, and we had no idea where the lists were being taken. To make things frustrating, we had to sit by and listen to stations being called who didn't show, and be called again later and still not show.

Perhaps this brings out the worst in people where if they are not allowed to work the station, nobody works him. This little item was printed in *The Long Island DX Bulletin* by Harvey McCoy, W2IYX:

"The disgraceful antics of the 'sickies' in the malicious QRM'ing of the CE0AA list-operations should be a blaring alert to all DX'ers. It is surely time to rid our ranks of those who are intent on depriving us of the joys of our hobby. The FCC is prepared to nail these violators but needs our help in alerting their monitoring stations in time for them to get bearings and a 'fix' on the perpetrator(s). Here is a list of the FCC locations and telephone numbers:

Allegan, MI	(616) 673-2063
Anchorage, AK	(907) 243-2153
Belfast, ME	(207) 338-4088
Douglas, AZ	(602) 364-2133
Ferndale, WA	(206) 354-4892
Fort Lauderdale, FL	(305) 473-9845
Grand Island, NE	(308) 382-4296
Kingsville, TX	(512) 592-2531
Laurel, MD	(301) 725-3474
Livermore, CA	(415) 447-3614
Powder Springs, CA	(404) 943-5420
Sabana Seca, PR	(809) 784-3772
Walpahu, HI	(808) 677-3954

"List provided by the FCC, Washington, D.C."

160 meters

It is that time of year again and with the poor propagation on the higher bands, the top band should be popular with DX'ers. The following have recently been reported in the DX newsletters, (frequencies in kHz and times in UTC):

CM2AS	1831	0300
EA3VY	1850	0545
EA5CF	1837	0500
F6BKI	1850	0500
F0AHY/FC	1833	0415
FG7AM	1836	0500
HB0NL	1828	0500
HK0HEU	1833	0545
HZ1AB	1832	0200
KH6CC	1833	0500
KJ9W/KH2	1827	1100
SV0AA	1832	0200
VK3ST	1820	1200
VK6HD	1833	2200
YU1EXY	1835	0400
4X4NJ	1800	0300
9J2JN	1833	0230

The Long Island DX Bulletin reports that HZ1AB has been very active on this band on Thursdays and Fridays between 2200 and 0300 UTC. He will work transceive between 1830 and 1835 kHz, but do not call him on his frequency if he is calling in the "DX Window" (1825 to 1830 kHz). Also, 9J2JN is busy looking for CW contacts between 0230 and 0415 UTC on 1833 kHz.

Check that band this winter as many new ones will be showing, including VK0GC on Macquarie Island.

There is presently a docket released by the FCC proposing to reallocate 1900-2000 kHz to non-amateur use. The ARRL is responding to this (Docket 84-874).

IOTA

EU-06	Aran Island	EI2VSW/EJ0	14.195 MHz	2000 UTC
		EI2VSV/EJ0	14.167 MHz	1400 UTC
EU-08	Inner Hebrides	GM3PGY/P	3.760 MHz	2145 UTC
EU-41	Maddalena Archipelago	IK5CXL/IM0	7.007 MHz	2030 UTC
EU-49	Aegean Islands	WA1ZCE/SV	14.300 MHz	1530 UTC
EU-52	Cephalonia Island	SV1DO/8	14.285 MHz	1500 UTC
EU-60	Euboea Island	W4MAT/SV1	14.282 MHz	0600 UTC
EU-75	Aegina Island	SV1UM/8	21.230 MHz	0830 UTC
EU-83	Palmaria Island	IP1BQW	14.150 MHz	0745 UTC
		IP1CBE	14.207 MHz	1000 UTC
NA-08	Ellesmere Island	VE8RCS	14.295 MHz	2100 UTC
NA-09	Parry Islands	VE8MC	14.127 MHz	1900 UTC
NA-28	Pribilof Islands	WB4BSJ/KL7	14.295 MHz	2115 UTC
NA-34	Vashon Island	(See below)		
NA-80	Abacao Island	DJ0SB/C6A	3.791 MHz	0230 UTC
			14.127 MHz	2115 UTC
SA-25	Santa Isabel Island	PS8AM	7.045 MHz	0630 UTC
SA-26	Santa Catarina Island	PP5CJ	21.297 MHz	1645 UTC
SA-29	Ilha Grande	PY1ZAK	14.277 MHz	2030 UTC

Vashon Island is located in Puget Sound between Seattle and Tacoma. W7AY and W7KT are reported to be the only amateurs on the island equipped for working DX, (as per *DX News Sheet*, published by the RSGB). Any island hunter needing Vashon Island may contact W7AY at Route 1, Box 254, Vashon, WA 98070..

•••••

The DX Edge Update

Tony Japha, N2UN, President of Xantek, Incorporated, in New York City, and producer of The DX Edge, has sent us a sample Great Circle Slide for their DX Edge. (They are a **Worldradio** advertiser.)

Our Great Circle Slide is made for a latitude of 40 degrees (north or south). Other slides are available for latitudes of 60, 50, 40, 30, 20, 10 and 0 degrees. This new slide, when used with the DX Edge, lets DX'ers determine beam headings to any location in the world with enough accuracy for almost any purpose. It also shows the beam heading to use for pointing your antenna along the Gray Line.

The Great Circle Slide is printed in green on clear vinyl so as not to interfere with the red printing on the monthly curves that are used with the DX Edge.

Each slide shows 16 true great circles and are spaced every 22.5 degrees. Both short and long-path routes are shown. The price of the Great Circle slide is $3 when purchased together with the DX Edge, (see their ad elsewhere in this issue), and $5 when purchased separately, postpaid. You should order the slide nearest your location. No one can be more than 5 degrees from the location for which they are made, except those living north or south of 65 degrees.

PSE QSL, OM!

The following item was written by Mike Ludkiewicz, W1DGJ, of Ludlow, Massachusetts, and printed in the May

Propagation

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

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

You can get a free *complete* set of these predictions for low angle antennas, Maximum Usable Frequency (MUF) and Frequency of Optimum Transmission (FOT). Requests should be sent to Bill Welsh, W6LS, 2814 Empire, Burbank, CA 91504. Each request should be accompanied by a self-addressed stamped (54¢) envelope at least 9″ × 11½″.

JANUARY 1985

UTC	AFRI	ASIA	OCEA	EURO	SO AM
0100	14.3	21.2	26.3	9.4	17.1
0200	11.0	17.3	22.4	9.2	14.6
0300	8.7	14.0	18.9	8.9	13.5
0400	10.1	12.8	16.3	8.2	13.0
0500	9.3	11.1	14.2	7.4	12.6
0600	9.5	10.3	12.9	6.9	12.6
0700	10.2	10.4	12.6	8.0	13.3
0800	10.8	10.0	12.4	10.6	13.7
0900	10.9	9.9	11.8	11.4	13.8
1000	10.6	10.5	11.7	11.8	13.8
1100	9.8	11.3	12.5	11.2	11.5
1200	9.1	10.7	12.8	10.2	10.0
1300	9.9	9.9	11.4	9.6	11.5
1400	12.9	8.8	10.3	11.8	15.8
1500	17.0	10.0	12.6	16.2	20.5
1600	20.3	12.2	17.6	17.4	23.2
1700	22.8	10.5	16.2	14.9	24.4
1800	25.3	9.8	16.3	12.4	25.3
1900	25.4	10.3	18.2	10.3	26.3
2000	23.9	12.3	21.2	9.1	27.0
2100	22.4	15.9	23.4	8.5	27.1
2200	20.5	19.7	23.9	8.6	26.5
2300	18.3	22.8	24.1	8.9	24.5
2400	16.4	24.3	25.3	9.3	20.9

1984 issue of *Zero Beat*, newsletter of the Hampden County Radio Association.

Last November, in preparation for writing a *Chronology of W1DGJ*, a short autobiography of my amateur career, I noted that in an old log book from 1959 I had made a contact with FQ8AF in French Equatorial Africa. The QSO was made on 10 meters AM, and a note in the log confirmed that a QSL card had been sent directly to Gustave Crauet, at Aeronautique Civile, Brazzidville, Moyen-Congo, French Equatorial Africa. I had never received a response to my request for a QSL card.

For three years now, I have been at the top of the DXCC Honor Roll on both the mixed and phone modes. I have a total of 345 countries confirmed, including the deleted countries. I thought what a delight it would be to get a "new" country confirmed! French Equatorial Africa has been deleted from the DXCC listing and only contacts made before 16 August 1960 would count for the FQ8 prefix. French Equatorial Africa had been divided into four new countries: Congo (TN), Gabon (TR), Chad (TT) and the Central African Republic (TL). I looked through the current Callbook and found no Gustave Crauet listed in any of the new countries.

I dropped a short note to the editor of *QRZ DX* in Richardson, Texas and inquired if they could help me locate the present whereabouts of ex-FQ8AF. My request was published in *QRZ DX* at the beginning of December and I immediately received a letter from Frank Wolk, N5FW (ex-W5HPV), who also worked FQ8AF in 1953 and was still seeking a QSL card from him. Frank informed me that he also contacted Gus in 1971 operating TU2AF, but lost the trail there.

I received a letter from Don Karvonen, K8MFO, who likewise has been trying to get a QSL from FQ8AF since 1960 with no luck. Don gave me an address in Beauvais, France that was the last address he had for Gus, and it eventually turned out to be his current address. Don had received a QSL from Gus for a 1972 operation from TT8AC but has had no success receiving an FQ8AF QSL after many tries which included DX stamps, IRC's, dollar bills, and homemade QSL's that required only his signature.

I also received an encouraging letter from Rick Dorsch, NE8Z (ex-HC1MD/HC5EE). Rick suggested trying to contact ex-FQ8HD, who is Ray Robinson, FY7YN, in Cayenne, French Guiana. At this point I decided to try writing to other people who may have known Gustave Crauet in Brazzidville and could help me trace Gus's travels. I sent letters to FY7YN, TU2AE and to TN7AQ in Brazzaville, People's Republic of Congo. I also tried to get any information available from contacts over the air.

From F6EWK I learned that Gus has a brother, Jean Louis, F9EP, and lives in L Etang-la-ville, Pierre F6INJ, in Chatou, contacted Gus's brother for me and had him confirm that the address I had in Beauvais was correct. He also gave me a bit of news that was a disappointment to me. He told me Gus was no longer an active Amateur Radio operator.

I wrote a letter to Gus and explained my wishes. I also wrote to his brother and asked for his assistance if Gus did not understand my English letter. I also thought he might not understand my big interest in such an old confirmation. While waiting for a reply, I also wrote to F6EWM, DL3NBH, F6CQI, F6AIR, F9JQ, F9GL, F2BS and F9MD to ask their assistance in obtaining this "rare" QSL. To whet my appetite, K1DRN sent me a Xerox copy of an FQ8AF QSL card received many years ago. I waited for a reply from Gus.

But today, 24 years, three months and five days later, I received an FQ8AF QSL card from Gus confirming our contact in December 1959. It may not set a record in the *Guinness Book of Records*, but I must admit that of the 346 countries I now have confirmed, it was the most difficult to obtain. My many thanks to everyone who helped me get another "new" country confirmed for my DXCC.

Epilog: On 26 March 1984, my FQ8AF QSL card was accepted by the ARRL as country number 346 for DXCC!

DX newsletters

Ever wonder where I get most of my information for this column? Most of it comes from the four DX newsletters we receive. If you are serious about working DX and wish to have the latest information, you should subscribe to one or more of these bulletins.

The Long Island DX Bulletin is published by Harvey McCoy, W2IYX, and hits the mails every two weeks. The bulletin was once affiliated with the Long Island DX Association. Subscription rates are $12 per year (26 issues). Write to Harvey at P.O. Box 173, Huntington, NY 11743-0876. Look for Harvey's photo elsewhere in this column.

Down in Richardson, Texas, Bob Winn, W5KNE, edits his weekly *QRZ DX*, which is full of useful DX information. The subscription rate for this one is $28 per year (52 issues). To subscribe, send your check or money order to Bob at P.O. Box 834072, Richardson, TX 75083. Bob refers to his newsletter as *DX Tips for big guns and little pistols.*

Over on Burnap Brook Road in Andover, Connecticut, *The DX Bulletin* is published by Jim Cain, K1TN. This one is also a weekly DX newsletter. For subscription rates, contact Jim at *The DX Bulletin*, Andover, CT 06232. Annual subscriptions include 50 issues per year. (Jim goes fishing a couple of times a year.)

DX News Sheet is a weekly publication of the RSGB (Radio Society of Great Britain). The newsletter is a single sheet that is compiled and edited by Don Field, G3XTT, and Martin Atherton, G3ZAY. For subscription information, contact the RSGB at Alma House, Cranborne Road, Potters Bar, Herts, ENGLAND EN6 3JW. The *DX News Sheet* was founded by Geoff Watts, of the IOTA awards fame, and was edited and published by him for many years.

Note that the prices quoted for the first two newsletters apply to domestic mails only (plus Canada and Mexico). Overseas rates are slightly higher.

Antique QSL Department

Paul C. Loiseau (Bird), WB2SIU, sub-

mitted the 1937 QSL for the former country of the Belgian Congo. At that time, he was an SWL and Short Wave DX Editor of the *Evening Journal* in Vineland, New Jersey. The operator of OQ5AA was G.W. "Doc" Westcott, formerly ON4CGW.

Bob Truhlar, W9LNQ, submitted the South African card, which came from the estate of Roy Weisbach, W9UX. This also was a 1937 contact that Roy, then operating as W9PST, made with ZU2B on 20-meter CW on 28 March.

Fred Seifert, W5FS, writes regarding the I6USA QSL card a couple of issues back. Fred says it brought back many memories of a number of contacts he had with the station while he was stationed at Fort Monmouth. Fred, formerly W2RVU, worked I6USA on 19 February 1947 and has their QSL number 87 to confirm the contact. The station had a rhombic antenna on the USA.

Fred also has a ZD4AB card for a contact made on 16 March 1947. Fred says, "by that time T.F. Hall had been transferred inland to Koforidua, Gold Coast, by the Posts and Telegraphs Department."

QSL Bureau changes

Via *Westlink Report*, the following bureaus for incoming QSL cards have been changed, or addresses modified:

3rd Call Area:
CCARS
P.O. Box 448
New Kingstown, PA
17072-0448

4th Call Area:
Sterling Park ARC
Call Box 599
Sterling Park, VA 22170

5th Call Area:
ARRL W5 QSL Bureau
P.O. Box 44246
Oklahoma City, OK 73144

VE5 Call Area:
VE5 QSL Bureau
B.J. Madsen, VE5ADA
739 Washington Drive
Weyburn, SK S4H 2S4

VE6 Call Area:
CRRL Incoming Bureau
N.F. Waltho, VE6VW
General Delivery
9714-94th Street
Morinville, AT T0G 1P0

Virgin Islands
Virgin Islands ARC
GPO Box 11360
Charlotte Amalie
St. Thomas, VI 00801

SWL: Mike Witkowski
4206 Nebel Street
Stevens Point, WI 54481

The fourth call area bureau listed above applies to two-letter prefix calls only (i.e., AA4, KB4, NC4, WD4, etc.).

Do you have envelopes on file in your incoming QSL bureau? The service is operated by the membership of the ARRL and is available to all amateurs. You do not have to be a member of ARRL to enjoy this benefit. Personally, I feel it should be for members only.

QSL information

Several readers responded to my comment that I had not received my YV0AA QSL card. Actually, I did receive it the end of August, within two weeks after I had prepared the column. As to the receipt date of those who responded, the earliest was in June. Those who responded include Dallas Richards, WA0CFZ; C.G. Stuart, W8AN; Bill Winnegar, N6UW; Fred Seifert, W5FS; Carl Zelich, AA4MI; and Cole Murphy, W3BBL. We appreciate your taking the time to comment on the QSL situation of this DXpedition.

Now, if you still haven't received your YV0AA QSL, try submitting your request again. If you didn't provide an SAE and appropriate funds, your card will no doubt arrive via your local QSL bureau. You do have envelopes at your bureau, don't you?

The address for your Aves Island card, if you still need one, is Radio Club Venezolano, P.O. Box 2285, Caracas 1010A, VENEZUELA. *DX News Sheet* reports that only cards signed by Edwin Rivera, YV5HUJ, will be considered as official confirmation for the YV0AA Aves Island DXpedition last March.

Carl AA4MI adds some interesting points on the QSL situation. He says, "I think that many times the mails do go astray. But I do not believe it is the fault of the postal systems worldwide. Often times people get tempted by those 'funny' call signs we use on the outside of our correspondence. Temptation to see what this 'secret code' means often leads some into looking for money. When they don't find anything, they just throw the contents away."

It is always a good idea to not include any reference to radio on the envelope. I can remember some years ago that often the editors of **QST** would encourage one to include their call sign in their address, as one should be proud of their call. But those were the days when "green stamps" weren't included with the QSL card.

While we are on the subject of long-overdue QSL cards, Cole W3BBL writes that he is having trouble getting his AZ5ZA cards. The route for this one was LU2A. Several months ago, I suggested via Gorostriaga 2230 P-15A, 1426 Buenos Aires. It looks like that is also no good. I haven't received my AZ5ZA card either, nor that of LU5ZA and LU5ZI (1983 and 1982 DXpeditions).

I wonder if anyone has ever received a QSL card from 4S7VG? I worked him in January 1982 and sent two direct cards, but no responses.

QSL routes

A4XJW	—N4WVF	KG4AW	—KA4TAY
A22BW	—OK3KD	KG4DX	—WB2CPV
A22DP	—W7GVC	LZ40KDP	—LZ1KDP
A22WZ	—OE3NH	ND5K/DU3	—ND5K
A24DM	—AK1E	OD5NT	—WA3HUP
A92DQ	—K2IJL	OX3CX	—SM6HCX
AH8A	—K6EDV	OX3GH	—WA2TTI
AI5P/TF	—W3HNK	OX3KP	—OZ1HDF
BV0AB	—JH6SOR	PA3CPG/LX	—PA3CPG
BV0W	—W4WJ	PP2ZZD	—W4BAA
C6ANU	—VE1ZL	PY4WAS/PU8	—PY4WAS
C30LAI	—EA3BKZ	RI8CA	—RA3AR
C30LBM	—EA5AQX	RJ6K	—UJ8JMM
C30ZA	—WP2ABZ	RT1I	—UB4IXZ
CO2KK	—KE5KK	S6HZR	—WA2HZR
CS3RTP	—CT3BD	SV0AC/SV9	—WB5GCP
CT2CB	—N2DUR	T32AB	—N7YL
CT4NH	—W3HNK	TA2CN	—N8CQ
DJ0SB/C6A	—DJ0SB	TG9HH	—N5HH
DK9KX/5A	—DK9KD	TG9VT	—W3HNK
DL3RC/LX	—DL8YR	TI2WI	—TI2J
DL4AOJ/LX	—DL8YR	TI4BGA	—TI5BGA
DL4FU/LX	—DL8YR	TI5EWL	—AG1K
DL4KI/LX	—DL8YR	TT8RP	—F6KGU
DL8KAW/LX	—DL8YR	TZ6FIC	—F6CRS
DL8YR/LX	—DL8YR	UR1RWW	—W7PHO
DP4KA/LX	—DL8YR	UZ9SWY	—N7RO
ED1ISI	—EA1ANE	V3KK	—KE5KK
ED2EEE	*(See Note 1)*	V85MS	—N2OO
ED3RCD	—EA3CUO	VE8YQ	—WA9AEA
ED7SVA	—EA7GI	VE0MAR	—VE2FOU
EI2VSV/EJ0	—DK7JR	VP2MDG	—W6FDG
EK1AB	—UZ3DD	VP2MIX	—W0IJN
EL2EF	—KM8E	VP2VIX	—WP2ABX
ET3PS	—DJ9ZB	VP8AOB	—K0JW
F0AMY/FC	—DL4FF	VP8AXJ	—G4NFT
F0ICR/FO8	—I3EJ	VQ9AC	—KA3EDN
F0IRK/TK	—DJ2EY	VQ9SK	—WB6SKS
FB8WJ	—W4FRU	W3TB/TF	—W3IVG
FG0UQ/FS	—W3HNK	W0PU/SV9	—WB4TDB
FM7CD	—F5VU	WA2HZR/V9	—WA2HZR
FM7WD	—W3HNK	WA2HZR/ZS	—WA2HZR
FO8JP	—F1BBD	WA2PWL/DU2	—WB0TEC
FO8KP	—F6GKB	WB9IHH/V2A	—WB9IHH
FT8XA	—F6FYD	WP4ATF/KP5	—WP4ATF
FW0BX	—ZL1AMO	XJ7R	—VE7RG
HH2Q	—I2YAE	XU1SS	—JA1HQG
HI3EMS	—N2BJX	XX9DX	—VS6DX
HK0BKX	—WB4QFX	XX9WW	—JH1AGU
HK0HEU	—HK0FBF	YB3DC	—KO2A
HL9XX	—AF3R	YB5ASO	—W4BBP
HP1XEK	—DL1HH	YB0AFA	—WA7OGU
HP1XJC	—NR4V	YN1FI	—VE3JDO
I1YXN/IA1	—I1YXN	YN1QG	—VE3JDO
IM0IGV	—IS0MVE	ZC4CZ	—G4MGQ
IM0LYN	—IS0LYN	ZD8LA	—G4OFY
J5WAD	—UA4PW	ZD9CA	—KA1DE
J37AH	—W2GHK	ZF2GE	—WA4WTG
J73D	—W2OB	ZF2IB	—4Z4DX
J88AQ	—W2MIG	ZK2IK	—ZK2NU
JW0EQ	—LA5NM	ZL7OY	—VK3DWJ
K1EFI/VP9	—K1EFI	ZL0AIX	—N5GGL
K6SSJ/OH0	—K6SSJ	ZP5JAL	—KO2A
KA2DIV/V2A	—WB4OSN	ZS3HL	—KE1A
KC2CS/J6L	—KC2CS	ZS3TL	—W7PHO
KC2JM/J6L	—KC2JM	ZS6BUX/A22	—ZS6BUX
KC6JA	—K6EDV		
KD4HE/OA4	—WB2MOQ		

ZS6JR	—KA3DBN	5T5RD	—F6IJA
ZZ2CW	—PY2 Buro	5T5RY	—F6FNU
3A2EE	—F9RM	5W1EX	—W6ZH
3A2GB	—W2GBX	5X5GK	—JA1BK
3A2RI	—WP2ABZ	5Z4DE	—W4PKM
3A4E	—F9RM	5Z4JD	—KB6AIT
3A4F	—F9RM		*(See Note 3)*
3C0A	—I8ACR	6W1HF	—W0ZUZ
3D2BD	—ZL1BD	6W1NQ	—DL1HH
3D2FR	—NE4S	6W2EX	—F6HRI
3D2LJ	—ZL1AXU	6Y5IC	—KE3A
3D2MO	—ZL1AXU	6Y5MC	—WA4WTG
3D6AJ	—WB3CQN	7P8CI	—KA2CDE
3V8AI	—IN3RZX	8Q7RM	—JE3MXQ
3V8ZY	—IN3RZY	8R1AW	—W7AW
4K0B	—UA1MU	9G1CI	—LA4O
4N2KO	—YU2BOP	9J1NO	—DL5FX
4S7EF	—JE2RDO	9M2HB	—N4FFN
4S7NMR	—KZ8Y	9Q5JE	—DL0HT
4S7VK	—DJ9ZB	9X5SP	—DL8OA
	(See Note 2)	9X5VL	—ON4AR
5H3BH	—SM0EAI	9Y4NP	—W3HNK
5N3RTF	—DK2IF		

A24MC	—P.O. Box 436, Gaborone, BOTSWANA
A24TJ	—P.O. Box 369, Gaborone, BOTSWANA
AH9AB	—Dave Kniss, P.O. Box 248, WAKE ISLAND 96898
BY4AA	—P.O. Box 205, Shanghai, PEOPLE'S REPUBLIC OF CHINA
BY5RA	—P.O. Box 730, Fuzhou, PEOPLE'S REPUBLIC OF CHINA
C21DB	—P.O. Box 225, REPUBLIC OF NAURU
C21FS	—P.O. Box 83, REPUBLIC OF NAURU
CE0AA	—P.O. Box 700, Santiago, CHILE
CE0ZIJ	—P.O. Box 1, Easter Island, CHILE
CN8MC	—P.O. Box 299, Rabat, MOROCCO
CO2GB	—Gloria, P.O. Box 9, Havana 1, CUBA
CP8HD	—P.O. Box 322, Trinidad, BOLIVIA
CT2QN	—P.O. Box 165, Angra, AZORE ISLANDS
EA9GT	—P.O. Box 556, Ceuta, SPAIN
EL2BB	—P.O. Box 463, Monrovia, LIBERIA
FB8WK	—P.O. Box 190, Mazamet, F-81200 FRANCE
FG4DI	—P.O. Box 969, Point a Pitre, Guadeloupe, F-97177 FRENCH ANTILLES
FG7BM	—P.O. Box 1249, Point a Pitre, Guadeloupe Island, F.W.I.
FH4AA	—P.O. Box 4, F-97600 Mayotte, via FRANCE
FH8CR	—P.O. Box 28, F-97610 Dzaoudzi, Mayotte via FRANCE
FK8FF	—P.O. Box 4202, Noumea, NEW CALEDONIA
FP8CJ	—P.O. Box 37, St. Pierre and Miquelon, F-97500 FRANCE
FW8AF	—Francis, P.O. Box 92, Matautu, WALLIS ISLAND
GU3KFT	—P.O. Box 100, Guernsey Island, UNITED KINGDOM
H44IA	—P.O. Box 219, Honiara, SOLOMON ISLANDS
HC1A	—P.O. Box 280, Quito, ECUADOR
HK1GAD	—P.O. Box 1370, Cartagena COLOMBIA
HS0A	—P.O. Box 2008, Bangkok, THAILAND
J28EB	—P.O. Box 2417, Djibouti City, DJIBOUTI
J88AN	—P.O. Box 103, Kingstown, ST. VINCENT
J88AR	—P.O. Box 106, ST. VINCENT
JT1BG	—P.O. Box 158, Ulan Bator 13, MONGOLIA
JT1BQ	—P.O. Box 27, Naraikh, MONGOLIA
JY5AZ	—P.O. Box 5100, Amman, JORDAN
JY5CI	—P.O. Box 616, Amman, JORDAN
OD5JL	—Said Alayli, P.O. Box 225, Abu Dhabi, U.A.E.
OX3GU	—P.O. Box 1227, Dundaz 3970, GREENLAND
P29JS	—P.O. Box 515, Konedobu, PAPUA NEW GUINEA
S79CW	—P.O. Box 4, Mahe, SEYCHELLES
SV5OX	—P.O. Box 157, Rhodes, GREECE
SV0BV	—P.O. Box 33, Glyfada, GREECE
T32AN	—Phillip, P.O. Box 493, Tarawa, KIRABATI *(See Note 4)*
TF5EP	—P.O. Box 835, Akureyri, ICELAND
TR8JLD	—P.O. Box 484, Libreville, GABON
TR8JYC	—Jean, P.O. Box 2127, Libreville, GABON
TU2AX	—P.O. Box 3349, Abidjan 01, IVORY COAST
V44KA	—P.O. Box 2, ST. KITTS
V44KG	—P.O. Box 20, ST. KITTS
V85HG	—Hassan, P.O. Box 222, BSB, BRUNEI
VE1CHG/4U	—Jay H. Jackson, P.O. Box 336, Site 1, Camp Debert, NS CANADA B0M 1G0
VK9LHI	—P.O. Box 31, Winmalee NSW 2777, AUSTRALIA
VQ9DX	—Steve Brown, VP-19 WC 660 AIMD, FPO San Francisco, CA 96601
XE1MBF	—P.O. Box 1157, Leon, Guanajuato, MEXICO
XT2BO	—P.O. Box 182, Ougadougou, REPUBLIC OF UPPER VOLTA
XT2BS	—P.O. Box 284, Ougadougou, REPUBLIC OF UPPER VOLTA
XX9AN	—Simon, P.O. Box 568, MACAO
YB3BHP	—P.O. Box 302, Surabaya, INDONESIA
YN5RR	—P.O. Box 122, Jinotepe, NICARAGUA
Z21GH	—P.O. Box 2377, Harore, ZIMBABWE
ZB2HT	—P.O. Box 292, GIBRALTAR
ZB2HX	—Mike, P.O. Box 292, GIBRALTAR
ZD7AO	—P.O. Box 25, ST. HELENA ISLAND
3D2MP	—P.O. Box 5324, Suva, FIJI ISLANDS
4S7GF	—P.O. Box 907, Colombo, SRI LANKA
5B4NG	—P.O. Box 1492, Nicosia, CYPRUS
5N8AMA	—P.O. Box 7355, Kano, NIGERIA
8R1J	—Peter Taylor, P.O. Box 10767, Georgetown, GUYANA
9J2LG	—P.O. Box 30441, Lusaka, ZAMBIA
9L1YL	—P.O. Box 992, Freetown, SIERRA LEONE
9X5BJ	—P.O. Box 626, Kigali, RWANDA

Notes

1. CW contacts with ED2EEE go via EA2AMU; SSB contacts to EA2AJT.
2. QSL cards may also be sent direct to P.O. Box 907, Colombo, SRI LANKA.
3. QSL cards may also be sent direct to P.O. Box 6, Migwani, via Kitui, KENYA.
4. Alternate route for this one is c/o ABC, P.O. Box 667, Aiea, HI 96701.

Many thanks go to the following con-

(please turn to page 47)

AMSAT OSCAR

Dr. Norman L. Chalfin, K6PGX

100 years of GMT

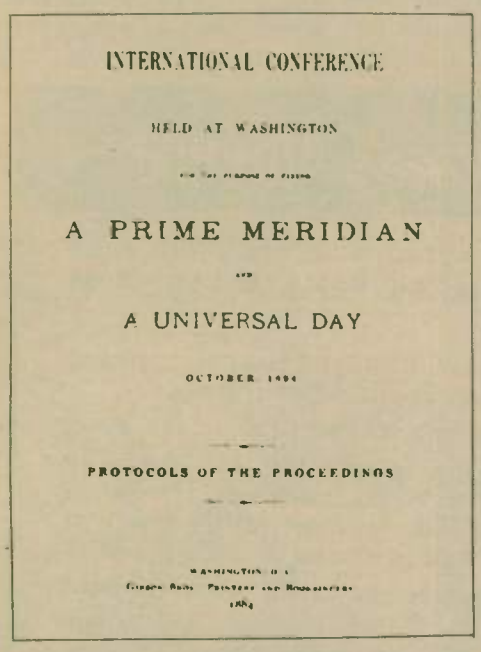
Whenever you have been given time information in this column relating to AMSAT/OSCAR spacecraft orbital crossings or positions it has been in UTC. The abbreviation identifies Coordinated Universal Time. The term "Zulu" time is sometimes used but this is, I believe, slang. UTC is also Greenwich Mean Time or GMT.

Universal Time, or GMT, has several components which have been designated UT0, UT1 and UT2. UT0 and UT1 are used in precise surveying. UTC differs from UT2 by less than 0.1 second.

Coordination of Polar Motion, terms related to the speed of the Earth's rotation and direct and indirect lunar terms, are involved in the corrections applied to Universal Time to generate "Coordinated" Universal Time. This is the reason one sometimes hears the term Corrected Universal Time.

The reason for the explanation above is that 1984 is the 100th anniversary of the establishment of the Greenwich Meridian as the start of worldwide time zones.

At a meeting in Washington, D.C. in 1884, 45 delegates from 25 countries of the world met and most agreed to recognize the zero hour of a 24-hour day at Greenwich, England as the point from which time reckoning each day should begin.


INTERNATIONAL CONFERENCE

HELD AT WASHINGTON

A PRIME MERIDIAN

AND

A UNIVERSAL DAY

OCTOBER 1884

PROTOCOLS OF THE PROCEEDINGS

The cover of the report of the International Conference held in Washington, D.C. in October 1884, at which an agreement was reached to establish the Greenwich Meridian as the zero longitude line for UTC.

Sometime before 1880, Sandford Fleming of Canada and Charles Dowd of the United States proposed the establishment of Standard Time zones. They proposed 24 standard meridians around the Earth, starting from the Greenwich Meridian as the Prime Meridian at 15 degree intervals of longitude where one hour time changes would occur from meridian to meridian. These time zones, established as a result of the 1884 Conference, are now adopted just about everywhere. There are seven time zones in the United States alone.

At Greenwich, this year — 1984 — is the Meridian Year. It celebrates the 100th anniversary of the adoption of the Greenwich Meridian as zero longitude and the center of the time zone system of the world.

Prior to the establishment of the time zone system and during its early period, it was probably used only by astronomers and sailors. Most of the merchant marine and navies of the world used the time zone system centered at the Greenwich Meridian.

At Greenwich at the Old Royal Observatory courtyard, there is a brass strip along the line of the zero meridian which marks the path of the meridian. This line is established by the Airy transit telescope.

The four commemoration stamps issued by the British Post Office, in celebration of GMT's 100th anniversary.

The telescope is in the Eastern and Western Hemispheres at the same time. It was designed by Sir George Airy, the seventh Astronomer Royal. The Airy transit circle is a specialized instrument to measure the fundamental positions of stars with reference to a clock that runs at a precise and steady rate.

Two observers are required to make the measurements of the right ascension and zenith distance of a star from the same meridian crossing.

The first watches the star moving across the telescope's field of view, and just as it crosses the crosshairs on the viewing device, he punches a button which produces a mark on a large rotating drum.

The second observer looks through a microscope and reads the distance from the zenith on a graduated scale at which the crossing occurred. The scale is on a 6-foot circle and the readings are made at seven points about the circumference of the circle. This establishes the Zero hour Zenith position at the Greenwich Meridian of zero degrees longitude. From that point eastward, one adds an hour. To the west we subtract an hour from the starting time.

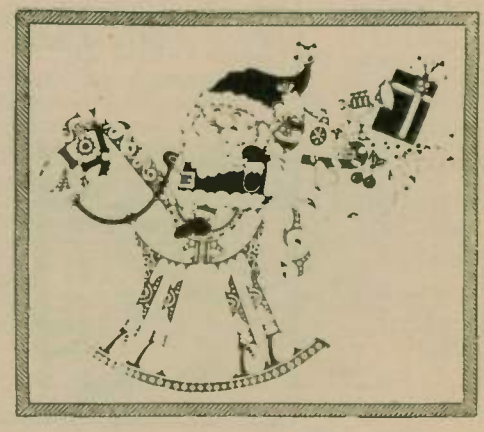
An interesting sidelight to all of the information about the Royal Observatory at Greenwich is the fact that Edmund Halley, who served at the Observatory from 1720 to 1742, predicted the orbit of the comet that now bears his name. We can expect the comet to return in 1986.

The British Post Office issued these four stamps to commemorate the 100th anniversary of the establishment of the Greenwich Meridian as the internationally recognized start of the time zone locations for reckoning time in communications and navigation, both on the surface of the Earth and in space.

The 31p stamp has an illustration of the Airy Transit Telescope. The 28p stamp has an aerial view of the Royal Observatory at Greenwich.

The 20½p stamp is a navigational chart of the English Channel.

The 16p stamp is a view of the Earth showing Western Europe and the British Isles. It was taken by the Apollo 11 astronauts from space. In each of the images the line through the image is the Greenwich Meridian. □



Before we get into holiday gift gadget giving, let's take a look at some of the most often-asked subjects we have covered this year.

Yes, good grounding techniques for boats also apply to home installations. Using the ground foil for developing a five-band trap radio radial system dramatically improves performance.

About 20 of you tried it, and your glowing letters and increased signal reports certainly indicate that foil is better than small radial wires. Since current is maximum directly at the feedpoint on the radial system, copper foil with its large ground area will improve any vertical antenna system.

Did you ever wonder why you get out so well with your mobile but so rotten with your home five-band trap vertical on the roof? Take a look at the puny ground-plane — changing those single quarter-wavelength wires to double copper foil runs at a quarter-wavelength for each band will make a huge difference.

We also received many letters indicating that TVI was all but eliminated by running a common copper foil strip from the rear end of your transceivers to an earth ground post. Slim copper foil tentacles can be soldered to the wide, 3-inch copper foil ground strap to attach each transceiver. Each tentacle is folded up like an accordian so you can pull out the transceiver — still connected to the ground source — for routine service. This makes for a sanitary installation.

Three-inch wide, 4 mil, copper foil is available directly from Radio School, 2414 College Dr., Costa Mesa, CA 92626 at 60 cents per foot. It's a terrific investment for home or afloat. Since your mobile is already metal, you won't need it there.

Several readers were "shocked" that I would openly discuss measures to "unlock" the transmitter section for all-band transmit on high-frequency radios. Wait until they see last month's article on unlocking the transmitter section for 2-meter hand-helds for marine radio receive coverage.

Maritime net for beginners

Carl and Leona Wallace (K6YEO and WA6OHB) have been working hard to promote more CW operation for beginner hams who are cruising in Mexico. Their Amateur Radio classes have added several new hams to their ranks of cruising mariners. The big questions is, "How do we get them on the air?"

"Many of our new hams are self-conscious of their ability to send code — but they shouldn't be. We invite all Novices to join us on 7125 kHz at 0900 MST. This will allow the beginners to increase their code speed for the ultimate preparation of their General Class license," comments Leona Wallace, WA6OHB.

Since everyone is using CW, the Q codes are an invaluable way of keeping communications time short. Thanks to Chuck Sheffer, WA6BZJ, we now have some marine adapted Q codes that will make it easier to transmit the following information:

QRA	Name of vessel
QRD	Bound For or Bound From
QRE	ETA (Estimated Time of Arrival); use GMT or Z time
QTH	Position (latitude or longitude or port name)
QTI*	True Course Degree
QTJ*	True Speed Knots
QTL*	True Heading Degree
QTM*	Magnetic Heading Degree
QTN	Departure Time GMT or Z and date

QUB* 1	Weather Data Request or is Requested
QUH*	Barometric Pressure, Mb-Hg plus up or down
* Ref.	International Code of Signals HO-102
1 QUB	Weather Data
D	Wind Direction Degree
K	Wind Surface Speed Knots
M	Visibility Miles
PR	Precipitation: FOG, DRZ, RAN, SNO, SWR, TDS
P	Cloud cover percent in 10 percent increments

— de WB6NOA

The best way to operate 2 meters, for maximum range

I believe that Amateur Radio operators who read this column possess the ability to know good from bad — we have made it clear that transmitting on frequencies out of the ham band is specifically illegal. Even if you don't modify your transceiver, most radios already transmit a little bit above and a little bit below the authorized Amateur Radio band limits.

I believe the safety aspects of having an emergency transmitter in times of emergency outweigh any fears that any Amateur Radio operator is going to cut a wire and start transmitting on the exact same frequency as WWV.

As Amateur Radio operators, we are interested in all of the radio frequencies for receiving and high-frequency and VHF modifications unlock our equipment to serve as worldwide receivers and very-high-frequency scanners. If you're far out at sea and you spring a leak, your most direct call for help would be 156.800 MHz to the Coast Guard — not necessarily to a local Amateur Radio repeater 75 miles inland.

Since the new ICOM 02AT — as well as the new Kenwood hand-held — nicely convert up to these marine channels, I think it's only natural that we take advantage of the capability that is there — for emergency use only. If nothing else, simply receiving the marine channels for local weather reports and distress messages is a tremendous utility to the ham with a new hand-held 2-meter transceiver.

Remember, as Amateur Radio operators, we are allowed to work on our own equipment. It is only illegal to *transmit* on frequencies outside of the ham bands — not receive them with modified ham sets.

Speaking of hand-helds, the advent of the speaker microphone has given most hams the ability to strap the hand-held on their side and simply use the speaker-mike combo for talking to other amateurs. This is a common practice, and works well within a half mile. It works horribly beyond that.

In recent tests aboard a small boat, we found that communication range between two hand-helds worn on the belt with a speaker mike was reduced by 80 percent!


Range at a minimum

When these same units were held up and transmitted so the antenna was in the

clear, range increased by 80 percent. I bet you didn't realize your body was such a good attenuator. Since the antenna lies right up against your mid-section, the range goes to you-know-where in a hand-basket.

If you plan to do any serious communicating at all with a hand-held transceiver, pick it up and use it with the antenna in the clear. If you want range kept to a minimum, go ahead and leave it strapped on your belt.

Gift-giving ideas

Those telescopic whips make great gifts. When fully elongated and operated in the clear, the telescopic whip on your hand-held may increase range by as much as three and four times that of a rubber duck antenna. We receive the most favorable comments about the AEA "Hot Rod", the unit with a red loading coil. It's half-wave in design, which eliminates the need for any groundplane.

For you mariners, the waterproof bag from ICOM is really a lifesaver when things get wet. It's $30, and available from most Amateur Radio stores or at Radio School (address above). The bag will keep the radio 100 percent dry, and fits almost any type of hand-held made. You can dunk it, submerge it, splash it and try to drown it, but the bag will float your radio and prevent a costly repair charge.

Telescopic whips help range

Waterproof your hand-held

The 12- and 24-hour digital clocks also make for great gifts. If you have a special ham friend who works the worldwide low bands, this is a terrific idea — almost all HF operation revolves around UTC.

If you do a lot of HF operating aboard your boat, chances are there may be someone on your crew who's not interested in all those sounds that imitate Donald Duck. Extremely lightweight headphones are available from several manufacturers that allow you to pipe the sounds directly to your ear, rather than throughout the cabin from your speaker. These headphones aren't like the old ones that completely covered up your ears — they look exactly like the ones your son and daughter use on their rock tape players. All the impedances are the same, so just make sure to get one with a regular phono plug that matches your transceiver headphone output.

If you are operating your equipment from an old converted power supply, you may wish to consider a gift for yourself and your gear with an Astron power supply. I have personally visited the Astron power supply company, and I can't overemphasize how dedicated they are to the Amateur Radio community. Not only are their power supplies regulated, they are also doubly protected against overload, reverse polarity and accidental zap. We have analyzed the ripple output of the supplies, and they match the pure DC capabilities of more expensive marine industry power supplies that sell for four times as much.

Service is never a problem with Astron. If you are fortunate enough to live in the local area of Southern California, they generally fix their supplies while you wait. Not many companies can offer that kind of service.

Installation of the month

I'm still working on an antenna tuner for HF marine installations. What we are looking for is a tuner with built-in power meters (forward and reverse), multiple antenna outputs, 50-ohm and low-impedance long-wire outputs, as well as enough room on the inside to keep inductors and capacitors from arcing over in moist atmosphere.

Since Cubic (Swan Company) is no longer making their work horse ST-3B tuner, we're looking for someone else to fill their shoes at around $175. Presently, most mariners have chosen the MFJ tuners, and they are working out quite well. We would simply like to see a slightly larger model than their present unit, Model 941D.

Upgrade department

We are still looking for a team of three Extra Class operators that would like to begin administering examinations for mariners down south or on the East Coast, and in the Bahamas. Through the volunteer examination coordinator program of Fred Maia, W5YI, P.O. Box 10101, Dallas, TX 75207, a volunteer examination program is available for testing mariners in remote areas.

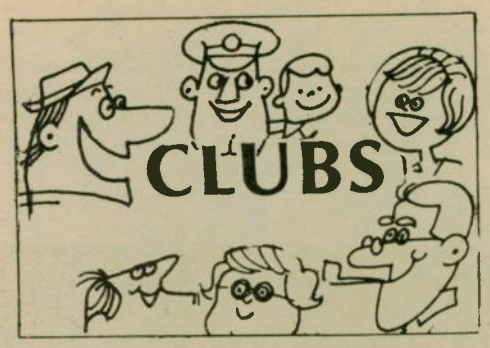
Please send me your name and address, copy of your Extra license, as a team of three Extra Class operators. I'll give all the details to Fred.

By the way, his twice-a-month newsletter would make an excellent Christmas

Mail order upgrade courses

gift — it's only $18 and will always keep you up to date on the very latest of FCC happenings to our Amateur Radio service. Fred Maia has gone all out to help

(please turn to next page)



757 CLUB to start newsletter

John Dowlan, W3HU, Corresponding Secretary of the 757 CLUB INTERNATIONAL, has announced that a newsletter will be available to all members in the very near future. The newsletter will include monthly items of general interest to all Yaesu FT-757GX owners.

A partial list of contents will be: Letters and Views from Owners, Technical Problems and How to Correct Them, Easy Modifications for Improved Operating, Computer Subjects as related to the 757, and a Swap Column. Rounding out the format is a special section for DX Shortwave Listening. This will acquaint all users with the fascination of monitoring other areas of the high frequency spectrum.

Owners of the FT-757GX are encouraged to participate in the 757 CLUB activities, awards program, weekly nets and personal involvement with the club newsletter. Membership is free!

To receive your 757 CLUB Lifetime/Charter Membership number and complete details about the club, please send a large SASE (foreign — 2 IRC's) to: 757 CLUB, Box 5021-A, Spring Hill, FL 33526. □

Start a newsletter

Starting a club newsletter requires a lot of planning and preparation. The following list of steps was handed out to amateurs attending a New England ARRL convention in Boxboro, Massachusetts, on 30 September.

1) Have club officer or Board choose a likely editor-publisher (a member who enjoys writing), and then ask in confidence. Do not ask at meeting for volunteer or appoint a committee. Once going, don't interfere. Be certain to give program and speaker complete info, on time.

2) For readability, use black, clear full-size type. Computer dot-type printing is easy, but not too good. An 8½″ × 14″ (legal size) piece of heavy paper is a good master. Paste ads, articles, photos, postcards, etc. in place. No need to retype.

3) Advertising from local radio or hardware store — $2-$5 an ad with phone number, hours, specials and address! About ¼″ space for ad. Run 100 copies even though only 50 members. Leave 10 to 20 copies in store. Brings in potential customers and members.

4) Print on public library Xerox. Be sure the machine is in good condition and your copy is black and clean. Generally 5 cents each if over 20 copies, even with legal-size sheets. Do both sides later when ads warrant ($).

5) Fold in quarters with lower part of front for ad. Date with day and time of next meeting to remind members. Fold label or large postage stamp to seal closed. Stapling expensive and hard to open. Have officers fold; paste on return address and postage during business meeting.

6) Address with Xerox labels (33 per page) with due date. Type off-center; leave room for fold-over to seal. Arrange phone numbers and calls on side so they can be blanked for mail but to show as

Maritime Mobile

(*continued from page 41*)

amateurs change over from FCC testing to volunteer examinations — his newsletter and his volunteer examination coordinator program is a must. For those of you with an Extra Class license, let's all pitch in and help.

We now have lists of all of the FCC test questions for each category of license. Send $2 to Radio School and specify which category of license you are planning on upgrading to. The list of FCC questions plus the syllabus on studying for those questions will be sent to you first class mail.

You can also drop me a note for our complete Radio School catalogue on upgrading courses. Our four-set code courses at $39.95 will assist any amateur in preparing for his General or his Extra Class license. During the holiday season, we are also including an additional stereo random code preparation tape. That's a total of five tapes for preparing for your upcoming code test as administered by a volunteer examiner.

Next year we will continue with this column, and the next issue we will feature an exclusive report on how Amateur Radio played an important part in the recent Hawaii single-handed race. Jack Edinger, W6LSB, gives all the details, so see you next month. Happy Holidays! □

VISIT YOUR LOCAL RADIO CLUB.

ARIZONA

Tuscon Repeater Association
P.O. Box 40371, Tucson, AZ 85717-0371
2nd Sat/monthly — 7:30 p.m., Pima Co. Bldg.
Net Thurs 7:30 p.m. 146.22/82 (146.28/88 & 147.69/09)
(602) 747-8903 or 899-4776

CALIFORNIA

Amador County Amateur Radio Club
P.O. Box 1094, Pine Grove, CA 95665, Pioneer Elementary School, Pioneer, CA • 1st Thurs/monthly 7:30 p.m.
WA6WIY Rptr. — 146.835, 146.235.
Net Tues. 7:30 p.m.

East Bay Amateur Radio Club
Salvation Army Center
Rheem Ave. & 36th Street
Richmond CA 94804
2nd Friday/monthly — 8:00 p.m.

Electronic Museum ARC
Foothills College, Los Altos
Last Monday/monthly - 7:30 p.m.
(except January and December)

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

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

Livermore Amateur Radio Klub
3508 Gresham Ct., Pleasanton, CA 94566
Meets: Valley Memorial Hospital
Multi-purpose room, Livermore, CA
2nd Saturday/monthly - 9:30 a.m.

North Hills Radio Club
Meets: !3rd Tuesday/monthly — 7:30 p.m.
Carmichael Elks Lodge
5631 Cypress Ave. • Carmichael, CA.
Net 145.19 Thur. at 8:00 p.m.

San Fernando Valley ARC (W6SD)
Red Cross Building
14717 Sherman Way
Van Nuys, CA 91704
3rd Friday/monthly - 7:30 p.m.

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

Santa Cruz County ARC
P.O. Box 238, Santa Cruz, CA 95061-0238
Last Friday/monthly — 7:30 p.m.
Dominican Hosp. Educational Center
K6BJ repeater 146.19/146.79

S. Counties Amateur Teleprinter Society (SCATS)
2nd Sat/monthly — alternates in L.A. & Orange Counties.
60 WPM RTTY Net, Wed. 8 p.m. on 146.10/.70 W6IWO/RPT.
For info. call Howard Rose, N6CPP, (818) 997-1067

Sierra Foothills ARC
PO Box 3262, Auburn, CA 95604
Office of Education Bldg.
360 Nevada St., Auburn CA 95603
2nd Friday/monthly — 1930

Simi Settlers ARC (SSARC)
PO Box 3035, Simi Valley, CA 93063
3rd Thursday/monthly - 7:30 p.m.
Bank of A. Levy (across Larwin Sq.)
K3HZP/R 147.165/.765 Simplex 147.48

South Bay Amateur Radio Association
P.O. Box 91 • Fremont, CA 94536
Fremont School, 40230 Laiolo Rd
3rd Wednesday — 7:30 p.m.

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

Sonoma County Radio Amateurs, Inc.
Box 116, Santa Rosa, CA 95402
Hank Davis, W6DTV (707) 823-7885
County Office of Emergency Service
1st Wednesday/monthly - 7:30 p.m. rpter 146.13/73

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

Ukiah Amateur Radio Club
P.O. Box 1373, Ukiah, CA 95482
Meets: Carpenters Union Hall
2nd Monday/Monthly 7:30 p.m.
President: Bob Rowe - KA6CXM (707) 485-7147

Valley of The Moon Amateur Radio Club
358 Patten St., Sonoma, CA 95476
Darrel Jones, WD6BOR (707) 938-8086 For Info.
Meets: odd months. 2nd Tuesday, 7:30 p.m.. Sonoma Police Dept.; even mo., 2nd Sun., 11 a.m., bkfst.

West Coast Amateur Radio Club
Fun Meetings — No Business
Fountain Valley Elementary School
Visitors welcome — call in 144.330 simplex
Call KA6RRR (714) 636-8661 for dates

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

Yolo Amateur Radio Society (YARS)
Rolind Mahan, AJ6P (916) 756-0882
Heart Federal S&L, Conf. Rm.
3rd & F Sts. (opposite Davis PD)
Davis, CA 95616

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

Dade Radio Club, Inc.
Museum of Science
3280 South Miami Ave.
Miami, FL 33133
1st and 3rd Tuesdays/monthly - 8:00 p.m.

Platinum Coast Amateur Radio Society
1150 S. Hickory St., P.O. Box 1004
Melbourne, FL 32902-1004
Meets: 2nd Monday/monthly at Melbourne Red Cross
Talk-in on 146.25/85 or 146.01/61 rptr.

Indian River Amateur Radio Club
PO 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.

Vero Beach Amateur Radio Club W4OT
Walter Camuso, W1ESN, President
Meets second Thursday/monthly - 8:00 p.m.
American Red Cross Bldg.
2506 17th Ave. • Vero Beach, FL 32960

HAWAII

Big Island Amateur Radio Club
Helco Auditorium
1200 Kilauea Avenue, Hilo
Call-in 146.28/88
2nd Tuesday/monthly - 7:30 p.m.

ILLINOIS

Bolingbrook Amateur Radio Society
532 Sheffield Rd.
Naperville, IL 60565
(312) 369-0747 / call in 147.93/33
3rd Monday/monthly - 7:00 p.m.

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

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.

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

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

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

INDIANA

Indianapolis Repeater Assoc.
4th Monday/odd numbered months
Carson Manufacturing
5154 N. Rural St., Indianapolis
146.10/70 147.72/12 146.625/025

Northeastern Indiana ARC
Jim Sellers
P.O. Box 745, Auburn, IN 46706
Daily 6 p.m. net on 147.96/.36
2nd Tuesday/monthly - 7:30 p.m.

IOWA

RSCB (Radio Society of Council Bluffs)
Richard Swig, WA0ZQG, Secretary
104A Jennings Road
Council Bluffs, IA 51501
2nd Tuesday/monthly - 7:30 p.m.

MARYLAND

Frederick Amateur Radio Club
Old Frederick Court House
Rick Ogden, N3RO
(301) 845-2670
Meets: 2nd Tuesday/monthly - 8 p.m.

MASSACHUSETTS

Whitman Amateur Radio Club (WARC)
Pine Street, P.O. Box 48
Whitman, Massachusetts 02382
Call-in 147.825/225
1st & 3rd Mondays/monthly — 8:00 p.m.

MICHIGAN

South Eastern Michigan A.R.A.
Meets: 1st Fri./monthly 7:30 p.m. K8FC Rptr. 147.75/15
Grosse Pointe North High School
Building C, Cafeteria Commons
Info. Contact WB5YKO (313) 774-2531

MISSOURI

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

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG
P.O. Box 911, Dover, NH 03820
(603) 742-0130/332-8667
2nd Sunday/monthly - 7:00 p.m.
Dover Dist. Court. Talk-in 147.57

NEW JERSEY

Central New Jersey Chapter No 138, QCWA
Net: Ea Tue. evening-10:00 p.m. 147.645/147.045 MHz
Mtgs: Quarterly; Membership or more info:
Bob McKinley, W2OMR, Sec., 89 Stratford Rd.,
Tinton Falls, N.J. 07724 (201) 542-2113

NEW YORK

Long Island Mobile Amateur Radio Club (LIMARC)
146.25/85, 147.975/375, 223.22/.224 .82, 444.125/449.125
Membership: Woody Gerstner, WB2IAP, 42 Mohawk Ave.,
E. Atlantic Bch., NY 11561. Net Mon. 8:30 p.m. 146.25/85
Meets 1st Tues/8 p.m., H.B. Thompson, JHS, Syosset

Hall of Science Amateur Radio Club, Inc.
PO Box 131, Jamaica, NY 11415
Queens County Dental Society Bldg.
86-90 188th St., Jamaica, NY
2nd Tuesday/monthly - 7:30 p.m.

Staten Island Amateur Radio Assn. (SIARA)
P.O. Box 495
Staten Island, New York 10314
Third Friday/monthly — 8:00 p.m.
Rm. B-118, College of S.I. — Sunnyside

Westchester Amateur Radio Association (WARA)
Scarsdale Village Hall
Scarsdale, New York 10583
Bernard Dubbs, President WA2FSR
1st Wednesday/Monthly 8:00 PM

OHIO

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

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

NOARS-Northern Ohio Amateur Radio Society
P.O. Box 354, Lorain, OH 44052-3rd Mon. 7:30 p.m.
K8KRG — Home of the WW II Submarine USS COD
WB8JBM — Noars Contest Station — K8KRG/Repeaters: —
146.10/70; 144.55/145.15; 449.8/444.8; 223.10/224.70

OREGON

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

SOUTH CAROLINA

Trident Amateur Radio Club (TARC)
P.O. Box 73, Summerville, S.C. 29484-0073
Meet-Park Circle Presbyterian Church
North Charleston, S.C.
3rd Monday — 7:30 p.m./Nets — Tuesday 8 p.m.

TEXAS

Panhandle Amateur Radio Club, Inc. W5WX
Meets at Naval Reserve Center
2309 Line Ave., Amarillo, TX
2nd Tuesday/monthly 7:00 p.m.
Pres: Gary Rutherford, WB5MDJ

VIRGINIA

Eastern Shore ARC (ESHARC)
110 Church Street
Chincoteague, VA 23336
Repeater WA4TVS 147.855/.255
Net Mon. 9 p.m. Mtgs. as announced

Southern Peninsula Amateur Radio Klub (SPARK)
Repeater 146.13/146.73 - K4DHO/R
Salvation Army Community Center (Big Bethel Rd.)
Hampton, VA
1st and 3rd Tuesday/monthly - 7:30 p.m.

Virginia Beach Amateur Radio Club (VBARC)
Open Door Chapel
3177 Virginia Beach Blvd., Va. Beach, VA
1st Thursday/monthly — 7:30 p.m.
For information (804) 497-1235

WEST VIRGINIA

Jackson County Amateur Radio Club, Inc.
Bob Morris, WA8CTO, Sec.-Treas.
308 Edgewood Cir., Ripley, WV 25271
First National Bank of Ripley, WV
1st Thursday/monthly - 7:30 p.m.

directory, for secretary and club treasurer.

7) Postage. Use first class with return address on top sheet to catch errors and faster delivery, plus better ad rates. Take in subscribers at $2 per 10 months (year). Keeps old-timers in touch and increases circulation for ads, even if they can't get to meetings.

— *Fred Lingel, K1CCW* □

Members of the Ex-G Radio Club, at their 25th anniversary celebration. From left to right: *(back row)* Bill Sturmey, WB6BPA; Ron Wood, VE3AIE; Ed Seal, WB1EWI; Arthur Gill, WA2VJH; Jim Davies, KC2LW; H. Hyman, G3IZQ/W1; Richard McGarry, W4CXH; Terrence Eichwald Sr., K3CRV; F. Fletcher, G2FUX; *(second row, sitting)* Ernest Poole, WA8TGA; Don Rayner, W3CTR; Don May, WB8ATR; Reginald Cherrill, W3HQO; John Graham, W2NZT; Philippe Bates, W3SOH; *(front row, kneeling)* Ernest Shaw, VE3HZA; Derek Brook, WB2ZVQ; Desmond Hearsum, W8PR.

Ex-G Radio Club celebrates 25th

Don Rayner, W3CTR

The Ex-G Radio Club was founded in 1959 by Reginald Cherrill, W3HQO, and a few other amateurs who had originated in G-land. From that modest beginning, the club has grown to a membership close to 300 with branches in Australia, Canada and New Zealand. Other members are in such places as Gibraltar, Italy, Norway, Honduras and various islands of the Caribbean.

It was only fitting that a 25th anniversary celebration be held, and more so because Reg W3HQO was retiring from the office of general secretary-treasurer. He had held that office for several years, having been president for the first 10 years and long-time publisher and editor of the *Ex-G Bulletin*.

The reunion and anniversary dinner took place on Sunday, 03 June, at the Holiday Inn East, Philadelphia, Pennsylvania. Thirty-five members and wives attended from as far away as the United Kingdom in the east to California in the west. Frank Fletcher, G2FUX, presented

Don Rayner, W3CTR *(right)*, presents Reginald Cherrill, W3HQO, with the Bulldog Net trophy.

Reg with the Calcutta Key Award on behalf of RSGB. W3HQO was the recipient of this award for the second year in succession.

Members of the West Coast Bulldog Net had provided a trophy for our retiring founder in the form of a club emblem

plaque fashioned from stained glass. This was presented to Reg by the MC, Don Rayner, W3CTR.

In honour of all who had attended, toasts were proposed to the prime ministers of Canada, Great Britain and to the president of the United States. A special toast was proposed to Queen Elizabeth of Great Britain.

Letters of congratulation and best wishes were received from VK and ZL members who were unable to attend due to the travel time and distance involved. The current president, Don May, WB8ATR, gave an address of welcome to start things off. Reg was made a life member and president emeritus for all the years of service he has given to the club.

Several members stayed over for a couple of days, and the local repeater sounded like DX with all those British accents cluttering the airwaves. We thank Leonard Cataldi, N2HS, and all the other regulars who use the N2HS repeater for being so tolerant for a couple of days.

A special thanks went out to Terry Eichwald, K3CRV, and his wife Pat for their tremendous effort in arranging the affair on site. It is no easy task when members come from so many different directions. Thanks were also due to the many members who, unable to attend, contributed so handsomely to making the silver anniversary an affair to remember.

4-H amateurs

4-H youth in the Manchester, New Hampshire area have recently formed an Amateur Radio club. Novice classes are an ongoing part of club meetings and the youngsters have three Novice members in their group. In addition to Sean KA1KGB, pictured above, Scot KA1LZG and Jim KA1LZH are licensed members. Four other club members are currently taking the Novice course.

Through the generosity of local amateurs, a complete station has been set up at the local 4-H Center. The club slogan "Tune in to Youth" reflects Amateur Radio's need to encourage youngsters to participate in our hobby. The future of Amateur Radio lies in clubs like this one where youngsters, ages 12 to 19, enjoy operating and participating in the various amateur activities we all enjoy. — *John Duclos, KA1HSN* □

Sean Duclos, KA1KGB, operates the Pine Island 4-H Amateur Radio Club special events station at the Hillsboro County Fair.

• Silent Keys •

Carl Erbacher

The Grand Old Man of Amateur Radio in New Jersey has answered his last CQ and his key is silent in Old Tennent Cemetery.

Carl A. Erbacher, W2EKU, died Sunday, 07 October, in the Somerset Medical Center, Somerville. He was 81 and held an Advanced Class license.

Carl, for more than 40 years, was known to the amateur fraternity for more than operations on the air. He was the local print voice of the Amateur Radio Service, through his column in the **Newark Evening News**.

Newark in the 1920's was one of the radio capitals of the world, both in broadcasting and manufacturing. It was fitting that a statewide newspaper published in Newark decided to run a weekly Amateur Radio column. From 1930 to 1972, New Jersey amateurs were kept posted on developments in their hobby through Carl's columns.

In addition to his radio experiments and writing, Carl was a captain in the Franklin Township Police Reserve and the township's Director of Civil Defense. Over the years, he filled other municipal posts and was Franklin's first full-time zoning officer.

Born in Newark, he lived there and at the North Jersey Shore before settling in Somerset County in 1942. He was a member of the Raritan Valley Radio Club, which was organized more than 50 years ago in the club house of the Lawrence Brook golf course in East Brunswick. The club still is active, operates W2QW, the Martinsville repeater, and each June sponsors a major hamfest at Columbia Park in Dunellen.

I was a reader of Carl's columns in the **Newark News** in those otherwise bleak days of the early 1930's. They were my formal introduction to Amateur Radio. When I began writing radio columns in the **New Brunswick Home News** in the 1970's, Carl came in to see me from time to time, sharing his fellowship and counsel. He had set an unbeatable example for me.

Surviving Carl are three sisters, all at the Shore, and a radio legacy. — *Bob McGarvey, WB2EVF* □

WITH THE HANDI-HAMS

Maureen Pranghofer, KF0I

Dr. Tom Linde, KZ0T

There's no doubt about it. The microcomputer is having an impressive and powerful impact on people with all sorts of physical handicaps. The home computer complements and supplements weak or non-functioning limbs. It speaks for those who would communicate. It's started seeing for the blind.

These nifty little beasties are playing a fast-growing role in Amateur Radio; that's old stuff. They can help with Morse code, and that's nearly as old.

There is something new on the code/computer horizon which is worth talking about. It is called "CW Tutorsoft". This is a program designed to teach code to people with handicaps that may keep them from attending regular classes. It's been used successfully with persons having visual, as well as motor coordination, disabilities.

This Apple II (or III) progam works so well that it will also interest folk whose bodies work just fine, thank you!

CW Tutorsoft teaches character, word, call sign and QSO phrase recognition. It does this through an interrelated series of passive and active learning experiences. This program was designed and tested by experienced amateurs who are also mental health professionals. It applies classical psychology to help solve a problem shared by lots of hams.

This new program allows people who have no prior training in, or knowledge of, CW to train themselves. Those already having some code ability, but who seek greater proficiency, will also benefit. It has proven to be helpful in the classroom, too.

Its objective is to help some very specific areas of the brain learn fast CW symbol recognition, sequential (character) storage, and accurate information retrieval. All of these mental activities are important parts of a highly complex skill. It's lots more accurate to regard it as a "set" of skills!

Boot the disc, and the main menu comes up on screen, offering four quite different and specialized work areas to the user: 1) An alphabet book; 2) Building a CW vocabulary; 3) Call sign drills; and 4) QSO phrase drills.

By selecting one of these options, the student/user will choose to work on:

1) The alphabet, or any part of it. This is great for folk who know absolutely no code. In addition, it will prove helpful to those who are fairly familiar with some material, but who are being troubled by specific characters.

2) Small, medium or large and complex words. This section will aid people who know their ABC's, but want to learn to hear two or more characters with meaning (i.e., word recognition).

3) Call signs. This set of exercises is extremely necessary as part of any systematic effort to get ready for an FCC code test. Precise call sign recognition is an absolute must!

4) QSO phrases. On the air, as well as on the FCC code exam, certain phrases which have an almost predictable content occur with predictable regularity. It's good to be at ease with this sort of routine phrase material. It usually contains several very familiar words which can alert the student to a special word that may call for one to be particularly attentive.

The program lets the user pick one of four code speeds: *Novice* — 5.78 wpm; *General* — 13.74 wpm; *Extra* — 21.35 wpm; or *Good Grief* —??!!

This program does its job through a related series of studies and lessons.

A study is a passive sub-program which covers limited, well-defined sets of individual characters, or words of the same length. It displays materials on the monitor, and randomly sends them in code at the same time.

A lesson is an active, randomized sub-program which sends material covered in the study that came right before it. The user's task is to type what has been heard into the keyboard, and then press RETURN. The computer will indicate a right or wrong answer both audibly and visually. If an answer is incorrect, the material will be sent again.

The lessons score the student/user's performance, and advance those who do well. Students with lower scores are automatically sent to a suitable remedial task.

CW Tutorsoft is available, along with an exceptionally complete study guide (cassette version available for the visually impaired), from Twin Oaks Associates, Rt. 5, Box 37, Knoxville, IA 50138. □

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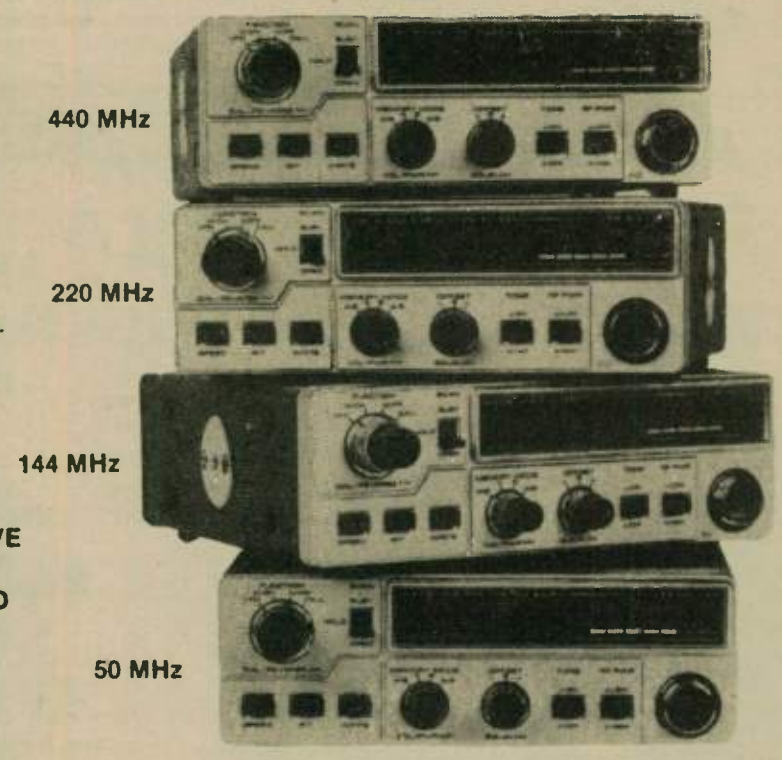

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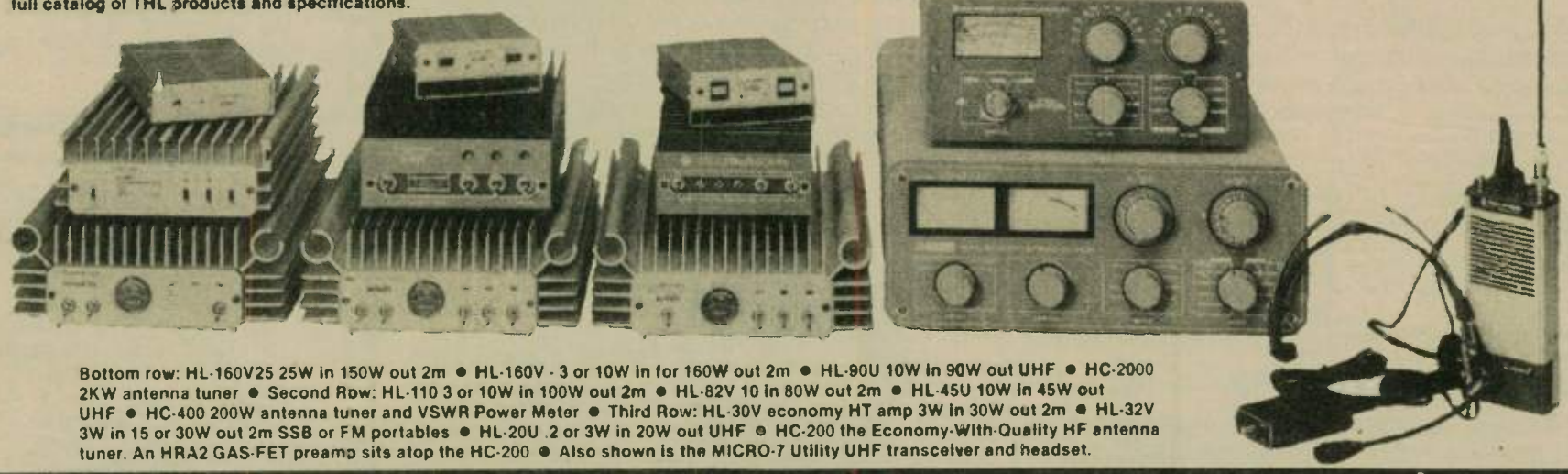

Bottom row: HL-160V25 25W in 150W out 2m ● HL-160V - 3 or 10W in for 160W out 2m ● HL-90U 10W in 90W out UHF ● HC-2000 2KW antenna tuner ● Second Row: HL-110 3 or 10W in 100W out 2m ● HL-82V 10 in 80W out 2m ● HL-45U 10W in 45W out UHF ● HC-400 200W antenna tuner and VSWR Power Meter ● Third Row: HL-30V economy HT amp 3W in 30W out 2m ● HL-32V 3W in 15 or 30W out 2m SSB or FM portables ● HL-20U .2 or 3W in 20W out UHF ● HC-200 the Economy-With-Quality HF antenna tuner. An HRA2 GAS-FET preamp sits atop the HC-200 ● Also shown is the MICRO-7 Utility UHF transceiver and headset.

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Vern Hansen, AAA9W KD6UI

The following article appeared in the September 1984 edition of the 7th Signal Command Western Area MARS Bulletin. The article was prepared by Ken Moore, AAR9YV/W6WIS.

Meet SOCAL member Hal Hembree, AAR9WU

Hal is one of the "active" SOCAL members who deserves recognition for his support of the Army MARS program. He is presently handling the "Tube Bank" as well as the "Tech Manual Bank" for the SOCAL membership. He is also an alternate for the "Teletype Parts Bank." In addition, Hal has spent many hours in assisting the SOCAL State MARS Director with various routine and special administrative functions.

Traffic is cleared and Hal Hembree, AAR9WU/W6KDC, relaxes.

Hal finished school in Long Beach, California in 1940 and subsequently joined Consolidated Aircraft in San Diego for the 1941 and 1942 period. In 1942 he joined the USAF for active duty as a radio operator, radio-technician and control tower operator.

In his "Tower" operation in the early stages, he was using "amateur" equipment the USAF had borrowed for the emergency. This included Hallicrafter receivers and even an Abbot TR-4 superregenerative transceiver! Hal served in the USAF until 1946 and remained in the Army Reserve until 1950.

Hal's professional career involved engineering work for the City of Long Beach Engineering Department in the Survey Section during years 1946-1976. This was a period that saw tremendous growth and development for the city. Hal was involved with much of the street and building planning and layout.

Hal became interested in radio communications in high school and devoted much of his educational efforts toward "communications." He obtained his Amateur license early in the '40s but did not become active on the air until 1950. He was and still is licensed as W6KDC. In 1963, Hal joined Army MARS where he has been active to date.

Hal's greatest interest in MARS is his involvement in traffic handling. In this respect, AAR9WU has been acting as a traffic backup for AAA9USA since 1975. This activity has involved many hours in taking traffic directly from Korea, Japan, Okinawa and the Philippines. He also takes traffic directly from Eastern Gateway Stations at Fort Meade, Fort MacPherson and Fort Bragg.

The photograph shows Hal in a moment of relaxation at this MARS/Amateur phone operating position. On the other side of the room is located a 51S, R-390, the Dovetron(!) and assorted Model 28 equipment. Hang in there, Hal! □

DX World

(*continued from page 38*)

tributors who helped make this month's column: W1APU, N2UN, WB2SIU, W3BBL, AA4MI, W5FS, KA6A, N6UW, W8AN, KM8E, W9LNQ, WA0CFZ, WA0RUD, VP2VIX, Y24UK, Hampden County (MA) Radio Association, Kansas City DX Club (AB0X), Southern California DX Club (W6ABW), *Westlink Report* (WA6ITF), *The DX Bulletin* (K1TN), *The Long Island DX Bulletin* (W2IYX), *DX News Sheet* (G3XTT and G3ZAY), and *QRZ DX* (W5KNE).

I hope many of you worked San Felix Island, and no doubt by now, CE0AA is history. The initial list operations were rather pathetic as I stood by and listened to all the stations who got on the list, but never showed to work CE0AA. This was rather frustrating to those who were there and not on the list. One Sunday afternoon I got on the list, (via KA3HXO), and hoped propagation would be favorable when CE0AA showed. Somehow, working CE0AA this way was like fishing in a barrel of water. Oh well, I felt better a few days later when I worked the station on my own down on 40 meters.

If you missed the CQ October bash, try again the weekend following Thanksgiving on CW. GL es DX, 73 de John, N6JM.

A DXer's Christmas

The night before Christmas, there wasn't a sound.
I hunted and hunted, the bands up and down.
I listened and listened with much care,
But nary a DX station was there.
I was just about ready to go to my bed.
When off in the distance I thought I did hear,
A faint DX station, not coming in clear.
I grabbed for my earphones and thought that I heard,
CQ, CQ, SC1QRV, is the frequency clear?
My log did I grab with joyful glee,
A brand new prefix was coming towards me.
I looked and I looked but it couldn't be found,
This oddball prefix with that funny bell sound.
The signal got louder as I madly did hunt,
The compass points round.
From north it came both loudest and clearest,
Gracious, my goodness it was Santa Claus dearest.
A new prefix was added to my list that night,
As the North Pole blazed with auroral light.
And as he signed off, he merrily said,
"I don't get on often, just once every year,
So, 73, Merry Christmas, I'm done for the year,
I'll be looking for you this same night, next year."
I turned in my cards with joyful glee.
The ARRL was horrid to me,
The SC1 prefix was not to be,
It cannot be counted for DXCC,
But you know and I know they often err,
Because once a year, it's perfectly clear,
Santa Claus gets on frequency with all of his reindeer.
— Shirlee Moore, KQ7Y

10-meter beacons

28202.5	ZS5VHF	Durban, SOUTH AFRICA
28205.0	DL0IGI	Predigsthul, WEST GERMANY
28207.5	WD4MES	Florida, USA
28210.0	3B8MS	Mauritius Island
28215.0	GB3SX	Crowborough, ENGLAND
28215.0	ZD9GI	Tristan da Cunha
28217.5	VE2TEN	Chicoutini, CANADA
28220.0	5B4CY	Zyyi, CYPRUS
28222.5	HG2BHA	Tapolca, HUNGARY
28225.0	VE8AA	Lake Contwoyto, CANADA
28230.0	ZL2MHF	Upper Hutt, NEW ZEALAND
28235.0	VP9BA	Southampton, BERMUDA
28237.5	LA5TEN	Oslo, NORWAY
28240.0	OA4CK	Lima, PERU
28242.5	R9CK	Himala, BAHRAIN
28245	...	.....
28247.5	EA2HB	San Sebastian, SPAIN
28247.5	ZS1CTB	SOUTH AFRICA
28250.0	Z21ANB	ZIMBABWE
28252.5	VE7TEN	CANADA
28255.0	LU1UG	ARGENTINA
28257.5	DK0TE	GERMANY
28260.0	VK5WI	Adelaide, AUSTRALIA
28262.5	VK2WI	Sydney, AUSTRALIA
28265.0	PY2EXD	BRAZIL
28270.0	ZS6PW	Pretoria, SOUTH AFRICA
28272.5	TU2ABJ	Ivory Coast, AFRICA
28275.0	VE3TEN	CANADA
28277.5	DF0AAB	Lutjenberg, WEST GERMANY
28280.0	YV5AYV	VENEZUELA
28284.0	KA1YE/B	Niantic, CT, USA
28285.0	VU2BCN	INDIA

RTTY/AMTOR

Bill Snyder, WØLHS

Of all the various modes of Amateur Radio operation, RTTY/AMTOR has been, for me, the most fascinating. I vividly remember that first weekend in February 1953 when the FCC opened the bands below 144 MHz for frequency shift transmissions. I had been waiting for weeks with a Collins 75A2 receiver, a 32V2 transmitter, a homebrew tuning unit and a venerable old Model 12 Teletype machine all set to go on the air.

In those days, the FCC specified that the shift between the mark and space tones was to be 850 cycles and CW identification was to be required on each transmission. I had purchased my used Teletype from the Associated Press by way of a ham in New York. We had to sign waivers that we would not use the machine for anything but Amateur Radio, and we would get a similar waiver if we ever sold the machine.

My model 12 came from the **Constitution Tribune** newspaper in Chilicothe, Missouri. I had finished building the tuning unit weeks before the TTY arrived by railroad freight. I could hardly wait to hook the TU to the printer. It was an exciting moment.

I hastily wired the printer to the output of the TU and then, with my general coverage Hammarlund receiver, searched for RTTY signals to copy. I was familiar with the FSK sound, as I had been exposed to radioteletype in the Signal Corps. But my excitement soon turned to disappointment when every signal printed garbled gibberish.

It was soon evident that the key clicks caused by the collapsing magnetic fields from the model 12's seven (count 'em) magnets knocked out every signal I tuned in. After more than an hour of hunting, I finally found one that would copy. It was a Canadian military station in nearby Manitoba, and it copied like a dream — but only because the signals were 40dB over S-9.

To solve my key click problem, I had to build a vacuum tube keyer with seven husky jugs wired into the selector magnet circuits. That solved all my problems, and soon amateurs from all around the area would come just to watch the mighty model 12 clunk and shake as it printed out the news or coded military messages.

My tube-type receiver and transmitter — state of the art at the time — were not what you would call thermally stable. They had to be turned on for five hours before they were stable enough to copy RTTY without constant tweaking of the dial. Because of this problem, I left them turned on all the time.

The first weekend was really exciting. I opened up on 40 meters. Unfortunately, the log for that period of time has been lost, but these call signs come to mind as some of the early contacts: W6AEE, W6ITH, WØBP, WØUYL, W9TCJ, W2JAV and W2NSD. Some of these amateurs are now Silent Keys, but they were among the real pioneers of teleprinter use on the ham bands.

Keep in mind that RTTY signals then were nearly 1 kHz wide. A few CW operators resented this fact and deliberately tried to QRM our transmissions by jamming. However, they soon tired of trying to disrupt our contacts and RTTY became accepted as a first-class mode of amateur communications.

Today, unlike the early years, I can flip on my TS-930, Robot 800-C, AMT-1/C-64 combination and nothing ever seems to drift. From a cold start, I can copy the whole W1AW broadcast without tweaking the dial once. And the 170 Hz shift occupies only a tiny slice of the band. It is really wonderful the way solid-state equipment has revolutionized Amateur Radio.

RTTY/AMTOR DX

The first thing a newcomer wonders about is what DX he can work on RTTY/AMTOR. George Hitz, W1DA, contacted 100 countries (including China) in about five months, so it is there to be worked. The ARRL has issued less than 100 certificates for RTTY DXCC, so you can see the race is just beginning.

The leading DX'ers in the world are at about 245 countries. Only a handful have over 200 confirmed. Among them are Gin Naniwada, JA1ACB; Jean Hurtaud, F8XT; Rosario Pentimalli, I8AA; Arthur Blave, ON4BX; and John Possehl, W3KV. So there is plenty of room to chase DX if you are so inclined.

The foreign stations on RTTY/AMTOR are the kind of people you get to know. Recently I visited Scandinavia and spent a delightful day with Bo Stjernberg, SM6ASD, in Sweden and another with J. Dudahl Lasson, OZ1CRL, in Denmark. I had developed my friendship with these gentlemen through many RTTY contacts and contests.

Operating advice

A bit of advice to newcomers — and oldtimers for that matter: use the RY KEY as little as possible. In fact, don't use it at all if you can help it. One possible exception is as a preface to calling CQ; the musical sound attracts attention.

In DX pile-ups, keep your calls short. That rare station can choose someone to answer quickly if everyone calls one by 6:00, rather than playing the game where the last long-winded caller with a kilowatt gets the prize. I've seen DX stations go QRT because of pile-ups dominated by this kind of operator.

Please don't come on a frequency, run five lines of RYRYRY and then ask QRL? Just run the Q signal and then listen. Repeat it a few times before you start to call CQ. And always listen/ask before you try to contact a mailbox operation on a fixed frequency. The mailbox does not own the QRG, even if it is crystal-controlled.

I do a lot of listening on the RTTY/AMTOR segments. Part of the fun is seeing what others are talking about. I collect some of the little gems I see on the screen, and here are some of them:

EAVESDROPPING: "I SOLD A TWO-METER RIG TO MY BUDDY, AND HE HASN'T SPOKEN TO ME SINCE." ... "MY FUSE IS GETTING SHORTER AS I GET OLDER." ... "MY SON IS NINE, MAYBE WE'LL LET HIM LIVE TILL TEN!" ... "MY VIC-20 HAS A BROKEN SPELLING KEY." ... "MY VIC-20 HAS A BAD STUTTER." ... "I ALWAYS WANTED TO KNOW HOW TO TYPE, NOW I WANT TO KNOW HOW TO SPELL." ... "TELL ME ABOUT YOUR WEATHER, SO I CAN GLOAT ABOUT MINE." ... "I WORKED NOTHING BUT DX ON CW, SO I DIDN'T HAVE TO COPY CODE SO GOOD." ... "SHELF LIFE IS THE STRANGE FUZZY STUFF THAT GROWS BEHIND BOOKS AND UNDER BEDS." ... "AFTER 47 YEARS ON THE HAM BANDS I FOUND A NEW RTTY-TOY." ... "AFTER THE LAST CONTEST, I WAS ALL MARK AND SPACED OUT." ... "MY AGE IS 64-14-34." ... "THE REAR HERE PUTS OUT 100 WATTS." ... "THE ABOVE GEAR IS LOCATED IN A NON-DIRT FLOOR LOG CABIN." ... "BACK TO YOU BEFORE I FALL OUT OR YOU FALL ASLEEP." ... "THERE MUST BE SOMETHING WRONG WITH YOUR VERTICAL, I COULDN'T SEE ANY CHANGE WHEN YOU ROTATED IT!"

A number of people have asked if computers can copy hand-sent CW. I would generally say no. I have spent a number of hours trying to copy hand-fired code with limited success. It takes a really super fist to send code that a computer can copy. My suggestion: instead of holding a left-foot code sending contest (QLF) at a hamfest, why not sponsor a competition for the best CW fist using a computer to do the judging?

I like mail, so write me if you have RTTY/AMTOR information you would like to share with others. I'm good in any Callbook. I also work the 20-meter band daily, so call in if you hear me on. 73 and happy DX'ing de Bill, WØLHS. "DIT DIT."

Notes on Bill Snyder: Had the same call sign for 51 years. Been on RTTY off and on for 31 years, AMTOR for one year. Has Extra Class Amateur, General Radiotelephone and 2nd Class Radiotelegraph operators licenses. Instrument-rated airplace pilot. Was VQ4EHG and VQ3GHE in 1947-48 while on an African expedition. Retired industrial motion picture maker. Former DX editor for RTTY Journal. Member of QCWA, ARRL and SMPTE. Can be reached at Box 2784, Fargo, ND 58108-2784, or 1514 South 12th St., Fargo, ND 58103.

TEACHER

Alan Kline, KB1DJ
P.O. Box 54
West Lynn, MA 01905

At the 1984 New England ARRL Convention, I volunteered to be the exam chairman. I was responsible for administering FCC exams under the new VEC program. As time did not allow me to apply to be a VEC, I chose to conduct the exams under the newly formed ARRL VE program.

In my October column, I gave you an overview of how I thought my committee was to function. I had selected three ARRL VE's — Amanda (N1BYI), and Wilson (KA1AE) Smith, and John Maglio, KJ1J, as my VE team. They were going to help me with the paperwork and administer the actual exams. At that time, we didn't have any idea as to the amount of hours, people and paperwork that would be involved. We were going to be part of Amateur Radio examining history, for our session was going to be the largest to date under the new system.

As with all the projects I do, I started a detailed notebook at the very start of the job. Every complaint, comment or idea was written down, possibly to be used later. This month's column is just another overview of what happened, as I will get into some details in later months.

Paperwork

Amateurs sent me 610 forms so old, I had never seen them; some dated back into the 1960's. My comments on how inadequate the 610 is, are of no use now; the FCC just had a new form approved for use within the new VE program. But still, watch out for no dates of birth, no signatures and no copies of their current license attached.

As the 610 forms came in, I put a piece of note paper on each one at the top left-hand corner. It contained the following info: missing facts on 610, day requested, amount of payment, upgrade info.

The missing info included items such as I just mentioned: date of birth, signature and no copy of license. Certain amateurs had good reasons for requesting which day they wanted to upgrade on. We had a church organist who worked on Sunday, a noted DX'er who was speaking on Sunday, a pro football player who had to fly out for the Monday night game of the week, and a high school band director who worked Saturday. I accommodated these people where I could.

The amount of money paid was noted because some dads paid for as many as their XYL and two harmonics with the same check. When tallying up the final count, these notes were helpful. By the way, checks were made out to me, personally, not the ARRL/VEC as they should have been. This made it easy to deposit them in my ham class checking account and only send one check to the ARRL.

As the convention committee assigned us two rooms in which to give the exams and after checking with the hotel, I found out one had fixed seating capacity of 17 and the other 35. I then sorted the 610's into groups of those numbers.

After careful planning and consideration of how long it should take to upgrade from one particular level to another, I drew up a chart of days, times and VE team assignments.

I did not accept all those who tried to apply to take exams. Some applicants sent notes scribbled so bad that I couldn't read them. But 256 applicants did correctly fill out a 610 form and apply to take the exams. I wanted to make their upgrading experience as easy and pleasurable as possible.

I did not fill each room to capacity, so the rooms were not too crowded. I also knew that once we sent out the exam time slips, someone would complain and have some hardship as to why they couldn't attend a particular session. So to leave room for the juggling of applicants, I assigned 30 to 32 in room A and only 15 in room B.

The original plan called for three VE teams to cover 10 sittings over the two-day period, but that would change. The teams would be made up of VE's from three active Massachusetts clubs that were planning exam sessions of their own — the North Shore Repeater Association of Salem, the South Shore ARC of Whitman and the Framingham ARC.

VE Team #1 was my exam committee of N1BYI, KA1AE and KJ1J. Feedback from them after the very first session on Saturday confirmed the report from Team #2 that we needed more VE's to help out, because after a few sessions, the VE teams were going to be physically and mentally drained. As I didn't want any VE to feel burdened by the amount of work involved and also have a chance to attend some of the convention's happenings, I set out to assemble two more VE teams.

We discovered that you could use four or five VE's to run a session. There are a lot of things to do, such as checking for positive identification, checking 610 forms and correcting exams.

Under the VEC program, there is a person called the VE team liaison. It is his job to receive the actual exams from the ARRL and return the results to the ARRL. My liaison was John KJ1J. He became as familiar with the applicants as I had. Once the scheduling of times was done, he took possession of the 610 forms. In multiple sittings, we found that each team must have someone on it who has seen the 610 forms prior to the exam seating. It helps the individual sittings run much smoother.

No one on my team had ever seen the paperwork involved with the new system, so we were all learning together. When I put together other VE teams for use later in the day, Cliff Laverty, W1RWG, the SCM of the state of Maine, graciously offered to help out. He had just given an exam at a Maine hamfest. They had only 37 applicants and Cliff had much input for us.

By the end of the two-day session, 21 ARRL VE's had helped out. They represented the three clubs already mentioned plus the Greater Lawrence ARC, the Hampden County ARC, the Quannapowit RC, and the Cape Cod ARC. In the true spirit of Amateur Radio, it was a team effort.

As I write this, we are processing paperwork, and it looks like we were successful, for the passing rate is running 50 to 60 percent. That is good, considering that the test questions were taken from the new FCC-approved question pools.

The Boston FCC's office top men, Vince Kajunski and Jerry Sarno, visited both rooms. They had good comments on how we did the job. By the thank-you notes we received from the upgraders, I know we did a good job.

Thank you's

Thanks to my committee of Amanda and Wilson Smith, my wife Andrea, and my sons Dan and Todd, for they all helped sort the reams of paperwork prior to the exam dates.

Thanks to VE's Al Hamilton, AG1F; Bob Burns, K1RB; and Dex Wheeler, W1TUM, who did the bulk of the exam correcting. And thanks to all the other VE's for taking part in the process.

My co-chairman was John Maglio, KJ1J. He gave unselfishly of his personal time to a project that, at times, seemed like there was no end in sight. We realized that because we were coordinating what was to become the country's largest single exam session since the FCC gave us the testing, we were pioneering our hobby's future. In the future, those of you who give exams under the ARRL's VE program will spend much less time on a session because of the work our committee put into this session.

For John's insight, help, support and desire to help others, thanks.

Next month, look for some more specifics on the new VE program. 73's, Alan KB1DJ □

TRAFFIC

Chuck Clark, K4ZN
Assistant Director
Roanoke Division, ARRL

It's that time again

The big month for traffic — December — is upon us, the month when most anybody can make the Brass Pounders League (BPL) if one can find the time. NTS nets at all levels are loaded to capacity and beyond, and all of them need more liaison stations to keep the traffic moving. If you want to help, just ask any net manager or TCC director. You will be welcomed with open arms.

As has been said before on many occasions in this column, the December rush is really the best exercise for the system. It shows where the weak points are, and gives the greatest number of amateurs the opportunity to get some real hands-on experience in handling traffic, and it's real traffic too, from real people to real people, not something made up just to "test the system."

To add to the confusion, clubs and other groups of amateurs choose this month to set up displays in shopping malls and such places to solicit traffic from the general public.

Should we object to such additional input to a system already overloaded at this season? Absolutely not! If we are serious about developing and maintaining a service that we hope will be equal to the task of providing reliable emergency communication in almost any situation, we should be thankful for such opportunities to put it to work in this way.

But in addition to its value as an exercise in emergency preparedness, Amateur Radio's December traffic effort has a special value of its own. At a season when many complain of commercialization of what used to be a good thing, when the jingle bells seem to be mostly on the nation's cash registers, it's refreshing to have available a channel of greeting that is completely non-commercial, entirely voluntary, in the true spirit of the season. And it's done by people, not by machines. The messages of greeting are relayed by real human beings to other real human beings, and are delivered by people to the addressees.

While we are making no case against the business people who find in the spirit of the season a means of earning their livelihood (many of us do so ourselves); we also exemplify the fact that there is something beyond the profit motive that can move us.

We don't begrudge people like Donald Hall, whose Hallmark cards have helped to make him number 15 on **Forbes'** list of America's wealthiest. They have earned it and are entitled to it. But institutions like Amateur Radio keep alive the realization that it is not essential that everything we do must have material profit as its motivation.

Not only in message handling, but everywhere in Amateur Radio do we encounter this spirit of sharing. Most of our repeaters are open machines, available for anyone who wants to use them, no questions asked. My hand-me-down receiver benefits from your kilowatt, just as I am helped in the other direction by your fancy receiver that digs my QRP signal out of the mud. And it would take a whole library to list all the loans, swaps and other forms of mutual assistance that take place among amateurs, everything from an antenna-raising party to an effort to locate a source of interference that is plaguing the neighbors' TV reception.

This mutual assistance, this sharing, this giving without thought of personal gain make one dream of a world where everything worked that way, a kind of third option between the alternatives of laissez-faire capitalism where the poor become poorer and the rich richer, and Marxist socialism where the rich are forcibly expropriated to aid the poor, with the result that everybody becomes poor due to leaks and obstructions in the bureaucratic pipeline, as experience has repeatedly shown.

But is it only a dream? Is a world where cooperation is the rule rather than competition, where those who have more share with those who have less and so all have enough, is such a society utopian, impossible in practice? It certainly seems that way. But should there be survivors of a cataclysm such as World War III, such a society based on mutual assistance — like we find among radio amateurs — might possibly be what would save the human race from extinction. Let's hope at least that it remains alive and flourishing in our own ranks.

CW grammar

"How many QTC's do you have?" "The QTH here is . . ." "What is your QTH?" "R but I need some fills." "Send your QTC to . . ."

It's time many of us reviewed our CW grammar. We tend to use Q signals frequently as nouns, when they are really complete sentences. QTC, for instance, means, "How many messages do you have?" or as a statement, "I have . . . messages to send." So why send "How many QTC's do you have?" when QTC? says the same thing? And "Send your QTC to . . ." really means send your list of traffic, not send the message itself. QTH, as a question, means "What is your position?" and as a statement, "My position is . . ."

In the early days of Amateur Radio, we used QRA as the indication of our location. It really means, "What is the name of your station?" but amateurs used it to indicate location. Actually, neither of these is being used exactly as intended by the ITU, because they were designed for the Maritime Mobile Service. QTH would ordinarily be given in latitude and longitude, and QRA would be the name of a ship or of a coast station. (In the latter case, it would usually be the name of a city, hence would be closer to our amateur situation.)

However, in the late 1930's, the present use began to prevail, where QTH is taken to refer to geographical location, and QRA is used for call signs. But they are still complete sentences, so "What is your QTH?" is redundant: QTH? means the same thing.

The worst failure, though, is the tendency of many amateurs to send R or to say "Roger" when they don't mean it. R or "Roger" means "I have received everything you sent." If you have that habit, one of these days you might find yourself left dangling when the sending operator goes his merry way, thinking you have received the message, while you still need a half dozen fills.

Don't say "Roger" until you mean it, not even to acknowledge receipt of a fill if you still have more fills to request. How about QSL, you ask? It also means I acknowledge receipt, but it was intended more for use when straightening out a confused situation. For example, if an operator failed to note having sent a message, then some time later asks the receiving station, "Did I send you number 73?" The receiving station might answer, "QSL 73."

R or "Roger" is the standard acknowledgement to use while actually passing traffic. But regardless of which one you use, don't use either until you are sure you have the message 100 percent correctly.

Commercial traffic

Don Ostroy, K2UL, editor of the *New Jersey Traffic Bulletin,* writes about hearing one amateur ask another on the air about the price of a piece of equipment that was being sold by the estate of a deceased amateur. The other refused to discuss it, saying it was illegal to discuss prices on the air, and the matter must be handled on the telephone. Don was irked by such a reply and put his "irk" into print, concluding with the question, "Do I understand wrong?"

Don, I agree with you. We are forbidden to use amateur frequencies to conduct business communications, but business communications are defined by Section 97.3 (bb) of the FCC rules as transmissions or communications, "the purpose of which is to facilitate the regular business or commercial affairs of any party."

Note the words *purpose* and *regular.*

Incidentally, if a communication facilitates someone's business, but that is not the actual purpose of the communication, it does not come under the definition. If someone on the road is looking for a gas station and you direct him to the nearest one, you are facilitating business; but that's not your purpose, you're trying to help a driver in need. Of course, if you directed him to your brother's station a mile further away, it would be a different story.

And the word *regular:* if the ham asking the question is a dealer in amateur gear, such a communication would be business communication, and so prohibited. But if it is only a question of someone looking for a piece of gear to enhance his own station, it would be legitimate.

On the other hand, no amateur is obliged to talk money on the air, and so if some refuse to do so, it's their right. And if any refuse to accept traffic because it "sounds commercial," we must respect the decision. But don't accept a piece of traffic and then let it die because you think it's illegal. Refuse it when you receive it, or at least send a service message to the originating station. By accepting a piece of traffic, you accept responsibility to pass it on.

Peace on Earth

To return to where we started. May this season bring peace and happiness to all our readers, particularly those who handle the heavy loads of traffic that it generates. May they experience that the way to pursue happiness successfully is to pursue it for others.

When we seek it for ourselves, we find it an elusive quarry. When we forget ourselves and seek it for others, it finds us. □

SSB on your FM rig

Dan Mulford, KA9DZM

Receiving SSB on your FM rig can be done very easily if you have a programmable scanner in your shack. There are many different reasons one would want to do this — mainly to monitor emergency SSB communications, but it could be you're just nosy, like me!

I am, of course, referring to 2-meter SSB and using a regular FM rig, as I do. First off, you need to know the IF frequency in your scanner. A hint is that Bearcats are usually 10.8 MHz and Regencys are 10.7 MHz. Other models may take a little checking into.

Now, take the frequency of the desired SSB reception (ex: 146.200), add your

scanner's IF to it (ex: 10.7), and you get 156.900. Enter this in your programmable scanner.

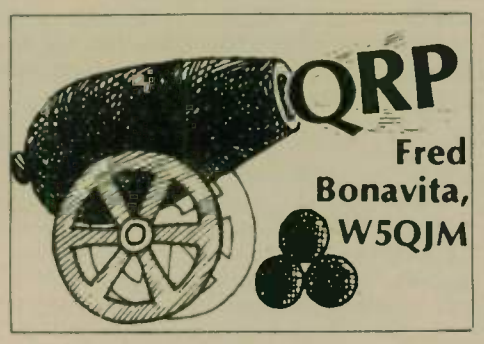
You should get an immediate carrier on your FM rig on the desired frequency. If not, subtract the IF from the desired frequency. That should work; it does on mine.

The carrier inserted onto the frequency will allow you to hear the communications somewhat clearly, even with vertical antennas, as opposed to the horizontal mainly used on 2-meter SSB.

I found, with my 11-element beam at 15 feet, I was copying a central Ohio station and a central Kentucky station by pointing between them. (Louder signals were obtained by directing toward one.) Try 144.200, the calling channel, or up and down close to that frequency. Although shifting the carrier is not possible, lowering the amount of the carrier can be obtained by movement of the scanner, unhooking outside antennas and running without antennas.

Try it. It may be a good way to see if you're interested in the mode without spending the bucks for a 2-meter SSB rig!

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



It's nice to be able to finish the year on a positive — if somewhat personal — note. It's even nicer to be able to report that the system still works.

Several weeks ago and with the help of a couple of friends, I did my semi-annual chore of taking down my tri-band beam to clean it, inspect the hardware and replace the coax in advance of the coming winter months.

While I expected some deterioration of the beam's hardware, I had not expected so much of it to need replacing. The time had come, I admitted, to lay out a few extra nickels and buy a stainless steel hardware kit.

I dug out the instruction manual on the beam, looked up the manufacturer's address and called. That's when I got my first surprise. Instead of the company headquarters in Minneapolis, I was told I had to call Lincoln, Nebraska to get the parts. So I gave that a try, only to be put on hold for the customer service desk in Lincoln.

Rather than continuing to hold, I called back a few minutes later, was put through to the customer service desk and gave the woman there my order.

My second surprise came when I offered to pay for the shipment with a major credit card. "Sir, we take only checks or money orders, or we can ship it United Parcel Service collect," was the reply. Faced with a beam on the ground and the need to finish my work promptly, I reluctantly authorized the UPS-collect shipment.

The third surprise came when I asked if the parts could be shipped that day — not an unreasonable request, considering it was still mid-morning in both cities. That's when I learned that the customer service desk had only one employee who had to take orders over the telephone, process them and get them off to us waiting customers. (My package was shipped the next day.)

After three setbacks in one morning, I found out the name of the chairman of the company and fired off a two-page letter laying out what happened. There was no hint in any of the company's advertising, catalogues or assembly manual about having to call Lincoln for parts, I told him.

Second, I was amazed to find the company would not accept a major bank credit card in payment for the shipment, and third, I was surprised the customer service desk had only one employee — a move which delayed processing orders.

In less than a week, I had some reaction. The company's senior vice president for marketing wrote to say that all of the situations about which I complained had been corrected. From now on, he said, customers' orders will be taken at the Minneapolis office rather than being referred to Lincoln; credit cards will be accepted for pre-payment of orders; and, if the parts are available there, they will be shipped that day.

He followed the letter with a telephone call, thanking me for bringing to management's attention situations about which they did not know.

I mention all this only to point out that in this day and age of seeming indifference on the part of many corporations, someone out there still listens and still cares and still reacts.

It is refreshing, reassuring and encouraging to encounter this type of enlightened response. And if you haven't figured it out, the folks involved are at Telex/Hy-Gain.

It's nice to end the year on an up-beat note. □

Aerials

Bruce A. Ray

This month's column will address one of the more important topics raised by your letters to me which I find very thought-provoking.

Tom Fitzgibbons, W0FVP, says he is quite confused about ground radials for vertical antennas. Wants to know the difference between bared bare and insulated wire, how many and how long. If we just take a minute to determine why we need a ground system at all with verticals, the answers to ground radial problems will be more easily understood.

We can take a half-wave vertical and operate it by feeding it from the bottom end, without any ground connection. This can be done with a high impedance tuned circuit, and link coupling, or end-fed like an old Zepp half- or full-wave. But it's put into the vertical position with one end just above the soil.

But when we use a vertical less than a half-wavelength long, we always feed it against a ground or radial system. Why? Simply because the ground (radials) must make up the missing portion of the half-wave! Exactly the same situation with a 5/8th vertical . . . ground is used to make it a 6/8-wavelength long, which is a quarter-wavelength plus a half-wave.

So the ground makes up the balance of the antenna, to make it electrically a multiple of a half-wavelength long. This permits a standing wave which produces radiation. Another way to say it is that the ground is the missing half of a half-wave antenna in which one-fourth is wire and the other one-fourth is the ground. So now we have established the fact that the "ground" has RF current flowing in it.

Remember your old textbooks about RF skin effect? Turns out soil is resistive because of its composition, amount depending on moisture, chemical makeup, inductivity and dielectric constant. This is the reason RF doesn't get into mines, nor is it good for submarine communications, when they are submerged.

At 3.5 MHz with average soil of 8mmhos, RF penetrates about 5 inches. At 10 MHz it is about 3 inches and at 14 MHz about 3/4 of an inch! Penetration means a reference loss of 10dB to the RF signal. Thus, doubling this depth puts another 10dB loss for a total of 20dB, for 20-meter radials buried in the lawn or grass about 1½ inches! That's 99 percent power loss!

This is the reason buried wires are not much good for collecting RF for the missing portion of the half-wave radiator at 40, 20, 15 or 10 meters. Burial even for the broadcasters is a compromise to protect the wire from dirt erosion and to provide a measure of physical protection. It is certainly not for "bonding" to the soil, because the RF conduction loss for the current is terribly high.

So what is a good ground system? Certainly not a 6-foot ground rod. This may be excellent for lightning or 60 cycles, but it's a waste of time for RF. What is needed is a number of wires laid a few inches above the ground. Their length and number determines the efficiency. Many, many articles have been written in the literature over the past years about this subject. Newington had an excellent article recently about ground radial systems. The AM broadcasters' bible on this subject is *Radio Broadcast Ground Systems*, published in 1972 by Smith Electronics Inc., 8200 Snowville Rd., Cleveland, OH 44141 ($10).

A vertical quarter-wave antenna is really a dipole and the vertical part radiates, but the ground part does not. The earth currents return to the base along radial lines. At the base, all the ground currents add together to enter the antenna as the antenna current. Total ground loss is the integrated losses at all points due to all the returning ground currents. In ordinary soils, this loss is considerable. Measurements have to be taken to minimize ground loss by the system of ground radial wires that conduct the returning ground currents to the base of the antenna through high conductivity circuits.

Close to the antenna, the earth currents of a short antenna (less than a 0.24-wavelength) rise to large values. Therefore, the earth within the 0.25 wavelength radius should be a very good conductor in order to operate a short antenna efficiently. This situation may be roughly approximated by a system of many radial wires. On VHF we may place a solid disc as the ground radial system. Not very practical for 80 meters, so we use wires.

The classic broadcast station with ground radials consists of 120 of them, 90 degrees long, buried from 6 to 12 inches for physical protection. Remember, skin depth at AM frequencies is 20 inches and more for the lower frequencies. But not so for HF. Wire diameter has no effect except physically as a compromise between current carrying capacity and mechanical strength.

The efficiency of a vertical antenna depends entirely on the efficiency of the radial system. This efficiency is measured at a distance of one mile with 1kW of antenna system input power, as a ratio to the standard reference strength of 190mV per meter. It's a standard for vertical antenna efficiency determination.

So what to do? Use as many quarter-wavelength-long radials as possible (15 to 30) and keep them just above the ground. You may lay them on the soil if absolutely necessary; elevate them, if possible — up to 7 feet, so you may walk under them. You can also elevate the vertical to this height if possible. Even one elevated radial will work just fine. Old-timers recognize this as a counterpoise, but we don't hear about it these days. Bare or insulated? Makes no difference when above ground. Tilts in favor of insulated wire when buried. If you must bury it, keep it as close to the surface as physically possible. □

Dear Kurt . . .

Dear Kurt:

Glad to see in your October column that you're straightening everyone out about the junk that passes for antenna lore in some circles these days. Most of the books on the subject are particularly atrocious. One of the most frustrating aspects of giving talks on antennas to clubs is having to debunk the myths that people have been led to believe by magazines and publishers who are grossly lacking in accuracy.

I don't know if you have mentioned it to your readers, but I highly recommend Les Moxon, G6XN's book, *HF Antennas for All Locations* from the Radio Society of Great Britain. It's new, first published in 1982, and Les takes a whole different look at antennas. It should stir things up a bit and get people thinking.

About those lengthened verticals . . . they don't have to be any taller to get the same effect. By adding horizontal wire to the top of the antenna, the high current point is raised without making the structure any taller. This is the principle of the Bobtail curtain and the "inverted groundplane."

I've used a quarter-wave wire on 80 as a half-wave inverted "L" on 40 with very good results. I feed it with a fixed tuned "L" network, having an LC series element providing the required inductance on 40 and series resonant on 80 to feed the quarter-wave wire directly.

Oh, yes. While I'm at it, a comment on your October column. The velocity factor of .08 would cause the matching stub to be one-tenth the needed length, not 10 times.

Harry's comments on baluns show what happens when an author only looks at part of the story. The length of the coax cable will have a large effect on the improvement due to using a balun. This is because of the variation in "feedpoint impedence" of the outside of the cable as seen from the antenna feedpoint: the lower the impedence, the greater the current on the shield.

Practically, the best reason I've heard for using a balun on a dipole is that it cuts down the pickup of vertically polarized noise on the feedline.

Keep up the good work.

DALE HUNT, WB6YU
Lompoc, California □

●●●

Dear KNS:

I just received my October **Worldradio**, and as per usual, I turned to 'Aerials' as the first article I read. I was distressed to learn that someone had decried your propensity for calling to task those who would obfuscate the literature concerning aerials, feedlines, antenna "tuners", transmitter impedances, etc.

While I have only been in Amateur Radio about eight years and took a

CARI — Chess & Amateur Radio International — has a few accomplishments going for it that we'd like to tell you about because we do more than QRM the bands with "Knight-echo-five" transmissions.

For one, we like to work with youngsters. It started out that way, as I'll soon explain. For another, we have a way of bringing new members into the amateur hobby. Further, we are international in fact, not merely by name. Read on, please.

Radiochess juniors

One of CARI's first activities upon forming in 1982 was a radiomatch between a team of grade-school chess players at my QTH, and a team at the QTH of CARI member Don Wilson, K1IN. At least it was scheduled; Murphy showed up, instead.

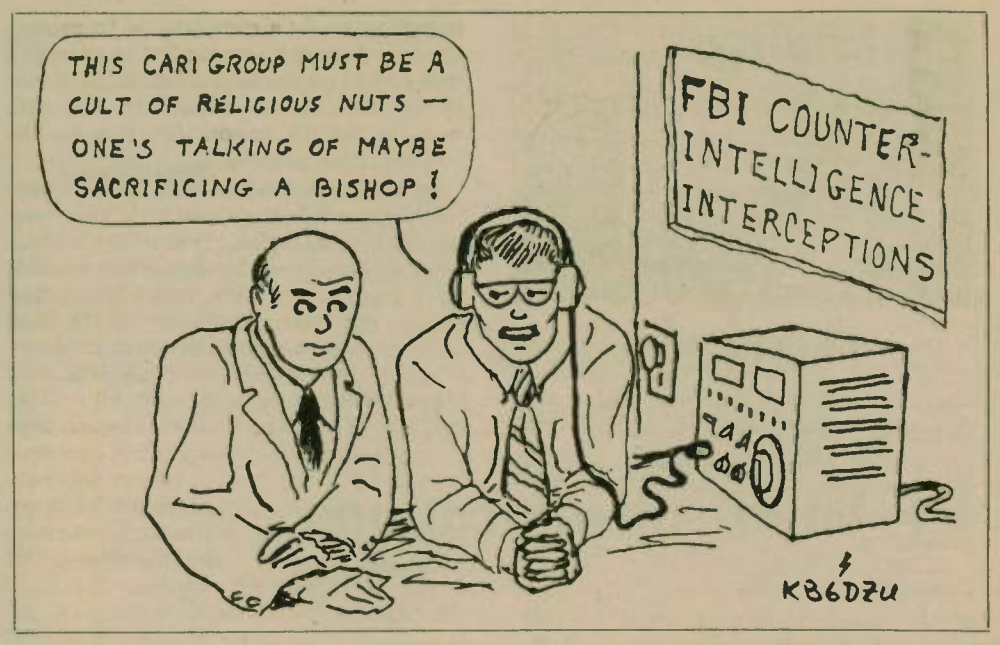
That day, 40 meters elected to go sour, plus Don's rig wouldn't load. And there we were, with a reporter and photographer from the Associated Press (AP), all primed for an afternoon of history-making radiochess.

To the rescue came CARI stalwart, John Dould, N1BHL. His S5 signal was copyable, so he agreed to play simultaneous games with each of the six kids at my QTH. Except, I conned him into giving them a break by yielding his most powerful chess piece, the queen. He agreed. I've never heard the end of it.

After three hours of play, John had lost two, drew on three and there was one "incomplete" due to our player having to leave for baseball practice; most reluctantly, I might add, as his photo didn't make the newspapers, unfortunately.

The AP team stayed through it all, thoroughly enjoying the best of Amateur Radio, talking over the air, listening in, watching the kids, snapping photos . . . and recording John's over-the-air summary statement which was carried in newspapers around the country:

"To be honest, I must have been nuts to agree to this!"



Maybe, maybe not. We made a lot of points that day. We hope you saw the article.

New amateurs

Over 10 percent of our CARI roster is composed of non-hams who are invited to work with our non-amateur coordinator, Frank Baldwin Jr., KA3DLY.

We arrange radiochess for them in which the messages carry the "ARL7" in the preamble which alerts the delivering station to request a reply. This results in our members getting to talk to a local ham — an Elmer, if you will — which is how it often works out. You know how these amateurs are . . . just can't resist helping someone into the hobby when they know that person has the interest and desire to join.

Of course, our non-hams get their first introduction to the amateur hobby via my book, *Amateur Radio, Super Hobby!* (McGraw-Hill, 275pp. $9.95).

Of all the mail I receive as CARI founder/president/publisher, none pleases me more than the excited note that another of our members has become a licensed radio amateur.

International radiochess

Our friends in VK and ZL are strong in CARI. In fact, we're looking toward a chapter being established in Oceania one day.

They are marvelous at getting articles on radiochess published, as attested to by a recent paste-up I had made of about two dozen CARI publicity articles — which was outdated by more international publicity the day we went to press.

Chess wasn't always so public in Australia. In fact, their government had actually ruled the transmissions of chess moves by radio as being "secret ciphers" which were, by such definition, illegal.

Well, one letter to Dave Sumner, K1ZZ, ARRL General Manager, took care of that. He reacted to my letter with an inquiry to his counterpart in Australia, with the result that chess is now perfectly legal there. Yes, the System can work quite nicely, at times, thank you.

Not always, however. I once tried a letter to Box 88, Moscow, to invite them into our radiochess activities. (Well, where *else* in the world would you find a higher density of chess-playing radio amateurs?) The letter was written in Russian for me by CARI member, Dr. Tony Greenberg, K8HRK/6.

Although the eventual response hardly needed Tony's translation from the Russian, hidden between the "nyet" and "best 73's" was what looked like a tear stain. You see, Amateur Radio is one thing, and chess another. To some, the combination is capitalistic heaven.

NEXT MONTH: Radiochess version of "The America's Cup." □

Aerials

(continued from page 52)

belated education in physics at the university level, I, for one, appreciate having someone of experience point out to me what in the literature is pure *BALONEY*. I might have bought *THAT* book without seeing that information, or might have overlooked something in an article prior to purchasing, or some other equally noxious result.

While this is no excuse for not analyzing everything that is read, one finds it difficult to sort out some things on a casual basis (reference W5JJ's experience with current flowing on the shield of a coaxial feedline in a specific instance).

I have spent many, many hours digesting information presented in advanced physics textbooks in 1960, only to discover later that some of that information was, in fact, erroneous. At age 32, I did not learn as easily as those freshly graduated from high school.

I really enjoy your articles along with those of your co-writers, and I sincerely hope these comments do not again cause any rift that might result in another resignation. I rarely write letters to editors or columnists, but I wish you to know that there are many of the "silent majority" who appreciate your efforts, and I felt it was time to voice my support.

J. FRANK FIELDS, KB0QJ
Bethany, Oklahoma □

Please send news and pictures to Worldradio

Ordinance

(continued from page 1)

praised the work of local amateurs.

To counter the argument that amateur and other private radio communications antennas were unsightly, the package given to Council members also contained photos of other less-than-aesthetic landmarks such as power poles, and contrasted them with pictures of antenna installations.

The arguments presented in this predistributed package were so convincing that at the City Council meeting, it was far more important for the Council members to determine why the Planning Commission had attempted passage of this ordinance instead of acting upon it. Questioning led to the disclosure that the new ordinance was actually aimed at controlling the growth of home satellite receiving antennas. The city attorney had believed that he could not single out such antenna structures for restriction without restricting other antenna systems as well.

The Council members disagreed with the city attorney and instructed the Planning Commission to begin work on a new ordinance aimed solely at control over home satellite receiving antenna structures. They decided that the current antenna/tower rules, in place for many years, will remain.

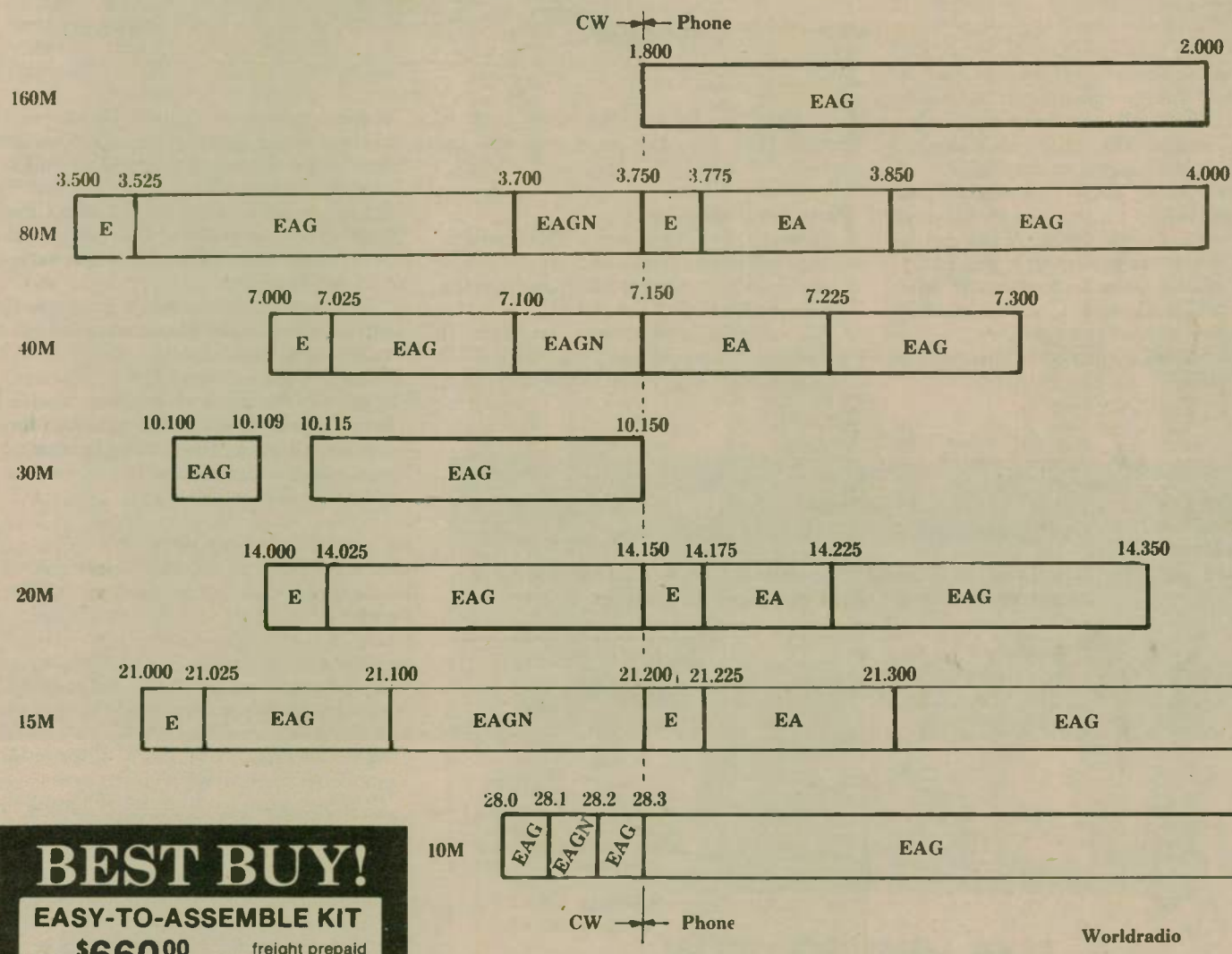
Chapman gives direct credit for the defeat of this potentially disastrous ordinance to the combined efforts of numerous amateurs from Arcadia and surrounding communities; the support of local civic and public service organizations by their letters of support; excellent advice from Chicago attorney Jim O'Connell, W9WU; and input from the *Westlink Report* staff.

While yet another Council meeting must be held to finalize a new ordinance that just deals with home satellite receiving antennas, Chapman says the amateurs in his community will follow its development closely to assure the new rules in no way affect Amateur Radio antenna installations.

— *Westlink Report* □

HF band sub-allocations

(Effective 01 September 1984)



Worldradio K6FO

Hurricane

(continued from page 1)

KE4HT; John Fogg, WA9FZG; Linda Turner, WD4OCI/M4; Jean St. Andre, KA4VTI; John Pegues, KA4ABW; WA4DOP/R2; Richard Goodwin, K4JJW/R2; Alvie Bryant, WA4ZIW; Leonard Weiss, K9EQA/M4; Tucker Clark, KB4OG; Jim Geisinger, K3QQN; Jim Nelson, K4XE; Mark Plunkett, WA4UIZ; WD4NXA; Jim Ballentine, WB4MAR; John Colson, WD4ESP; Art Holm, K3JKQ; Winston Salem ARC, W4NC; N4JYL/R2; Russ Barnes, W4HCB; Ken Mann, KA4FTH; WB2SGB/M4; and Ronie Mooney, WB4HSR.

Hundreds of others assisted in one way or another, either by relaying, helping to keep the frequency clear, or simply *listening!* While everyone is anxious to check in and announce his presence and availability, that is precisely what most emergency nets of this type do *not* want! On a busy band and with great propagation, usually well-known to the NCS, desired outlets for traffic are pretty easy to come by *when* and *if* needed. It is not easy to say "thanks, but no thanks" without appearing rude or unappreciative, but there is no easy way to tell the well-meaning volunteers that while we are telling them "no thanks," we are taking time away from the folks in affected areas that might need the help of NCS, and we had to spend considerable time telling some folks that. On the other hand, we do wish to log in the official agency stations representing Red Cross, FEMA or the military, or such as Mennonite Net reps, state and local net reps, etc.

Another type of interference came from those who insisted in trying to determine health and welfare (H&W) of people or property in affected areas. This writer would like to hear from anyone with the solution to the problem of how to deal with the folks who insist on asking H&W questions from someone with absolutely no way to handle the request, especially during the height of a disaster!

What few landlines are available in a disaster area should be left free for those in peril. No amateur in a disaster area has any way of checking on the H&W of Aunt Minnie when hurricane winds are blowing down the back of his neck (and perhaps his power lines, telephone lines, antennas, roof, etc., leaving him to the business at hand — that of surviving).

H&W *must* originate in the disaster area, and should flow from the area over established nets, whether they be NTS, independent or situation nets. *Period!* Stations in a disaster area do not exist to serve those not in the area; those of us not in a disaster area exist to serve those less fortunate.

Amateurs familiar with SKYWARN operations are also familiar with the fact that the National Weather Service depends heavily on eyewitness accounts — they call them groundtruths — from places affected by the storms. Some of those hams in the affected areas were there to provide groundtruths and to learn of the advances of the storm; they were *not* there to satisfy our natural anxieties.

The Hurricane Watch Net handles publication of bulletins and advisories, and provides a path for communications

Jack Althouse, K6NY, of Palomar Engineers explains his famous noise bridge, the new light bar automatic SWR bridge/power meter and a host of other goodies, including a computer interface for CW and RTTY.

Lou McCoy, W1ICP — long-time ARRL staffer, now with *CQ Magazine* — answered questions on all topics.

Fred Shmitka, K6AQI, tells about the Multi-Band "Spider", which is becoming more and more used on automobiles, mobile homes, balconies and boats.

Lou Tristao, KB6AMY, explains: To work DX you have to get up in the air. And you have to *stay* up.

"Windy" Kent, NV6C, runs the machine that puts your call sign on a cap.

Hurricane

(*continued from page 54*)

to and from the National Hurricane Center (NHC). Information available on HWN is direct from the Hurricane Center, and is not a personal version of what we think the Center meant, nor what we think it should have said.

Some folks will attempt to announce what Gus Glamour from his local TV station thinks will happen, but that has no place on an emergency net trying to help people learn the truth from the NHC. There have been others that monitor all sorts of RTTY frequencies, and announce their evaluations of what will happen. They have no place on our net, and we take no responsibility for what they believe or what they say. We will contradict them on our net *if* they personalize or change the official advisories. On the other hand, we have been known to abbreviate advisories in the interest of time savings, but we do read the entire texts, verbatim, at regular intervals.

After a hurricane, should there be a need for disaster relief agencies to communicate with stations in the affected area — as was the case following Camille, for instance — the HWN will assist. Otherwise, we secure operations and go away, leaving H&W for other nets established for the purpose.

Since the Diana episode, the net officers have been kept busy (as of this writing) by Edouard, Fran, Gustav, Hortense and Isidore on the East Coast, and Norbert, Odile and a tropical depression on the West. Should there be other tropical storms in the Western Hemisphere, look for advance notice on the Maritime Mobile Service Net, and hurricane information on the Hurricane Watch Net. For an information sheet and net membership application, or to get answers to your questions, send a business-sized SASE to Jerry Murphy, K8YUW, 1615 Orchard Grove Ave., Lakewood, OH 44107.

A great big *THANK YOU!* to the many others who helped out during Hurricane Diana, from all of us in the Hurricane Watch Net. □

Ohm-Brew Answer

BROKEN OHM

VE's test 147

Amateur Radio license exams were administered to 147 individuals during the Amateur Radio Council of Arizona hamfest, held 21 July at the Fort Tuthill Fairgrounds in Flagstaff, Arizona.

Steve Protas, K7SP, organized this exam, which was the first held in Arizona under the volunteer examination program. He was assisted by 16 volunteer examiners as well as four other amateurs who provided assistance in registration, reproduction and preparation of the code tapes.

Preparations started five weeks before the exam. Publicity was distributed, volunteer examiners were certified and exams were prepared.

Three separate code tapes were used at each of the three speeds tested (5 wpm, 13 wpm and 20 wpm), and these tapes were rotated to provide added security. Tapes were keyboard-generated using the dolby method to avoid background noise. Many of the candidates complimented the examiners on their outstanding quality. In addition, earphones were provided to all taking code tests.

Written examinations were graded using a punch sheet grading key. Each exam was scored three times to avoid errors. For added security, all applicants were assigned serial numbers. Names and serial numbers were matched after all tests had been graded.

Results? Fifty-seven of the 147 passed at least one element. Two applicants with no licenses prior to the exam qualified for Advanced Class licenses. The portions with the highest passing rates were the Novice code and written exams, while the Extra Class theory had the lowest passing rate. Approximately 75 percent passed the Novice test, while only one of the six applicants passed the Extra Class theory.

Examinations in Arizona were given under the auspices of the Boeing Employees Amateur Radio Society in Seattle, Washington, which is a voluntary examiner coordinator for the 7th call area.
— *Wayne Moddison, K6DOW* □

Send your news to Worldradio at the same time you send it to other amateur publications and see who prints it first. We get the news out before anyone else.

In response to an appeal for more information on the subject of decrement, Harry R. Hyder, W7IV, sent me the official word. It's taken from *Radio Instruments and Measurements*, published in 1924 by the National Bureau of Standards. You just can't get a better source!

I'll quote directly from Harry's letter:

> Reduced to its simplest terms, logarithmic decrement is the natural logarithm of the ratio of the amplitude of two successive voltage (or current) maxima of a damped wave. Going further, $\delta = \pi R \sqrt{C/L}$
>
> Where δ is the decrement and R, C and L are the constants (expressed in fundamental units) of the oscillatory circuit. The number of oscillations in a wave train before the amplitude is reduced to 0.01 of its initial value is $\frac{4.6}{\delta}$.

Harry also supplied a wealth of other information on spark transmitters and receivers best suited for reception. He brought up the interesting hypothesis that damped waves — that is, spark signals — should be thought of as wide-spectrum signals and therefore best received on receivers designed to have wide passbands. This is a novel thought!

The receivers I used in the "bad old days" never had any problem of hyper-selectivity. They were either crystal detector devices with a maximum of two tuned circuits — one loaded by the antenna, the other loaded by the detector — or a regenerative receiver using a varicoupler with a tapped primary, a grid-circuit tuning variometer, and a plate circuit variometer for regeneration. Although such a regenerative receiver had a moderately-sharp peak at resonance, that peak rapidly broadened out into wide skirt selectivity. A loud spark station could be heard over a very wide frequency spectrum.

Harry also mentioned another factor relating to effectivity in spark transmission and reception. Higher peak power output could be obtained for a given size transformer (¼, ½, or a full kW) by using a low interruption frequency by rotary gaps. He hypothecates such a low interruption frequency resulting in a narrower band (between half-power points) of transmitted signal. This, then, could be more effectively received by a sharp-tuning receiver.

Maybe so, but I recall that the 500 Hz note of ship-borne quenched-gap transmitters (on 500 kHz) always seemed to be cutting through the interference better than signals from transmitters with a lower-frequency note.

Another thought-provoking idea was advanced by Harry. He believes the development of spark was terminated too soon, that if research had been continued, spark (Type B emission) might be popular today.

Let's do a little dreaming. Suppose you designed a tank, lumped-constants, linear or cavity, using material of the nature that loses all resistance as the temperature approaches absolute zero. Let that tank be immersed in liquid helium. It then, having no resistance, would possess an infinite Q. Once given a pulse of electromagnetic energy, it would oscillate forever at a frequency determined by its electrical dimensions. Of course, as you extracted energy from that tank, its Q would diminish, but it's possible that a useful amount could be taken out before the wave-form would decay appreciably between input pulses. After all, a Class C stage acting as a quadrupler gets a pulse only once in every four cycles. And that's with a tank with a Q of about 15; think how few would be required if the Q were 20,000!

So, it would appear that a spark-incited continuous-wave transmitter could be designed and constructed with material and techniques readily available. Of course, cryogenic equipment is costly, but we're talking about possibilities, not feasibility.

This might be a good spot to talk a bit about CW. For instance, all the transmitters now used by radio amateurs transmit nothing but CW — modulated CW, of course. On radiotelegraphy, amplitude modulation (make and break) or frequency modulation (frequency-shift or phase-shift) is used. On radiotelephony, one of the many forms of amplitude modulation (single-sideband suppressed carrier, double-sideband suppressed carrier, double-sideband with carrier, etc.) or frequency modulation (or phase modulation) is used.

So, you see, the popular use of CW as the equivalent of radiotelegraphy is in error. This error crept into Amateur Radio language in the early 1920's when nearly all amateur activity was on radiotelegraphy. It was used to distinguish continuous-wave radiotelegraphy from spark radiotelegraphy.

Thanks again to Harry R. Hyder, W7IV. And you other old-timers keep the info rolling in on spark, arc, alternators and vacuum tube equipment of the early days! □

Old-time emergency

Elmer Callies, K6IW

While cleaning out some of my old files I came across an old newspaper clipping which was taken from the Oroville Gazette (that's Oroville, Washington). The incident reported in the clipping occurred in 1936 or 1937, while I was living in Omak, Washington, in the north central part of the state. I was the holder of W7AJY at that time and played the supporting role in the emergency reported in the clipping.

"What good are the Amateur Radio stations, anyway?" is a question that is often asked. This question has been answered in times of emergency many times over the United States, but the value of a "ham" transmitting station was proven right here at home last week.

Ross Ferry, a miner at the azurite mine near the Cascade summit, was injured and his shoulder dislocated. No one at the mine knew how to put the shoulder back into place and his suffering was terrible.

The dog team, which is being used to transport foodstuff and supplies to the mine from the Methow Valley, was on the valley end of the run, with snow 10 feet deep in the pass, and no other means of communication except a portable radio set which one of the men had at camp.

A call for help was sent out over this transmitter, W7EDD and it was answered by W7FNC at Tacoma. The Tacoma amateur sent out an emergency message call to (Elmer Callies) W7AJY, at Omak or R.W. Linscott, W7CAC, at Oroville. Both stations answered, and it was requested that a long distance phone call be made to Winthrop where Coombs, mine operations chief, was supposed to be with the dog team, and have him bring a doctor to the mine. The telephone call disclosed that Coombs was on his way to the mine, having left that morning, and could not be reached.

Prevented from helping that way, W7FNC contacted W7BDX at Wallace, Idaho, and got in communication with the headquarters office of the mine. This office called in a doctor, who gave instructions over the radio for setting the shoulder.

These instructions were repeated and relayed by Linscott, but the injury was so badly swollen that the joint could not be put back in place.

How the injured man was taken, partly by tractor, partly by sled, and partly on his own feet, wracked with pain, to Winthrop, accompanied by Willis Martin and Bob Ellis, has been told.

But the part that Amateur Radio played is here told for the first time, although many local people whose radio receivers tune to amateur frequency heard the whole thing.

My Amateur Radio background dates back a few years, and although there are a number of amateurs who date back much further, I still like to consider myself as an "old-timer". I obtained my first amateur license in 1921, which was rubber stamped by the Secretary of Commerce, Herbert Hoover. However, I put my first transmitter on the air when I was 10 years of age, in 1916, using old Ford ignition spark coils, plate glass condenser, a helix (nearly as big as a small wagon wheel), a rotary spark gap, a four-wire antenna with 8-foot spreaders mounted between two fir trees 50 feet up, a lot of patience and excitement. With this equipment, I was able to communicate across the state on a frequency that only God knew, but most likely somewhere in the vicinity of 200 meters. We used our initials for call signs.

Ahhhhh, those happy, exciting days. Ha. Of course, we were required to observe radio silence during WWI.

I have held the following amateur calls — "7RT" (no prefix), W7AJY, W6ZPA, and in 1958 I upgraded to Extra Class and was issued the present call, K6IW. I have been an active amateur since the spark days, and also obtained commercial operator licenses — Telegraph Second Class and Telephone First Class — in 1942, which I held until 1978.

I entered federal government service with the FCC in 1940, was assigned to the Radio Intelligence Division, and at termination of WWII, I returned to monitoring station duty. In 1958, I transferred to the District Office of the FCC in San Francisco. I retired at the close of business, 31 December 1970, as the Assistant Engineer in charge of the San Francisco District Office.

Oh yes — the conclusion of the emergency. On the way up the mountain to the mine, the doctor met the dog sled bringing the injured man down about halfway, and administered professional medical assistance. I am not sure if the shoulder was replaced to normal up there in the open snow, but I did learn later that in due time the injured man returned to work in the mine again.

I am still quite active on all major bands — 80 through 2 meters — in CW, SSB, RTTY and 2-meter FM modes. □

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

Heath products

Heath Company, of Benton Harbor, Michigan, has expanded their Amateur Radio line to include a new General Coverage Receiver which offers portability and low-power consumption; a Remote Coax Switch for convenient switching of up to four antennas; and a Crossfire Tuning indicator for quick and easy tuning of RTTY transmissions.

SW-7800 General Coverage Receiver

The SW-7800 Receiver covers .15 through 30 MHz continuously in 30 overlapping 1 MHz bands. Broadband front-end circuits eliminate the need to tune circuits within a band, and wide-band front-end stages eliminate the need for the customary RF amplifier. The result is that the receiver can handle incoming signals within a wide dynamic range. An up-converting, double-conversion mixing design provides excellent image rejection.

Heath's new SW-7800 General Coverage Receiver offers portability coupled with low-power consumption.

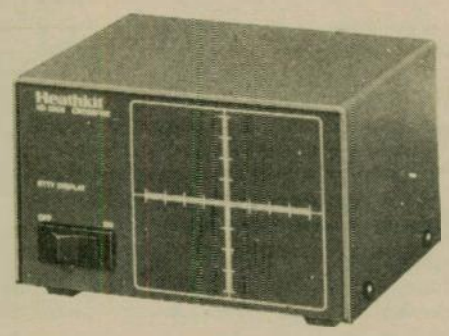
The SW-7800 features a five-digit LED display with 1 kHz accuracy; LSB, USB, CW and AM (wide and narrow) modes of operation; AGC time-constant switch; synthesized high-frequency oscillator; and a muting provision to permit operation with a transmitter. Other features include a switch to protect against overload from very strong local stations; front panel jack for taping receptions (unaffected by volume setting); and a telescoping whip antenna for local reception and portable operation. Only a VTVM is required for Receiver alignment.

HD-1481 Remote Coax Switch

Heath's new Remote Coax Switch easily mounts on a tower or mast and consists of a remote RF switching unit and an indoor control unit. The two units are connected by a single coaxial cable which handles both RF and control signals. The remote unit is rain-tight and mounts with a single clamp.

The control unit contains the power supply and provides switching signals to the remote unit. The HD-1481 Remote Coax Switch handles 2000 watts PEP with a VSWR of 1.15:1 or less below 30 MHz.

Conveniently select up to four antennas with the new Heathkit HD-1481 Coax Switch.



Heath's new HD-3006 Crossfire Tuning Indicator permits quick easy tuning of RTTY transmissions.

HD-3006 Crossfire Tuning Indicator

The new HD-3006 is a visual tuning indicator for radioteletype (RTTY) communication. Sixteen LED's make up the display: eight vertical LED's identify mark signal strength while eight horizontal LED's do the same for space signal strength. Tuning the indicator for maximum vertical and horizontal display will provide a strong signal for computers or RTTY printers.

Each LED bar requires approximately 14dB no-signal to signal voltage ratio for full operation. Minimum input signal is 0.3VAC RMS or 0.5VDC. Maximum signal is 15VAC RMS or 15VDC.

The HD-3006 Crossfire Tuning Indicator has a wide voltage range and is compatible with almost any interface/terminal unit that has oscilloscope outputs for tuning. The AC/DC cube-type power supply is included in the kit.

These are just three of over 400 products featured in the latest Heathkit Catalog. To receive this colorful catalog *free of charge*, write Heath Company, Dept. 150-435, Benton Harbor, MI 49022. In Canada, write Heath Company, 1020 Islington Ave., Dept. 3100, Toronto, Ontario, M8Z 5Z3, CANADA. Catalogs are also available at over 70 Heathkit Electronic Centers in the United States and Canada. See telephone directory white pages for nearest store.

Heath Company and Veritechnology Electronics Corporation are wholly-owned subsidiaries of Zenith Electronics Corporation. Heathkit Electronic Centers in the United States are units of Veritechnology Electronics Corporation.

Product availability, specifications and prices are subject to change without notice. □

Repeater, amplifier

Microprocessor-controlled repeater

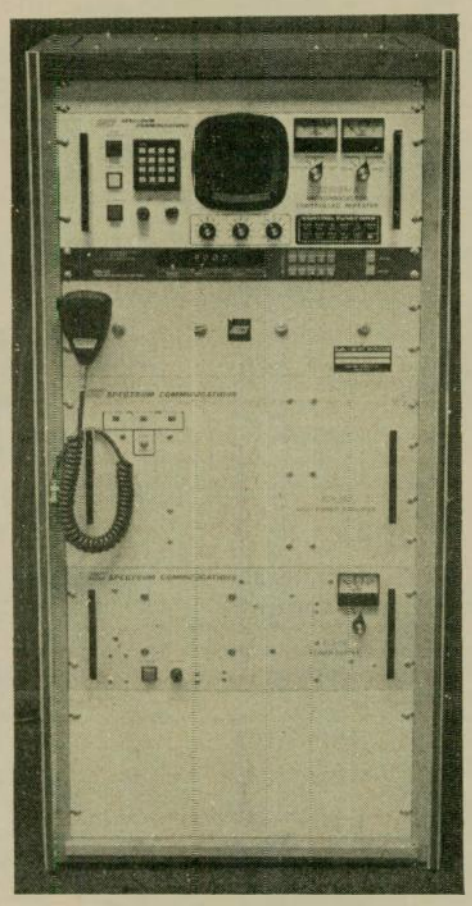
The New Spectrum Communications' SCR2000X microprocessor-controlled repeater combines the latest state-of-the-art digital techniques with the best of Spectrum's highly refined RF technology to yield one of the most advanced and highest performance repeaters available in the world today.

The repeater includes the following features:

- Full autopatch and touch-tone repeater remote control capability. Patch AGC for constant levels.
- Phone line and "over-the-air" command modes
- Up to 13 "Auto Dial" phone numbers
- Touch-tone to dial pulse converter
- Full 16-digit decoding with crystal controlled Decoder IC — allows the use of "A, B, C and D" characters in control codes. This expands the number of possible codes and increases security.
- Touch-tone control of all important repeater functions: Timeout, Hang Time, Patch Timeout, Transmitter Inhibit/Reset, Patch and Reverse Patch Inhibit/Reset. "PL" ON/OFF (with optional PL board), etc.
- Up to six auxiliary functions — expandable
- Built-in muting circuit prevents retransmission of control tones
- Automatic CW ID and remote ID command
- Distinctive courtesy tone
- "Kerchunk Killer" circuit discourages annoying key-ups.
- Timeout warning tone
- Built-in battery backup — saves microprocessor memory in case of power failure.

The following transmitter options are available: 2M: 30 or 75 watts; 220 MHz: 30 or 65 watts; 440 MHz: 40 watts. High-power rack mount repeater power amps and power supplies are available to 150 watts.

A high-performance receiver is included, with high sensitivity, selectivity and wide, dynamic range. An eight-pole front-end filter is standard as well as a 12-pole IF filter. "Super Sharp" filter options are also available.



SCR200X and SCA100V

Repeater/base power amplifier and power supply

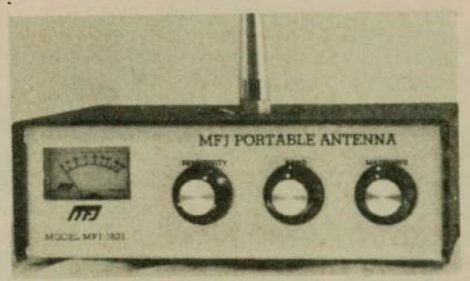
The Spectrum SCA100V is a new 150 watt repeater/base station amplifier that operates in the 136-174 MHz range. Its unique massive heatsink and high-efficiency cooling system design allows cool operation even under 100 percent continuous duty conditions in a hot environment (for highest reliability). The "behind-the-panel" heatsink permits use in a locking front door cabinet without loss of cooling effectiveness.

It also features: Automatic Hi VSWR Shutdown/"bypass" with 4X auto-reset circuit; and auto amp bypass if power supply should fail or if amp should overheat. Unusually tight RF shielding and heavy-duty construction. Many other standard features. A 100 watt UHF version is also available. 19" rack mount.

The SCP30 is the companion power supply for the SCA100V amplifier, but it may also be used for any type of high power amplifier, service bench, or industrial application requiring a very heavy-duty supply. Its output is 13.6VDC at 25 amps continuous (30A intermittent). Low ripple, excellent regulation. Massive ferro-resonant transformer and regulator heatsink. 19" rack mount or bench use.

For more information, contact Spectrum Communications Corp., 1055 W. Germantown Pk., Norristown, PA 19401-9616; (215) 631-1710. □

Pass it on . . . WORLDRADIO



Portable antenna

MFJ introduces the MFJ-1621 Portable Antenna. This new product allows the ham operator to operate in almost any electrically free area, whether it be in an apartment, at a campsite, a resort hotel or even at the beach. The portable antenna lets you operate 40, 30, 20, 15, 10, 6 and 2 meters by using a telescoping whip antenna that extends to 54 inches. The antenna is mounted on a self-standing 6" × 3" × 6" durable aluminum cabinet. The portable antenna features a built-in antenna tuner, field strength meter and 50 feet of RG-58 coax cable.

To use, simply place the antenna in an electrically clear location, set the bandwidth, tune the capacitor for maximum field strength and operate.

The MFJ-1621 is *the* complete portable antenna system that can be used almost anywhere. The MFJ-1621 comes with a one-year unconditional warranty and a 30-day money back guarantee. If you are not completely satisfied with the portable antenna, just return it within 30 days for a complete refund (less shipping).

To order your MFJ-1621 Portable Antenna, send a check or money order for $79.95 plus $4 shipping to: MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. Or use their toll free number (800) 647-1800 and charge to your VISA or MasterCard. Order one today! □

Ham bands color guide

Gordon West with Radio School, Inc. announces a new six-color Amateur Radio, high-frequency band guide. This colorful 9″ × 12″ coated stock guide gives immediate identification to all high-frequency band limits from 10 meters through 160 meters. Novice privileges are indicated in green. Technician privileges in green (CW privileges same as Novice).

General Class privileges are in blue, with Advanced Class privileges in yellow. Extra Class privileges are in red.

Horizontal, three-dimensional, colored tubes indicate frequency privileges for each class of license. Voice privileges are characterized by three-dimensional lines and CW privileges are characterized by both vertical and horizontal lines for easy identification. Areas of no privileges feature three-dimensional tubes with white.

To further aid operators in identifying frequency limits for their class of operation, the chart also details DX calling windows, satellite output frequencies, as well as 10-meter FM band limits.

The operator only needs to identify his color of license classification, and an immediate glance at the chart will indicate upper and lower voice as well as CW frequency limits.

"Since the band limits have recently changed," Gordon West comments, "hams need a ready reference to identify upper and lower band limits for their class of license. Adding six colors to this chart makes it easy to spot your band, highest and lowest frequencies of operation, as well as certain operating restrictions within the band."

The back side of this wall chart features a complete list of countries with their Amateur Radio prefixes. This colorful list is alphabetized in sections to assist in immediately spotting prefixes and matching them up with foreign countries.

This 9″ × 12″ chart has been punched for hanging on a wall, yet is thin enough to fit under the glass of any operating station. Its high-gloss, coated stock is thick enough to prevent bending and is resistant to coffee spills.

"There are five charts out on band limits, but this is the first one that is three-dimensional and in six colors — at last an easy way to check your frequency privileges," comments Gordon West, WB6NOA.

The chart is available for $2.95 from local radio stores or direct from Radio School, Inc., 2414 College Dr., Costa Mesa, CA 92626. Add $1 for postage and handling plus $.17 tax for California residents. □

Radio School random stereo code courses

Radio School, Inc., the nation's largest producer of stereo code and theory training tapes, announces their new random stereo code courses.

Three separate, 1½-hour-long, stereo code cassettes are available. Novice applicants may study the 5 wpm random code groups. Code characters are generated at 13 wpm, but spaces slow down the rate to 5 wpm. The tone and dit-dah ratio meet published FCC code test specifications for Novice.

General Class applicants may study the 13 wpm random code test tape that is 1½ hours long. The code tone and dit-dah ratio meet published FCC test specifications.

Extra Class operators may study the hour-and-a-half long, Extra Class random code cassette. The tone and dit-dah ratio also match the FCC test specifications for volunteer examiners.

After six minutes of sending, the random letters, numbers and punctuation marks are quickly read back over the tape in stereo to confirm your correct copy. This allows the students to quickly check their work and also minimizes any problems with lost answer sheets.

The Radio School random code program also varies the number of characters sent in each group — eliminating the anticipation of common five-letter word groups traditionally used on random code tapes. The random groups may vary from one all the way up to seven.

Each tape also features speed runs on the second side to give each student "elbow room" in passing their volunteer examiner-administered code test.

All tapes are produced in stereo at a major recording studio and feature clean sounds with no distortion or print-through. Each tape is $9.95 plus $1 postage. California residents add 6 percent tax.

For a complete catalog of all Radio School, Inc. code and theory cassette courses, write Radio School, ATTN: Gordon West, WB6NOA, 2414 College Dr., Costa Mesa, CA 92626. □

Multi-function RTTY operating aid

MFJ Enterprises is proud to announce a new RTTY operating aid that will be indispensable to radio amateurs around the world. Called the 7-in-1 RTTY Operating Aid, the MFJ-1221 has seven distinct features that will improve any RTTY station. Just plug the MFJ-1221 between your receiver and computer interface and you're ready to go.

The most visible feature on the MFJ-1221 is the new 16 LED CROSSHAIR tuning array that makes tuning quick and easy with dead on accuracy. Just tune the unit for maximum vertical (mark) and horizontal (space) display. While the CROSSHAIR tuning array simulates a scope ellipse, the MFJ-1221 also features mark and space outputs for connection to your oscilloscope for true scope tuning.

The 7-in-1 RTTY operating aid has a shift indicator that allows you to identify 170, 425 or 850 Hz shifts by simply tuning the mark LED until it blinks. The appropriate shift indicator will then blink to identify either 170, 425 or 850 Hz shift. This feature is useful for indicating inverted shift as well as identifying RTTY Shifts outside the ham bands.

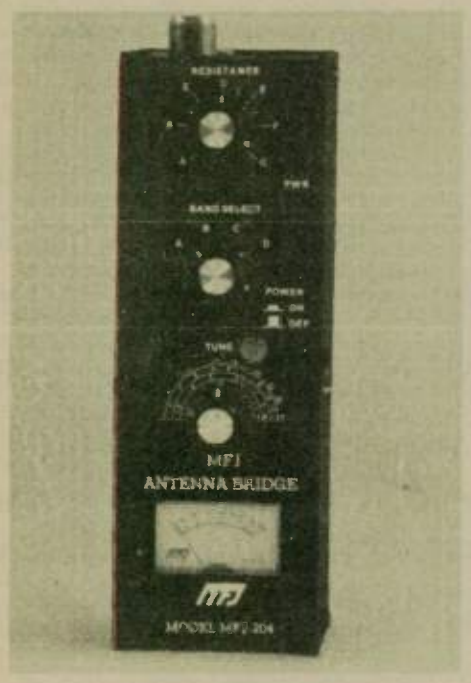
MFJ uses very sharp mark-and-space filters that greatly improve copy under crowded, fading and weak signal conditions and are selectable for 170, 425 and 850 Hz shifts. Individual channel filters are narrow four-pole active filters.

The 1221 7-in-1 RTTY operating aid also features a Normal/Reverse switch that lets you check for inverted RTTY without changing side bands and retuning; an output level control that lets you adjust the input signal level to your RTTY computer interface for proper operation and a limiter that evens out signal variation for easier, smoother copy. Requires floating 18VDC or 110VAC with AC adapter, MFJ-1312, $9.95.

Once you try the MFJ-1221 RTTY operating aid, you'll be hooked! The product comes with a one-year unconditional warranty and a 30-day money back guarantee. If you are not totally satisfied, return the unit within 30 days for a complete refund (less shipping).

To order yours, send a check or money order for $79.95 plus $4 shipping for each unit to: MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762.

Or use their toll free number, (800) 647-1800 and charge on VISA or MasterCard. Order your RTTY Aid today! □



Antenna bridge

MFJ Enterprises introduces another great Amateur Radio accessory for amateurs around the world.

The new MFJ-204 Antenna Bridge lets you trim your antenna quickly and easily for its best performance.

The antenna bridge will give an accurate reading of your antenna resistance up to 500 ohms and will cover all the ham bands up to 30 MHz. When used to measure the resonant frequency of your antenna, you can check to see if the resonant frequency is higher or lower than desired. Then you can lengthen or shorten your antenna based on the information gathered with the MFJ-204 Antenna Bridge.

It's easy to use — just connect the antenna coax lead to the antenna bridge, set the frequency that you desire and adjust the bridge for a null meter reading. Then read the antenna resistance from the dial; it's just that simple!

The MFJ-204 Antenna Bridge also has a frequency counter jack for precise frequency measurement and can be used as a signal generator.

The antenna bridge is very compact, with all of these great features enclosed in a 4″ × 2″ × 2″ sturdy black aluminum cabinet. The MFJ-204 operates on a single 9-volt battery or 110VAC with AC adapter MFJ-1312 for $9.95.

The MFJ-204 Antenna Bridge carries a one-year unconditional warranty and a 30-day money back guarantee. If you are not 100 percent satisfied with the MFJ-204's performance, just return it within 30 days for a complete refund (less shipping).

To order your MFJ-204 Antenna Bridge, send your check or money order for $79.95, plus $4 shipping to: MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. Or phone toll free (800) 647-1800 and charge to your VISA or MasterCard account. Order one today!

RTTY/CW Deluxe Computer Interface

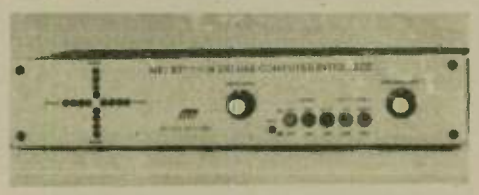
New from MFJ Enterprises — a RTTY/CW Deluxe Computer Interface that has variable tuning for all shifts, built-in RS-232 compatibility FM-AM modes of operation and much, much more!

The MFJ-1229 features a 16 LED CROSSHAIR mark and space tuning array that simulates a scope ellipse for easy, accurate tuning even under poor signal-to-noise conditions. The Deluxe Computer Interface also operates in both FM and AM modes.

FM is for general use, off-shift copy, drifting signals and moderate signal and QRM levels. AM is most effective under weak signal conditions or when there are strong stations nearby. The MFJ-1229 transmits on both 170 and 850 Hz with variable shift tuning, as well as push button 170 Hz for added convenience and versatility.

The 1229 can be used with most any home computer: C-64, VIC-20, Apple, TRS-80C, Atari, TI-99 and others. You can utilize a large variety of software with the 1229, such as MFJ, Kantronics, AEA and many others.

Additional features include: built-in RS-232 compatibility (a costly option on other interfaces), AFSK and FSK keying, front panel sensitivity control, a Normal/Reverse switch that



eliminates returning while checking for inverted RTTY, mark and space outputs for true scope tuning and a Kantronics compatible socket.

All inputs are buffered and can be inverted using an internal DIP switch. External trim pots are accessible from the rear allowing you to adjust the audio input levels. The MFJ-1229 uses 18VDC or 110VAC with the optional AC adaptor, MFJ-1312 for $9.95. The Interface measures 12½″ × 2½″ × 6″ and comes in an attractive black aluminum cabinet with a brushed aluminum front.

The MFJ-1229 has a one-year unconditional warranty and a 30-day money back guarantee. If not totally satisfied, return it for a full refund less shipping costs.

To order your MFJ-1229 Deluxe RTTY/CW Computer Interface, send $179.95 plus $4 shipping and handling for each unit to: MFJ Enterprises, Inc., 921 Louisville Rd., Starkville, MS 39759. Or call their toll free number, (800) 647-1800, to charge on your VISA or Mastercard. Order yours today!

24-hour FAX machine

Communications Specialists, the California tone signaling manufacturer, has recently installed a FAX machine. This new device allows 24-hour transmittal of facsimiles from any point in the world. The sender must, of course, have access to a FAX machine.

The new FAX machine at Communications Specialists is useful for two-way transmittal of written purchase orders, technical diagrams, catalogs, letters of credit, legal documents or any correspondence during business or non-business hours.

The access number to this new service is (714) 974-3420 and can be reached any time of the day or night.

For more information, contact: Communications Specialists, Inc., 426 West Taft Ave., Orange, CA 92665-4296; (800) 854-0547; FAX: (714) 974-3420.

Electronic keyer

MFJ Enterprises, Inc. introduces the MFJ-407 Deluxe Electronic Keyer to its line of Amateur Radio products. The Deluxe Electronic Keyer sends iambic, automatic, semi-automatic and manual. You can use squeeze, single lever or straight key to send your signal.

The MFJ-407 features iambic operation with squeeze key, dot-dash insertion and semi-automatic "bug" operation that provides automatic dots and manual dashes. The keyer also features dot-dash memory, self-completing dots and dashes, jam-proof spacing and instant start keying.

Solid-state plus and minus keying is provided for use with tube or solid-state transmitters.

Front panel controls include linear speed, weight, tone and volume controls as well as on/off, tune and semi-automatic switches.

Weight control allows you to adjust the dot-dash space ratio, thus making your signal distinctive to penetrate QRM. Tune switch keys transmitter for tuning.

The MFJ-407 is RF proof, has a built-in speaker and uses a 9-volt battery (not included) or 110VAC with AC adapter, MFJ-1305, $9.95. This hard-working product comes in an attractive black aluminum cabinet with a black front plate. The unit measures 7″ × 2″ × 6″.

The MFJ-407 Deluxe Electronic Keyer comes with a one-year unconditional warranty and a 30-day money back guarantee. If you are not completely satisfied with the Deluxe Electronic Keyer just return it within 30 days for a complete refund (less shipping).

To order send your check or money order for $69.95 plus $4 shipping for each unit to: MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. Or use their toll free number (800) 647-1800 and charge to your VISA or MasterCard. Order your keyer today.

Microphone equalizer

This new product from MFJ Enterprises helps solve ham voice signal problems from the transmitter's end. The MFJ-550 Microphone Equalizer will greatly improve your transmitted SSB speech for maximum talk power. Voice, microphone and room characteristics are different for each operator, thus creating different quality speech signals.

The Microphone Equalizer helps by evening out speech peaks and valleys to produce cleaner, more intelligible speech on the receiving end. The MFJ-550 also improves mobile operation by reducing bassy peaks due to acoustic resonances within a car.

The Microphone Equalizer plugs between microphone and rig with a standard four-pin microphone jack on the unit and shielded output cable to the rig (included). Front panel features include: bass, mid-range and treble variable controls that provide ± 12dB boost or cut at 490, 1170 and 2800 Hz; a microphone gain control and an on/off/bypass switch with "on" LED. The bypass switch connects the microphone directly to the rig.

The MFJ-550 Microphone Equalizer is housed in MFJ's rugged black aluminum cabinet and uses a 9-volt battery, 12VDC or

110VAC with AC adapter, MFJ-1312, $9.95.

The MFJ Microphone Equalizer comes with a one-year unconditional warranty and a 30-day money back guarantee. If not totally satisfied, just send the unit back within 30 days for a full refund less shipping.

To order send check or money order for only $49.95 plus $4 shipping to: MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. Or call toll free, (800) 647-1800, and charge to your VISA or MasterCard account. Order one today! □

Minnesota

The annual HANDI-HAM winter hamfest will be held Saturday, 01 December, at the Eagles Club in Faribault, Minnesota starting with registration at 9:00 a.m. There will be a HANDI-HAM equipment auction, dinner at noon, program and prize drawing.

Talk-in on 19/79.

For more information, contact Don Franz, W0FIT, 1114 Frank Ave., Albert Lea, MN 56007. □

SAROC cancelled

Due to unavoidable circumstances and scheduling, the Annual Prestige SAROC 1985 convention has been cancelled. Plans are presently being formulated for SAROC in January 1986. Details will be announced as soon as they are completed. — *L.M. Norman, W7PBV, Chairman* □

Fried Heyn, WA6WZO, Southwestern Division Vice Director, and his XYL, Sandi WA6WZN, are — understandably — very proud of their "ARRL" license plate, complete with their names and calls. The Heyns now have another ham in the family — a daughter, N6KFC — thanks to Gordon West's radio classes.

160-Meter World SSB Championship Contest

73 Magazine will be sponsoring the 6th Annual 160-Meter World SSB Championship Contest on Saturday, 19 January 1985, 0000Z-2400Z.

Object: To work as many stations as possible on 160-meter Phone in a maximum of 32 hours allowable contest time. Multi-operator stations may operate the entire 48-hour contest period. Stations may be worked only once.

Entry categories: Single Operator, Single Transmitter, Phone only; Multi-operator, Single Transmitter, Phone only.

Exchange: Stations within the continental United States and Canada transmit RS report and state or province/territory. All others transmit RS report and DX country.

Points: 5 QSO points for contact with W/VE stations contacted within the continental 48 U.S. states and Canada. All other contacts earn 10 points each.

Multipliers: 1 multiplier point will be earned for each of the continental U.S. states (48 maximum; a district of Columbia contact may be substituted for a State of Maryland multiplier), each of the Canadian provinces/territories (13 maximum), and each DX country outside the continental 48 U.S. states and Canada.

Final score: Total QSO points × total multiplier points = claimed score.

Contest entries: Each entry must include logsheets, dupesheet for 100 or more contacts, a contest summary and a multiplier check sheet.

Entry deadline: All entries must be postmarked no later than 20 February 1985.

DX Window: Stations are expected to observe the DX Window from 1.825-1.830 MHz, as mutually agreed on by Top Band operators. Stations in the United States and Canada are asked not to transmit in this 5 kHz segment of the band. During the contest, all W/VE stations are requested to utilize only those frequencies from 1.808-1.825 and 1.830-1.900 MHz.

Disqualifications: Disqualification may result if contestant omits any required entry form, operates in excess of legal power authorized for his/her given area, manipulates operating times to achieve a score advantage or fails to omit duplicate contacts which reduce the overall score more than 2 percent. Decisions of the contest committee are final.

Awards: Contest awards will be issued in each entry category in each of the continental U.S. states, each Canadian province/territory and each DX country. A minimum of 100 QSO's must be worked to qualify.

Contest address: To obtain information, entry forms, or to submit a contest entry, forward an SASE to: 160-Meter Contest, Harry Arsenault, K1PLR, 603 Powell Ave., Erie, PA 16505. □

15M, 20M World SSB Championship Contests

The 1st Annual 15-Meter World SSB Championship Contest is being held Saturday, 26 January 1985, from 0000Z to 2400Z. On Sunday, 27 January, the 1st Annual 20-Meter World SSB Championship Contest will be held from 0000Z to 2400Z. Both contests are sponsored by **73 Magazine.**

Rules: Work as many stations as possible on 15-meter Phone during the specified times of allowable operation. The same station may be worked *once.* Crossmode contacts will not count.

Single operator stations may operate a total of 16 hours. All multi-operator stations may operate the entire 24-hour period. Off periods must be noted in your logs and on your summary sheet. Off periods are *no less than 30 minutes each.*

Operator Class: Single Operator, Single Transmitter, Phone only; Multi-operator, Single Transmitter, Phone only.

Exchange: Stations within the continental 48 U.S. states, and Canada transmit an RS report and state, province or territory. All other stations, including Alaska and Hawaii, transmit RS report and DX country.

Points: 5 QSO pts. for contact *within* your continent. 10 QSO pts. for contact *outside* your continent. List points for each contact on your log sheets.

Multipliers: *1 multiplier point* is earned for each U.S. state (48 maximum; a District of Columbia contact may be substituted for a state of Maryland multiplier), each Canadian province or territory (13 maximum) and DX country (excluding the continental United States and Canada).

Final score: Total QSO points × total multiplier points = claimed score.

Contest entries: Each entry must include a contest log, a dupesheet, a contest summary and multiplier check list. We recommend contestants send for a copy of the contest forms. Enclose an SASE to the contest address listed below.

Entry deadline: All entries for the 15-meter contest must be *postmarked* no later than 26 February 1985. Entries for the 20-meter contest must be *postmarked* no later than 27 February 1985.

Disqualifications: Omission of any required entry form, operating in excess of legal power, manipulating of contest scores or times to achieve a score advantage or failure to omit duplicate contacts which would reduce the overall score more than 2 percent are all grounds for immediate disqualification. Decisions of the contest committee are final.

Awards: Contest awards will be issued in each operator class in each of the continental 48 U.S. states, Canadian provinces and territories and each DX country represented. A minimum of 100 QSO's must be worked to be eligible for contest awards.

Contest address: To obtain entry forms or to submit an entry, forward an SASE to: 15-Meter (or 20-Meter) Contest Chairman, Chuck Ingram, WA6R, 44720 N. 11th St. E., Lancaster, CA 93535. □

Happy Holidays

RF TRANSISTORS, MICROWAVE TRANSISTORS

TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE
2N1561	$25.00	2N4416	2.25	2N5920	$ 70.00	181-3	15.00	40608 RCA	$ 2.48	A2X1698	POR	BFY90	$ 1.50	EFJ4017	24.00
2N1562	25.00	2N4427	1.25	2N5921	80.00	210-2	10.00	40673 RCA	2.50	A3-12	14.45	BLW60C5	15.00	EFJ4021	24.00
2N1692	25.00	2N4428	1.85	2N5922	10.00	269-1	18.00	40894 RCA	1.00	A50-12	24.00	BLX67	12.25	EFJ4026	35.00
2N2857	1.55	2N4430	11.80	2N5923	25.00	281-1	15.00	60247 RCA	25.00	A209	10.00	BLX67C3	12.25	EN15745	20.00
2N2857JAN	4.10	2N4927	3.90	2N5941	23.00	282-1	30.00	61206 RCA	100.00	A283	6.00	BLX93C3	22.21	FJ9540	16.00
2N2857JANTX	4.50	2N4957	3.45	2N5942	40.00	482	7.50	62800A RCA	60.00	A283B	6.00	BLY87A	7.50	FSX52WF	58.00
2N2876	13.50	2N4959	2.30	2N5944	10.35	564-1	25.00	62803 RCA	100.00	A1610	19.00	BLY88C3	13.08	G65739	25.00
2N2947	18.35	2N5016	18.40	2N5945	10.00	698-3	15.00	430414/3990RCA	50.00	AF102	2.50	BLY89C	13.00	G65386	25.00
2N2948	13.00	2N5026	15.00	2N5946	12.00	703-1	15.00	3457159 RCA	20.00	AFY12	2.50	BLY90	45.00	GM0290A	2.50
2N2949	15.50	2N5070	18.40	2N5947	9.20	704	4.00	3729685-2 RCA	75.00	AR7115	20.00	BLY92	13.30	HEP76	4.95
2N3118	5.00	2N5090	13.80	2N6080	6.00	709-2	11.00	3729701-2 RCA	50.00	AT41435-5	6.35	BLY94C	45.00	HEPS3002	11.40
2N3119	4.00	2N5108	3.45	2N6081	7.00	711	4.00	3753883 RCA	50.00	B2-8Z	10.70	BLY351	10.00	HEPS3003	30.00
2N3134	1.15	2N5109	1.70	2N6082	9.00	733-2	15.00	615467-902	25.00	B3-12	10.85	BLY568C/CF	30.00	HEPS3005	10.00
2N3287	4.90	2N5160	3.45	2N6083	9.50	798-2	25.00	615467-903	40.00	B12-12	15.70	C2M70-28R	92.70	HEPS3006	19.90
2N3288	4.40	2N5177	21.62	2N6084	12.00	3421	28.00	2SC568	2.50	BAL0204125	152.95	C25-28	57.00	HEPS3007	25.00
2N3309	4.85	2N5179	1.04	2N6094	11.00	3683P1	15.00	2SC703	36.00	BF25-35	56.25	C4005	2.50	HEPS3010	11.34
2N3375	17.10	2N5216	56.00	2N6095	12.00	3992	25.00	2SC756A	7.50	B40-12	19.25	CD1659	20.00	HP8003	10.00
2N3478	2.13	2N5470	75.00	2N6096	16.10	4164P1	15.00	2SC781	2.80	B70-12	55.00	CD1899	20.00	HPET2204	112.00
2N3553	1.55	2N5583	3.45	2N6097	20.70	4243P1	28.00	2SC1018	1.00	BF272A	2.50	CD1920	10.00	HP35821	38.00
2N3553JAN	2.90	2N5589	9.77	2N6105	21.00	4340P3	18.00	2SC1042	24.00	BFQ85	2.50	CD2188	18.00	HP35826B	32.00
2N3632	15.50	2N5590	10.92	2N6136	21.85	4387P1	27.50	2SC1070	2.50	BFR21	2.50	CD2545	24.00	HP35826E	32.00
2N3733	11.00	2N5591	13.80	2N6166	40.24	7104-1	28.00	2SC1216	2.50	BFR90	1.00	CD2664A	16.00	HP35831E	30.00
2N3818	5.00	2N5596	99.00	2N6267	142.00	7249-2	10.50	2SC1239	2.50	BFR91	1.65	CD3167	92.70	HP35832E	50.00
2N3866	1.30	2N5636	12.00	2N6304	1.50	7283-1	37.50	2SC1251	24.00	BFR99	2.50	CD3353	95.00	HP35833E	50.00
2N3866JAN	2.20	2N5637	15.50	2N6368	30.00	7536-1	30.00	2SC1306	2.90	BFT12	2.50	CD3435	26.30	HP35859E	75.00
2N3866JANTX	3.80	2N5641	12.42	2N6439	55.31	7794-1	10.50	2SC1307	5.50	BFW16A	2.50	CD3900	152.95	HP35866E	44.00
2N3866JANTXV	4.70	2N5642	14.03	2N6459	18.00	7795	15.00	2SC1424	2.80	BFW17	2.50	CM25-12	20.00	HXTR2101	44.00
2N3866AJANTXV	5.30	2N5643	25.50	2N6567	10.06	7795-1	15.00	2SC1600	5.00	BFW92	1.50	CM40-12	27.90	HXTR3101	7.00
2N3924	3.35	2N5645	13.80	2N6603	13.50	7796-1	24.00	2SC1678	2.00	BFX44	2.50	CM40-28	56.90	HXTR5101	31.00
2N3926	16.10	2N5646	20.70	2N6604	13.50	7797-1	36.00	2SC1729	32.40	BFX48	2.50	CME50-12	30.00	HXTR6104	68.00
2N3927	17.25	2N5651	11.05	2N6679	44.00	40081 RCA	5.00	2SC1760	1.50	BFX65	2.50	CTC2001	42.00	HXTR6105	31.00
2N3948	1.75	2N5691	18.00	2N6680	80.00	40279 RCA	10.00	2SC1909	4.00	BFX84	2.50	CTC2005	55.00	HXTR6106	33.00
2N3950	25.00	2N5764	27.00	021-1	15.00	40280 RCA	4.62	2SC1945	10.00	BFX85	2.50	CTC3005	70.00	J310	1.00
2N3959	3.85	2N5836	3.45	01-80703T4	65.00	40281 RCA	10.00	2SC1946	40.00	BFX86	2.50	CTC3460	20.00	JO2000	10.00
2N4012	11.00	2N5842	8.45	35C05	15.00	40282 RCA	20.00	2SC1947	10.00	BFX89	1.00	DV2820S	25.00	JO2001	25.00
2N4037	2.00	2N5847	19.90	102-1	28.00	40290 RCA	2.80	2SC1970	2.50	BFY11	2.50	DXL1003P70	22.00	JO4045	24.00
2N4041	14.00	2N5849	20.00	103-1	28.00	40292 RCA	13.05	2SC1974	4.00	BFY18	2.50	DXL2001P70	19.00	KD5522	25.00
2N4072	1.80	2N5913	3.25	103-2	28.00	40294 RCA	2.50	2SC2166	5.50	BFY19	2.50	DXL2002P70	14.00	KJ5522	25.00
2N4080	4.53	2N5916	36.00	104P1	18.00	40341 RCA	21.00	2SC2237	32.00	BFY39	2.50	DXL3501AP100F	47.00	M1106	13.75
2N4127	21.00			163P1	10.00			2SC2695	47.00			EFJ4015	12.00		

• R F TRANSISTORS •

TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE	TYPE	PRICE
M1107	$16.75	MRF221	10.00	MRF525	3.45	MSC82001	33.00	PT4642	20.00	SD1007-4	15.00	SD1088-8	22.00	SD1220	8.00
M1131	5.15	MRF223	13.00	MRF559	1.76	MSC82014	33.00	PT5632	4.70	SD1007-5	15.00	SD1089-5	15.00	SD1220-1	9.50
M1132	7.25	MRF224	13.50	MRF587	11.00	MSC82020M	130.00	PT5749	25.00	SD1009	$15.00	SD1090	15.00	SD1220-9	8.00
M1134	13.40	MRF227	3.45	MRF605	20.00	MSC82030	33.00	PT6612	25.00	SD1009-2	15.00	SD1094	15.00	SD1222-8	16.00
M9116	29.10	MRF230	2.00	MRF618	25.00	MSC83001	40.00	PT6619	20.00	SD1012	10.00	SD1095	15.00	SD1222-11	7.50
M9579	6.00	MRF231	10.00	MRF626	12.00	MSC83003	82.00	PT6708	25.00	SD1012-3	10.00	SD1098-1	30.00	SD1224-10	18.00
M9580	7.95	MRF232	12.07	MRF628	8.65	MSC83005	70.00	PT6709	25.00	SD1012-5	10.00	SD1100	5.00	SD1225	18.00
M9587	7.00	MRF237	3.15	MRF629	3.45	MSC83026	POR	PT6720	25.00	SD1013	10.00	SD1109	18.00	SD1225-1	15.00
M9588	5.20	MRF238	13.80	MRF641	25.30	MSC83303	POR	PT8510	15.00	SD1013-3	10.00	SD1115-2	7.50	SD1229-7	10.95
M9622	5.95	MRF239	17.25	MRF644	27.60	MSC84900	60.00	PT8524	25.00	SD1013-7	10.00	SD1115-3	7.50	SD1229-16	10.95
M9623	7.95	MRF245	35.65	MRF646	29.90	MT4150	14.40	PT8609	25.00	SD1016	15.00	SD1115-7	2.10	SD1232	4.00
M9624	9.95	MRF247	31.00	MRF648	33.35	MT5126	25.00	PT8633	25.00	SD1016-5	15.00	SD1116	5.00	SD1240-8	15.00
M9625	15.95	MRF304	36.00	MRF816	15.00	MT5596(2N)	99.00	PT8639	25.00	SD1018-4	13.00	SD1118	22.00	SD1244-1	14.00
M9630	14.00	MRF306	50.00	MRF823	20.00	MT5768(2N)	95.00	PT8659	25.00	SD1018-6	13.00	SD1119	5.00	SD1244H12	25.00
M9740	27.90	MRF313	11.15	MRF846	44.85	MT8762	25.00	PT8679	25.00	SD1018-7	13.00	SD1124	50.00	SD1262	15.00
M9741	27.90	MRF314	29.21	MRF892	35.50	NE02136	2.00	PT8708	20.00	SD1018-15	13.00	SD1132-1	15.00	SD1263	15.00
M9755	16.00	MRF315	28.86	MRF894	46.00	NE02160ER	$100.00	PT8709	20.00	SD1020-5	10.00	SD1132-4	12.00	SD1263-1	15.00
M9780	5.50	MRF316	55.43	MRF901 3 Lead	1.00	NE02135O	5.30	PT8727	29.00	SD1028	15.00	SD1133	9.50	SD1272	10.95
M9827	11.00	MRF317	63.94	MRF901 4 Lead	2.00	NE13783	61.00	PT8731	25.00	SD1030	12.00	SD1133-1	10.00	SD1272-1	10.95
M9848	35.00	MRF412	18.00	MRF902/2N6603JAN	15.00	NE21889	43.00	PT8742	19.10	SD1030-2	12.00	SD1134-1	2.50	SD1272-2	10.95
M9850	13.50	MRF420	20.12	MRF902B	18.40	NE57835	5.70	PT8787	25.00	SD1040	5.00	SD1134-4	12.00	SD1272-4	10.95
M9851	20.00	MRF421	25.00	MRF904	2.30	NE64360ER-A	100.00	PT8828	25.00	SD1040-2	20.00	SD1134-17	12.00	SD1278	13.75
M9860	8.25	MRF422	38.00	MRF905	2.55	NE64480 (B)	94.00	PT9700	25.00	SD1040-4	10.00	SD1135	10.25	SD1278-1	13.75
M9887	2.80	MRF427	17.25	MRF911	2.50	NE73436	2.50	PT9702	25.00	SD1040-6	5.00	SD1135-3	12.00	SD1278-5	13.75
M9908	6.95	MRF428	63.00	MRF965	2.55	NE77362ER	100.00	PT9783	16.50	SD1043	12.00	SD1136	12.50	SD1279-1	18.00
M9965	12.00	MRF433	12.07	MRF966	3.55	NE98260ER	100.00	PT9784	32.70	SD1043-1	10.00	SD1136-2	12.50	SD1279-3	18.00
MM1500	25.00	MRF449/A	12.65	MRF1000MA	32.77	PRT8637	25.00	PT9790	56.00	SD1045	3.75	SD1143-1	10.00	SD1281-2	8.00
MM1550	10.00	MRF450/A	14.37	MRF1004M	31.05	PT3127A	5.00	PT31083	20.00	SD1049-1	2.00	SD1143-3	17.00	SD1283	10.00
MM1552	50.00	MRF452/A	17.00	MRF2001	41.74	PT3127B	5.00	PT31962	20.00	SD1053	4.00	SD1144	4.00	SD1283-2	10.60
MM1553	50.00	MRF453/A	18.40	MRF2005	54.97	PT3127C	20.00	PTX6680	20.00	SD1057	10.00	SD1145-5	15.00	SD1283-3	10.00
MM1607	8.45	MRF454/A	20.12	MRF5176	24.00	PT3127D	20.00	RE3754	25.00	SD1065	4.75	SD1146	15.00	SD1283-4	10.00
MM1614	10.00	MRF455/A	16.00	MRF8004	2.10	PT3127E	20.00	RE3789	25.00	SD1068	15.00	SD1147	15.00	SD1289-1	15.00
MM1810	15.00	MRF458	$20.70	MSC1720-12	225.00	PT3190	20.00	RF35	16.00	SD1074-2	18.00	SD1188	10.00	SD1290-4	15.00
MM1810	15.00	MRF464	25.30	MSC1821-3	125.00	PT3194	20.00	RF85	17.50	SD1074-4	28.00	SD1189	24.00	SD1290-7	15.00
MM1943	1.80	MRF466	18.97	MSC1821-10	225.00	PT3195	20.00	RF110	21.00	SD1074-5	28.00	SD1200	1.50	SD1300	1.25
MM2608	5.00	MRF472	1.50	MSC2001	30.00	PT3537	7.80	S50-12	23.80	SD1076	18.50	SD1201-2	15.00	SD1301-7	3.00
MM3375A	17.10	MRF475	3.10	MSC2010	93.00	PT4166E	20.00	S3006	15.00	SD1077	4.00	SD1202	$10.00	SD1304-8	$ 2.50
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MM8006	2.30	MRF479	8.05	MSC3000	35.00	PT4209	25.00	SCA3522	5.00	SD1078-6	24.00	SD1212-16	4.95	SD1308	3.00
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MPSU31	1.01	MRF502	1.04	MSC72002	POR	PT4556	24.60	SD345	5.00	SD1080-8	6.00	SD1214-11	5.00	SD1317	8.00
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ATTENTION KENWOOD & ICOM OWNERS: Informative separate newsletters! 6th year. Back issues available. Send 37¢ SASE for free brochure to INTERNATIONAL RADIO, INC., 364 Kilpatrick Ave., Port St. Lucie, FL 33452; (305) 335-5545. MC/VISA acepted.

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INTERNATIONAL DX ASSOCIATION — Hams helping hams. Write for details. IDXA, 1902 Jamestown, Ct., Arlington, TX 76013.

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Amateur Radio's NEWSpaper — WORLDRADIO. Latest info. One year subscription (12 issues) only $10. WORLDRADIO, 2120-E 28th St., Sacramento, CA 95818.

TI99/4-4A BASIC, Extended Basic, Assembly Language Programs. CW receive/transmit, CW practice, DX log/call locator, Amateur call locator, SSTV keyboard, 1010 record, WAS, programs for Hamkids. Write Sam Moore, AC5D, Box 368, Stigler, OK 74462.

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NOTICE — for Commodore 64 Disk 1 Logbook. All log info including QSL records-easy edit, update, delete, Quick Search, etc. Disk-2 Master File Disk allows creation of any type of files for Amateur Radio, business, personal on blank disks including more logbooks. $39.95 ppd. Master file disk to create your own files for any reason on blank disks store 1000 records per disk. Quick search, etc. $32.95 ppd. Box of 10 blank disks 100% certified and error-free $22.00 ppd. Quick delivery. No COD's. NARWID ELECTRONICS, 61 Bellot R Ringwood, NJ 07456. Note: Try our Bulletin Board (201) 962-4956.

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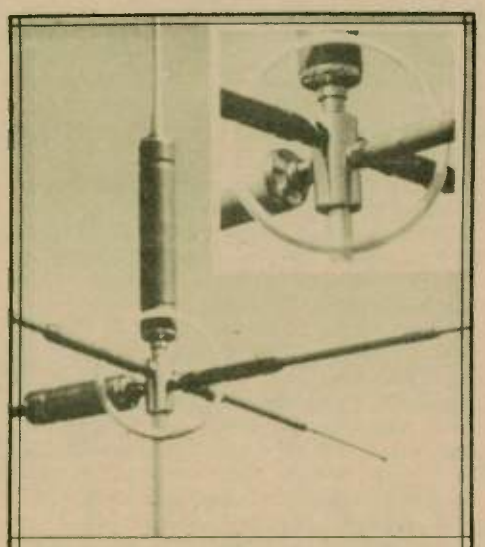

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SUPER SAVINGS: ICR-71/A — $689.50; Kenwood R-2000 — $495.50; Sony 2002 — $219.50; Uniden CR-2021 — $149.50; RF-3100 — $266.50; Regency HX-1000 — $239.50, MX-5000 — $388.50; Bearcat BC-250 — $265.50, BC-300 — $359.50; HX-3000, MX-7000 — call!! HAM GEAR — Ten Tec, Cushcraft, Yaesu, ICOM, Kenwood, MFJ, Kantronics, CW/RTTY decoders, coax, much more!! Free UPS shipping & insurance to 48 states. 25-page picture catalog — $1.00 (refundable). GALAXY ELECTRONICS, Box 1202, Akron, OH 44309. 216/376-2402 9-5 pm EST.

FOR SALE: KENWOOD TS-130S and DC power supply PS-30, good condition, both for $575. Will ship. NP4CC, G-14 San Jacinto St., El Alamo, Guaynabo, PR 00657. (809) 790-6512. 2200-03002.

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RADIOTELEGRAPH 2ND, General Radiotelephone (with radar), Advanced Class Amateur licensee seeks employment in maritime shipping or related industry. Single, Vietnam veteran free to travel. B. PATRONSKI, 157 Westwood Road, Lancaster, NY 14086. (716) 861-0487.

JOB WANTED: CHIEF ENGINEER AM/FM, communications technician, etc. Very heavy RF background. FCC first 'phone, Advanced Class ham (W6GIV), Meyer Gottesman, 3377 Solano Ave., #312, Napa, CA 94558; (415) 550-8506 (days.)

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CENTRAL INTELLIGENCE AGENCY — The summer internship is open to graduate students or recent college graduates who plan to attend graduate school. There is a strong tendency to hire students who have majored in regional studies of Latin America, Southeast Asia, China, Africa, the Middle East or the Soviet Union. Majors in political science, linguistics, computer science, international affairs, history, geography or economics are also preferred. To apply, send a brief resume by December to: Director of Personnel, ATTN: Summer Internships, Central Intelligence Agency, Washington, D.C. 20505.

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