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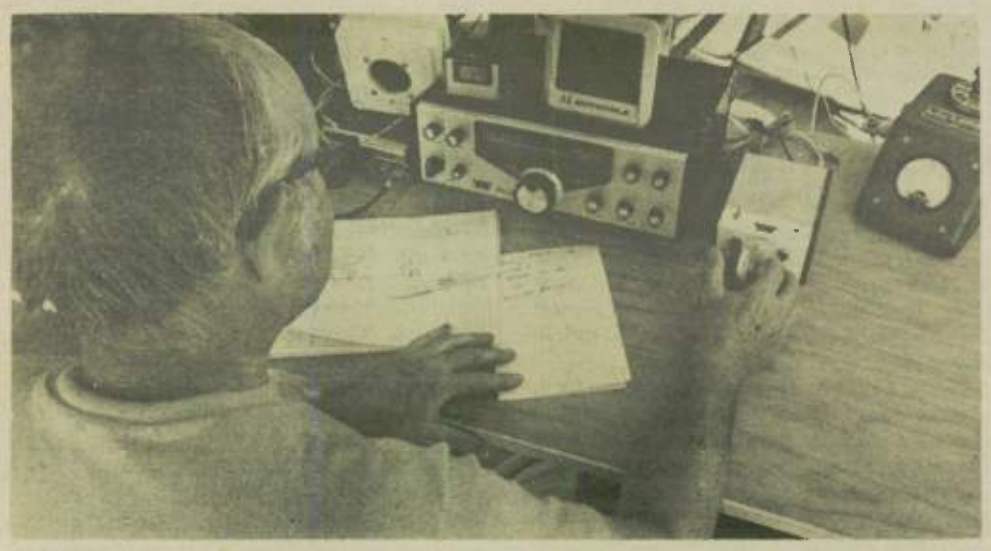
August 1981• Year 11, Issu



Full break-in on CW makes Field Day operation go much smoother. And with "let your fingers do the talking" contacts counting twice the phone value, much use is made of CW. Norm Brooks, K6FO, operates at N6WR, 1A, Sacramento Valley Section.

Field Day 1981

(See related story on page 6.)

Sunburn, bug bites, hoarse throat, and eyes bloodshot from a lack of sleep. But it's all for a good cause: Field Day.

This year was the 45th such annual event sponsored by the American Radio Relay League. About one out of every 10 active amateurs participate in this, the single most popular event of the year.

The object is, according to the ARRL, "To work as many stations as possible and in so doing, to learn to operate in abnormal situations under less-than-optimum conditions.

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

For 27 hours, starting at 1800Z on 27 June amateurs operated their radios without using the normal sources of electricity. Generators or batteries are used. This drill is indeed appropriate, as disaster struck areas usually lose utility power.

Because of Amateur Radio operators, no area with active amateurs would be cut off from the outside world. For example, during the Rapid City, South Dakota flood (which had the greatest loss of life in an American flood), all the telephone circuits were out and amateurs were handling high-level government and relief agency messages.

During Field Day you will hear many Alaska stations; they know just how important amateur communications can be. While Field Day is "fun" for many, a "contest" for some, it is indeed a learning experience in case "the real thing" should occur.

If you did something unusual or approached this year's Field Day in a different manner, send your story and pictures to Worldradio so others may get an idea from you. □

Disaster averte

Paul Churchill, W6QBY

Chalk up another big PLUS for Amateur Radio. Amateurs were very instrumental in making possible a rescue at sea Sunday, 14 June.

The 35-foot sloop *Galaxy* with three people aboard was sinking approximately 600 miles southwest of San Diego. Through the cooperation of several amateurs, the Coast Guard and the Navy, they were taken on board not many minutes before the craft became awash.

The three persons on the *Galaxy* were Bill Perry of Crested Butte, Colorado; Michelle Pratt, Capitola, California; and David Ranney, Gunnison, Colorado. Bill Perry operated the amateur equipment and was the contact with KI7K. His father was the owner of the boat.

The sequence of events is interesting. During a regular Sunday morning QSO between Fred Hatfield, W9MMZ; Bill Acomb, WA7SVC; Richard Friese, W9SDF; Tom White, WB9PXE; Merle Beachy, W4MAC; and Paul Churchill, W6QBY, at approximately 8:00 a.m. PDT, W9MMZ near Chicago heard a very weak signal calling "BREAK". While he was straining to get the information, Richard Fox, W7EFS in Lebanon, Oregon broke in reporting that it was a ship in distress. He called the Coast Guard. His signal faded and Charles Bailey, W7YU of Sun City, Arizona took over reporting very good copy. However, W7YU was not able to stick with it and turned the

(please turn to page 3)

He challenges tower ban

An Oklahoma City Amateur Radio operator filed a $25,000 federal suit against the city on 11 June in an effort to nullify an ordinance requiring him to dismantle his 78-foot broadcast and receiving tower.

Charles M. Guschke (N5SW) states in the suit that he spent nearly $3,000 building the tower, which holds sensitive antennae that allow him to communicate with other Amateur Radio operators in this country and overseas.

He charges that a zoning ordinance restricting such structures to 50 feet high is unconstitutional because it limits his freedom of speech and violates his right of control over his property.

Guschke also alleges that the tower is "a necessary requirement in the exercise of his avocation" and that the October 1980 zoning ordinance limits "the exercise of his federally granted Amateur Radio privileges."

The suit, filed for Guschke by Norman attorney Michael Salem, was lodged against the city; Mayor Patience Latting; members of the city council; Ed Sain, chief city zoning inspector; and A.W. Campbell, a city inspector.

Guschke claims in his suit that city officials have maliciously denied his request for a permit for the tower situated in his backyard and "threatened him with criminal prosecution" if he doesn't remove it.

He alleges that the tower needed to be high "because of topographical landmarks," including the Lake Hefner dam near his northwest Oklahoma City home. —*The Daily Oklahoman*

Your help is needed — defend this amateur's right to use his property to erect a tower. N5SW is carrying his case to U.S. District Court in Oklahoma City to overturn a discriminatory "antenna height ordinance."

Your help (in any amount) is needed for the OKC Antenna Defense Fund. This could be a landmark case for all the USA, since N5SW is basing his case on civil rights (freedom of speech and property) and preemptory regulation (federal regulation of Amateur Radio.)

Please . . . please . . . please . . . send your contribution in any amount to the OKC Antenna Defense Fund, c/o George Adkins, AD1S, P.O. Box 32735, Oklahoma City, OK 73123. □

OSCAR-7 reaches end of life

Norm Chalfin, K6PGX

Verne Riportella, WA2LQQ — AMSAT vice president — has reported that in view of the fact that AMSAT/OSCAR-7 has not responded to commands for a couple of weeks as of 24 June, it is not believed the bird will come back to life again. No one has heard telemetry from the spacecraft, although a worldwide watch was mounted.

So, at the ripe old age of 6.6 years the AMSAT/OSCAR-7 spacecraft must be bid adieu. AMSAT/OSCAR-7 was launched on 15 November 1974 from Vandenberg Air Force Base at Lompoc, California aboard a Delta Rocket with NOAA-4 as the host. Along with AO-7 was a Spanish spacecraft, the INTASAT intended for science experiments.

During its lifetime (OSCAR-7 was designed to last three years), AO-7 was used for the transmission of medical data in the form of EKGs sent coast to coast; it also participated in a Canadian experiment begun with AO-6 to determine the feasibility of locating ELTs from downed aircraft. The latter demonstrated that a downed craft could be located in about an eighth of the time many aircraft would require criss-crossing the area to find the disabled craft.

It has been reliably estimated that several million contacts have been made through AO-7 by tens of thousands of amateurs during its more than 30,000 useful orbits.

A new transequatorial propagation mode was discovered when Edgar Mueller, YV5ZZ heard Amilcar Sapere, LU7DJZ's 2-meter uplink to AO-7 in Mode A in November 1976. An unprecedented series of satellite-to-satellite links occurred when stations transmitting to AO-7 in Mode B were picked up by the then operating OSCAR-6 in the 2-meter band and translated down to 29.45 MHz.

APT weather satellite pix were transmitted through AO-7 in April and May 1976 by DL0VLB. Dave Clingerman, W6OAL transmitted through it from his airplane; Fred Merry, W2GN transmitted from his aeromobile, and Richard Long, WA4JID from his marinemobile. QRP tests on Mode B demonstrated that a few milliwatts ERP produced usable downlink signals. Thereafter, many QRP QSOs went through AO-7. With a "Summa Cum Laude," we say "vale" to AMSAT/OSCAR-7. □

Deadline extended

A request by ARRL for more time for amateurs to respond to the FCC Plain Language rules proposals, Docket 80/729, has been granted. The new deadline for comments is 21 August, replacing the original deadline of 19 June. Amateurs are urged to take advantage of this extension, and to submit comments to the FCC if they have not already done so. □

World Radio History

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

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

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

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

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

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

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

Subscription rates: $8.64 per year, $16.28 for two years, $22.92 for three years and $86.40 for life; $1.50 extra per year for surface mail delivery outside the U.S. Overseas, please remit international postal money order. IRCs and local currency will be accepted.

Controlled circulation postage paid at Sacramento, CA.

New 2-meter repeater

Clif Fish, WA6KYA

A new 2-meter repeater — activated some months ago in Grass Valley — is now on the air regularly, scheduled seven days a week from early morning to late night. This is an open repeater, carrier accessed. It is equipped with autopatch, emergency power, and is continually monitored. To use the autopatch for any local number, simply give your call and request use of the autopatch. One of the monitors will respond.

This repeater has been operative for some months, and we feel the "bugs" are well worked out.

Our call is WR6AZW. Our frequency is 147.885 Input/147.285 Output.

All licensed operators are welcomed aboard. □

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Sorry!

Readers of our July 1981 issue are sure to have noticed the seven first-rate photographs that accompanied the International DX Convention stories. We apologize to the photographer who took those photos — Dick Fleming, WA6POC — for not giving his byline with those pix.

When he's not teaching photography at Sacramento City College, Dick can often be found at his Amateur Radio station — which was featured, by the way, in our September 1980 Station Appearance column. □

Scout Jamboree

Amateur Radio station K2BSA will operate from the 1981 National Scout Jamboree at Ft. A. P. Hill near Fredericksburg, Virginia from 27 July through 4 August. Operation will include 80 through 10 meters with some RTTY and SSTV occasionally; no formal schedule will be followed as the primary purpose of the station is to introduce the 35,000 Scouts and Scouters in attendance to Amateur Radio, but you can count on a good deal of "special event station" operation at all hours of the day and night when time permits.

The following frequencies (closely related to the World Scout Frequencies) will be used as calling frequencies and for skeds; monitor them to work K2BSA whenever it gets on the air:

	Phone:	CW:
80 meters	3,940 kHz	3,590 kHz & 3,730 kHz
40 meters	7,290 kHz	7,030 kHz & 7,130 kHz
20 meters	14,290 kHz	14,070 kHz
15 meters	21,360 kHz	21,140 kHz
10 meters	28,990 kHz	28,190 kHz

If you don't hear activity at first, keep listening throughout the nine-day period. Licensed Scouts participating in the Jamboree will be able to reserve an operating position for a short period of time to meet skeds with those "back home," but as it will be first come — first served, have alternate skeds planned in advance.

Those working K2BSA/4 who wish a special commemorative QSL should QSL with a business-sized SASE to K2BSA/4 Jamboree, c/o ARRL, 225 Main St., Newington, CT 06111. □

Chicago repeater

Jim Pertum, WA9SAV

The Chicago-Metropolitan area has a very effective 2-meter FM repeater that has been operating continuously for more than two years on 146.13 Input and 146.73 Output, and still is not listed in any directory that I have seen.

WB9CEO/R is an 'On Site' single location system located on the south side of the city and is maintained by AREA (Amateur Radio Experimental Alliance), a club formed primarily by south side and south/southwest suburban Chicagoans. Although AREA is an independent club and has *no* local or national affiliations, they have a history of strong cooperation with all other groups in public service efforts in the Chicago area.

City and suburban coverage is very good, and transients will be glad to know this is a carrier access repeater. There is an ESDA net called every Monday at 1930 and an information net every Wednesday at 2100 on this repeater system.

WB9CEO/R has very little "down time" and has dedicated "frequency watchers" with phone patches, monitoring much of the time. Motorists on local freeways and tollways appreciate the availability. For more information on 146.13 'In' and 146.73 'Out', write to: Amateur Radio Experimental Alliance or AREA, P.O. Box 20612, Chicago, IL 60620. □

Correction

In our June Construction column, page 48, fourth column, fourth paragraph, we stated that one calorie is the heat needed to increase that of one kilogram of water 1 degree Celsius. That kilogram should be changed to one *gram*. Thanks to Alvin Vavrek of Caldwell, Ohio who informed us of this error. □

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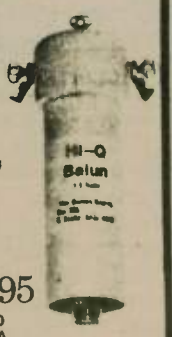

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Literature donations

Ken Bale, W7VCB of Raymond, Washington tells us he has QSO'ed and exchanged a few letters with a radio operator in Argentina who is interested in receiving donations of radio-related technical books or magazines. His name and address are: Sr. Daniel Verdi, LU4DMW, CC N 77, San Nicolas, Buenos Aires, Argentina CPN 2900. □

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.

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FCC suspends amateur licenses

The private Radio Bureau of the Federal Communications Commission has suspended the licenses of two amateur Extra Class operators and is considering revocation of their Amateur Radio station licenses. The two operators involved in this action are Gerard J. Morin, W1GM of Sanford, Maine and Leonard R. Boucher, K4MME of Cantonment, Florida. Information received by the Commission revealed that both licensees deliberately interfered with the transmissions of other operators who were participating in radio "network" operations. This interference occurred at various times from August, 1980 to May, 1981 on 14.313 MHz and adjacent frequencies.

Information before the Commission indicates that Morin and Boucher operated a split-frequency scheme to maliciously interfere with the Maritime Mobile Radio Net. This was accomplished by operating on frequencies adjacent to 14.313 MHz, thereby causing "splatter" which interfered with network public service communications. Specifically, this scheme delayed the United States Coast Guard in California from obtaining assistance from the net on 17 May 1981.

The Commission views interference, in any radio service, as a very serious matter and the conduct of Morin and Boucher warranted suspension of their operating privileges. Consequently, on 4 June 1981, the Commission ordered that the amateur operator licenses of Gerard J. Morin and Leonard R. Boucher be suspended for the remainder of the license terms. The Commission also ordered the two operators to SHOW CAUSE why their Amateur Radio station licenses should not be revoked.

Either licensee may seek a hearing on the suspension and revocation proceedings by filing a written request within 30 days. If this right is waived and statements are not submitted on their behalf, the suspension will become effective 30 days after the licensees receive notice of this action. At that time, the revocation proceedings will be certified to the Commission for administrative disposition. □

Disaster

(continued from page 1)

responsibility over to Rich Torgerson, in Boise, Idaho, who from then on was able to maintain contact with the *Galaxy*, the Coast Guard in San Francisco, a Navy carrier, and the planes from both the Coast Guard and the Navy.

By that time, we had learned that the *Galaxy* was enroute from Costa Rica to Long Beach and had been through a severe storm the night before. A leak had developed and the craft was taking on water faster than it could be pumped out. At first contact, the *Galaxy* reported a two-foot freeboard, and just before the plane spotted them it was less than six inches. The winds had blown away their regular antenna so the normal ship-to-shore equipment was not operable. I did not learn what type of equipment the *Galaxy* used for 20 meters.

I thought the whole series of events was particularly remarkable for two reasons:

First, after the Coast Guard and the Navy came on the amateur frequencies, they recognized the capability of KI7K and cleared all contacts and instructions through him, although at times they could have been in direct contact with the *Galaxy*. KI7K deserves a great deal of credit as does Bill Perry, the operator on the *Galaxy* and W7EFS who stood by with help through the whole time.

Second, there was cooperation from ALL amateurs. The frequencies were cleared for at least 2 Hz on both sides of 14,319. All quickly QSY'd or went QRT when notified of the emergency situation — or stayed on to listen to the enfolding drama.

(The following additional information was printed in an article by Ray Sotero, run by ***The Idaho Statesman****, which was submitted by Dan Marler, K7REX of Boise, Idaho.)*

A helicopter from the aircraft carrier *USS Constellation* plucked the three uninjured boaters from the ocean minutes after their 38-foot yacht sank, ending a five-hour battle with a leaky hull, a Coast Guard spokesman said.

Torgerson said the Coast Guard sighted the *Galaxy* at the same time the three on board had to jump into a life raft as the boat sank. The three were then flown to the *Constellation*, where their condition was checked by doctors before being flown to a hospital in San Diego.

The *Galaxy's* call for help was not heard in most of California because of atmospheric conditions that caused the *Galaxy's* plea to "skip" 800 miles, Lt. Settimo (Long Beach Coast Guard) and Torgerson said. However, the call for help was heard across much of the Northwest and as far east as New York. □

"It's not that our good deeds are performed for thanks, but our survival may depend on letting the world know about them."

Lenore Jensen, W6NAZ

RM-3867: petition to redistribute operating privileges on HF

Bill Welsh, W6DDB

It has long been my opinion that there are insufficient additional operating privileges to induce most amateurs to upgrade past the General Class license. Consequently, I recently submitted a petition requesting the FCC to redistribute operating privileges in such a way that General and Advanced Class licensees will have about 62 and 80 percent of the Extra Class licensee privileges, respectively.

The present segmentation of the 10, 15, 20, 40, and 80-meter High Frequency Amateur Radio bands is such that the General and Advanced licensees have 84 and 98.3 percent of Extra privileges, respectively. One just increases operating privileges 14.3 percent by upgrading from General to Advanced. Worse yet, privileges just increase 1.7 percent when an amateur upgrades from Advanced to Extra. *Table I shows* why I have never pushed my students very hard to upgrade past the General license, while telling them that the Extra is more a symbol of achievement than meaningful additional operating privileges. The existing HF operating privileges are shown in *Table I.*

There are a lot more Novice, Technician, General and Advanced licensees than there are amateur Extra Class licensees. This imbalance makes it obvious that the initial reaction of most amateurs to RM-3867 will probably be overwhelmingly negative. However, I hope everyone reading this article will honestly evaluate the soundness of the proposed band segmentation, as compared to the existing arrangement. Whether you support or oppose this petition, I hope you will let the FCC know your position. You may have an idea which could greatly improve the redistribution of operating privileges; if so, please share it with the FCC. I work a typical 40-hour week and put in about another 20 hours per week teaching licensing courses, conducting FCC Novice examinations, and helping students with their stations. I also operate a lot, and that leaves very little time for answering letters. Nevertheless, I would like to receive copies of comments being sent to the FCC regarding this petition.

As is true with most amateurs, I would like to see other changes in operating privileges which I believe would improve the Amateur Radio Service. The single most obvious need for a change is between 14.1 and 14.2 MHz. The reality of the situation is that just DX (foreign) amateurs use this band segment. It seems reasonable that this segment should have been opened up to American amateurs

(*please turn to page 37*)

Table I — Existing HF Megahertz-mode operating privileges

Licensee	Band 10	15	20	40	80	Total MHz Mode	Percentage of maximum Privileges
Novice	0.1	0.10	0.000	0.050	0.050	0.300	3.7
Technician	0.1	0.10	0.000	0.050	0.050	0.300	3.7
General	4.6	0.65	0.500	0.400	0.720	6.870	84.0
Advanced	4.6	0.89	0.725	0.625	0.990	8.030	98.3
Extra	4.6	1.00	0.775	0.675	1.115	8.165	100.00

Table II — Proposed HF Megahertz-mode operating privileges

Licensee	Band 10	15	20	40	80	Total MHz Mode	Percentage of maximum Privileges
Novice	0.1	0.1	0.0	0.05	0.05	0.3	3.7
Technician	0.1	0.1	0.0	0.05	0.05	0.3	3.7
General	3.0	0.6	0.45	0.35	0.65	5.05	61.9
Advanced	3.81	0.79	0.64	0.465	0.83	6.535	80.0
Extra	4.6	1.0	0.775	0.675	1.115	8.165	100.0

An operator who is licensed to use two emission modes (such as voice and SSTV) on a band segment has twice as much operating privileges as another operator who is just licensed to use one emission mode on the same band segment. One has to consider emission modes in addition to band segments when evaluating operating privileges. I use the term Megahertz-mode when listing such combined privileges.

If the FCC adopts my petition without change (which is not apt to happen), band segmentation would be as is summarized in *Table II.* Table II shows that amateurs would increase their operating privileges about 20 percent when they upgrade from General to Advanced and when they upgrade from Advanced to Extra. I believe these are appropriate increases in privileges, and that they will dramatically increase interest in upgrading.

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World Radio History

Pitcairn 'nosey' news

Dr. Charles "Mert" Moser, W6HS

Life on Pitcairn revolves around the arrival of ships. The service of supply ships means a welcome on incoming mail, food supplies and materials required for building, repairing and servicing. Supply ship day always seems to be a day of frustration due to the fact that the ships arrive on a day close to Sabbath, resulting in a longer wait for mail . . . or arrival day brings rain, wind or sea conditions which make cargo handling difficult.

Dong, dong, dong, dong, dong. Five rings of the island bell announce to the community of Pitcairn that the ship will be here soon and it's time to spring into action. The wind is strong and the sea has been heaving and pounding against the rugged coastline most of the night. Overhead the clouds are gathering, looking dark and threatening. Sounds of trail bikes indicate the transfer of curios and fruit to the landing is underway. It is evident that rain must come. The wind is increasing; the wave action sends bigger surf into Bounty Bay.

Everyone piles into the longboats. The outgoing mail, curios and fruit have been installed and covered. A longboat sits in the bay, awaiting a succession of breakers and surf. A bad surf catches the bow of the longboat and spins her towards the rocks. Years of experience take over and menfolk pick up oars and push the longboat away from the rocks, and the bow is swung around. The longboat surges skyward as it is hurled upward by a mighty breaker. A moment of hanging, then the boat plunges downward. Soon the longboat is safely away from Bounty Bay and heading through heavy seas towards the supply ship anchored a mile or so off shore.

Cargo is loaded. Fifteen drums of diesel fuel are placed in position, using the ship derricks. Dry goods and some bags of mail are placed on top of the drums. Covers are placed over the cargo as the rain has now started. What the rain wouldn't wet, the sea would certainly drench. The heavily loaded longboat now has the task of getting back into Bounty Bay through a strong wind and mountainous seas. With the bow pointed into Bounty Bay, the longboat waits for the moment to gun the engine and head through the breakers and surf. At the given command, the longboat heads for the gap between concrete breakwall and rock-strewn coastline. Ropes are thrown to those waiting on the jetty. In pouring rain and a cold strong wind, the longboat is unloaded before heading away to the supply ship where it will once again battle the elements.

Throughout the day, the two longboats and their crews worked tirelessly in really foul conditions. Altogether, 60 drums of fuel, 32 bags of mail and 25 tons of general cargo were brought ashore. Despite precautions, some of those goods were damaged by rain and sea, including broken bags of cement, wet and broken flour bags, and cans and packets scattered from their sodden cartons.

Boats did no better, as one longboat was thrown against the ship, causing its gunwale to break in three places. As a result, the last few trips for cargo were made by the remaining longboat.

Finally at early eve, the last of the cargo had been stored and the longboats hauled up for a well-earned rest. Pitcairners trudged up the wet, muddy and slippery hill toward meals and beds.

Now to thank the following list of donors to the Pitcairn Fuel Fund. Fuel shipped from New Zealand cost approximately $130 per barrel, and a barrel lasts from four to six weeks. You donors are doing a tremendous good. With your contributions, you help Tom Christian, VR6TC keep longer hours on the air, providing a new country for thousands who have not yet contacted Pitcairn Island.

Pitcairn Island fuel funders

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Bill Wolford, WB5RYC, Baton Rouge, LA
Gary Payne, WD6BJK, Fresno, CA
Maurice Schietecatte, N8CEO, Mt. Clemens, MI
Art Munzig Jr., W6PYV, Los Angeles, CA

A longboat in the entrance to Bounty Bay.

Betty Reich, WD9GQV, Forest Park, IL
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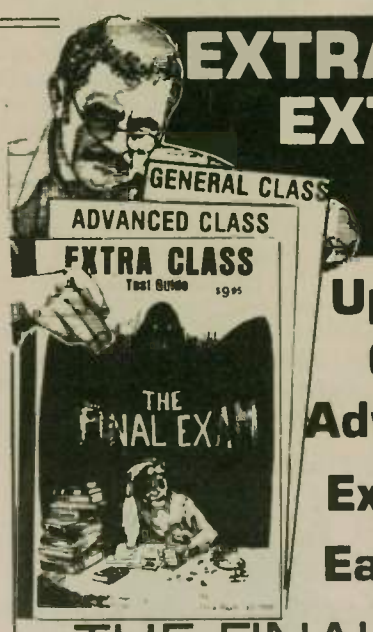
Hugh E. Cronin, W1QUS, Chicopee, MA
Ken Clemons, KA4LZY, Chattanooga, TN
Howard Newton, W2FB, Brudgeport, NY
Jake Kaufman, K2GAT, Perry, NY
Ed Demarest, WB2LVC, High Bridge, NJ
Craig Stewart, WA7MAP, Everett, WA
Karl Tauschek, OE3KTA, Neubaugasse, Austria
Don Mallison, NØAPC, Lu Verne, IA
Ed Chadek, K6MAD, Garden Grove, CA
Pertti Oksanen, OH2JG, Finland
Ron Reinke, W6RQV, Canyon Country, CA
Evelyn Lantz, WD8PWS, Dayton, OH
Bill Poellmitz, K1MM, Framingham, MA
George Serafino, WA1MCE, Southington, CT
Ray Williams, K8RJI, Columbus, OH
Leslie Gregg, W9IU, Kokomo, IN
Bob Gabriel, KA9CTO, Hixton, WI
Bruce Rattray, VE5RC, Saskatoon, Sask., Canada
Phil Howlett, W9XX, Kokomo, IN
Jim Bass, WD9COI, Kokomo, IN
Wilf Antheunis, VE3FEA, Toronto, Ont., Canada
Harry Lein, W7HNP, Bremerton, WA
Raymond Myers, K9XL, Bloomington, IL
Dale Schwartz, K4ROZ, Atlanta, GA
Jim Ruys, N6ZX, Livermore, CA
Bob Blantz, WB6FGI, Huntington Beach, CA
Al Reynolds, WB7CEH, Tuscon, AZ
Jeff Russell, KCØQ, Cedar Rapids, IA
Don Henrie, W2SQT, Manahawkin, NJ
John Paul Jones, WA8CAE, Lorain, OH

(please turn to page 16)



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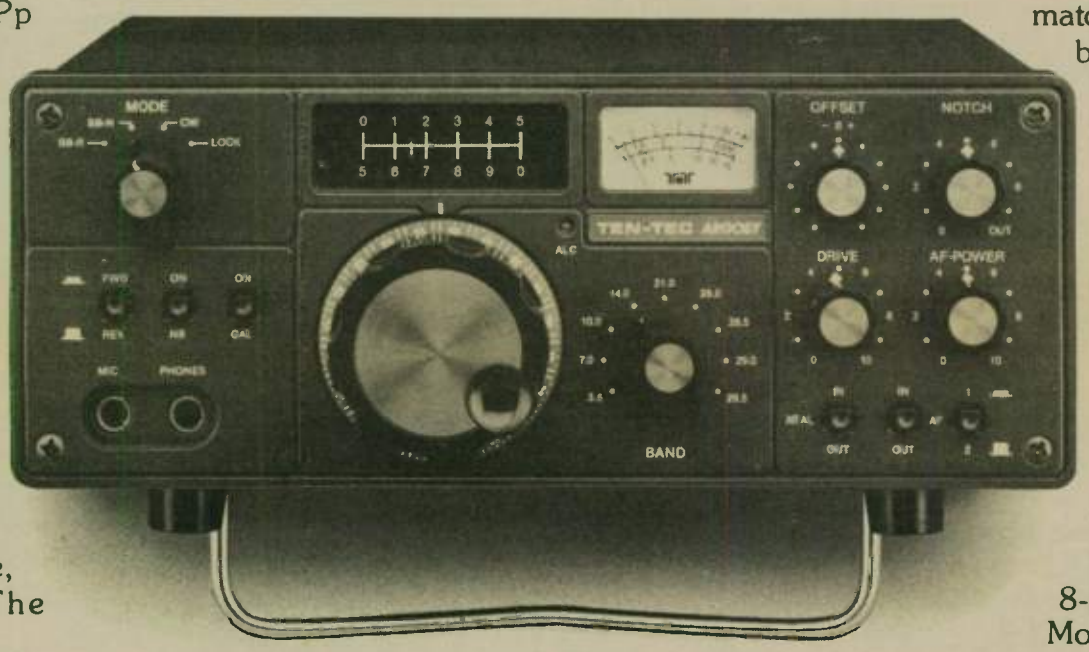
World Radio History

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

Low Price.



New TEN-TEC Argosy

$549

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

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

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

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

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

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

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

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

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

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

World Radio History

Norm Brooks, K6FO, and Pete Onnigian, W6QEU, man the *Worldradio* Staff ARC Field Day station. Temperatures in the Sacramento area for the Field Day time were the warmest recorded in past 52 years. Also on Field Day with the group but not pictured: Jack Schwartz, WA6TRZ, and Armond Noble, N6WR.

Somehow, our group always seems to end up in these high class locations.

Worldradio Field Day

As a publication, **Worldradio** is 10 years old, and this year marked the 10th time **Worldradio** staffers have gone on Field Day together.

Different from many groups who go to the exact same spot every year, we go someplace new each year.

While some clubs start putting up their antennas on Friday, we've always enjoyed the "Le Mans start." From all the equipment being in a car with the doors closed to first contact time is the challenge.

This year the first contact was at 1809Z with Stewart Hoar, N7ZZ. This was better than a previous year when it took 12 minutes, but not as good as one year when it took seven minutes. (It seems that 100 amp battery gets heavier as the years go by!)

Our first shot was with a barefoot rig on a card table, battery underneath, and a mobile antenna with a pre-cut radial. Twelve minutes into operating it was good enough to snag a KH6. After half an hour on 20, a switch to 40 was made by just replacing the resonator on the mobile mount.

Then we switched to various dipoles and wires through tuners, learning all the way; learning may be another word for "puzzled."

Our location was near the town of El Dorado, about an hour's drive from Sacramento. With four operators we were on around the clock, rotating a few hours sleep in the back of station wagons.

Over 550 contacts were made. It's a lot of fun for us to get together in this way. Look for Newspaper 6 World Radio next year and give us a shout. □

"Three in one minute, that's the way to roll!" says W6QEU.

For the birds

Submitted by J.R. Sandefur, VK8SJ

There's one budgerigar in Balwyn (Victoria, Australia) who probably reckons that Amateur Radio is for the birds. The bird is named "Budgie," a tiny feathered pet who can tell the world he's learning to become a "ham."

His instructor is Bert Horan, a man well-experienced with intercoms and microphones.

As a pilot with Ansett, he's said: "This is your captain speaking" probably more times than he cares to remember as he zooms round Australia in jets.

At home, he's VK3BH, an Amateur Radio operator who talks to radio friends throughout the world.

And so does his pupil — "Budgie".

So far, the squeaky voice can be heard chirping out "CQ, CQ, CQ." It's taken time and patience, or course, but the schooling has paid off so well that Bert is teaching the bird the full CQ call — and when he masters that, he'll be tweeting "CQ, CQ, CQ, this is VK3BH, Victor Kilo, Three, Bravo, Hotel," and probably preening his feathers with pride.

Who knows? After that if Capt. Horan can only train "Budgie" to tap out Morse with his claws, he just may have the first bird in the world to qualify as a fully-fledged "ham."

—The Sun Easterly Supplement, Melbourne, Australia □

The unspeakable law — As soon as you mention something, if it's good, it goes away; if it's bad, it happens.

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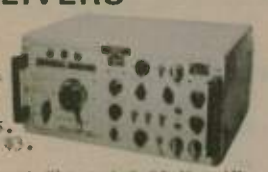
RECEIVERS

R-1143/URR-3, 14-600 Khz AM-CW-FS in five bands; mechanical digital tuning. 8-3/4x17½x16-3/4, 80 lbs. Used, checked $295. Schematic packet, $3.



R-648/ARR-41, 190-550 Khz and 2-25 Mhz AM, CW in five bands; mechanical digital tuning. Requires 24 VDC 4 amps for dynamotor. 7½x16x13¾, 35 lbs sh. Used, checked $205. Manual, partial reproduction, $15.00

HAMMARLUND SP-600JX, 0.54-54 Mhz AM-CW in seven bands. 10½x19½x17, 85 lbs sh wt. Used, checked $285. Manual, repro, $10. Cabinet for SP-600, used, $32.50

G133 HF RECEIVER, 0.2-30 Mhz SSB-AM-CW in 30 bands. Set is a Collins 51S1 repackaged by LTV-Temco for mil-airborne use. Modifications include black front panel, AM BFO, and extra electronic filtering. 8½x18½x13, 42 lbs sh wt. Used, reparable, $695. Checked, $850.00 Collins 51S1 manual, $15 with G133 purchase

ACCESSORIES

R-278/GR, 225-399.9 Mhz AM using 1750 channels in 100 Khz steps. 12½x19x20, 125 lbs sh wt. Used, reparable, $135.00 Manual, partial reproduction, $15.00

CV-116/UGX FSK CONVERTER, usable with one or two receivers having final IF's 450-510 Khz; keying speed to 100 dot cps. Control unit required between CV-116 and teleprinter. 5½x19x13¾, 80 lbs. Used, reparable, $125. Control unit $25 w/CV-116

CV-89/URA FSK CONVERTER with 3AP1 CRT; shifts 10-200 Hz (1000 Hz CF) or 200-1000 Hz (2550 Hz CF). Keying to 100 dot cps; 60 ma RTTY loop. 5½x17x17; 38 lbs sh wt. Used, reparable, $95.00

TEST EQUIPMENT

AN/URM-25F SIGNAL GENERATOR, 10 Khz-50 Mhz AM in nine bands; output 0.1-100K uv (2 V across high load imped). 11½x14x10-3/4, 44 lbs sh. Used, reparable $145; Checked $210.

AN/UPM-110 (Lavoie LA-18A) SPECTRUM ANALYZER, 10 Mhz to 10 Ghz; 5" CRT display. 250 lbs sh wt. Used, reparable, $375.00

TEKTRONIX 190A SINE-WAVE GENERATOR, constant amplitude over 350 Khz to 50 Mhz; with 10 db attenuator. 30 lbs. Used, $150.

TEKTRONIX 82 DUAL-TRACE PLUG-IN for 585A scope; 8 lbs sh wt. Used, $175.00

ANTENNAS

AS-554/TRC 8 FT dia DISH aluminum mesh paraboloid surface designed for 1700-2400 Mhz. With feed horn and mounting yoke; 500 lbs sh. $525.

AS-756/TRC TWO 3-ELEMENT YAGI ARRAY, designed for 40-100 Mhz, 5 db gain; horizontal or vertical polarization. Rugged military design. Includes components for spare array and aluminum transit case. Case size: 10x77½x19½, 185 lbs $100.

COLLINS 180L3 AUTOMATIC ANTENNA COUPLER, usable over 2-25 Mhz 50-180 watts Has 7-970 pf 3 KV vacuum variable, 32 uHY variable ribbon inductor, and SWR meter circuit. Also automatic antenna transfer after xmitter is unkeyed. Requires 28 VDC 3 amps, 250/400 VDC 35 ma, and 115 VAC 400 Hz 20 va. 7-3/4x10½x11¾, 27 lbs sh. Used, $119.50

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World Radio History

The Rig That Filters The Crowd

TEN-TEC OMNI-C

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

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

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

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

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

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

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

More crowd-handling features—and all standard equipment.

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

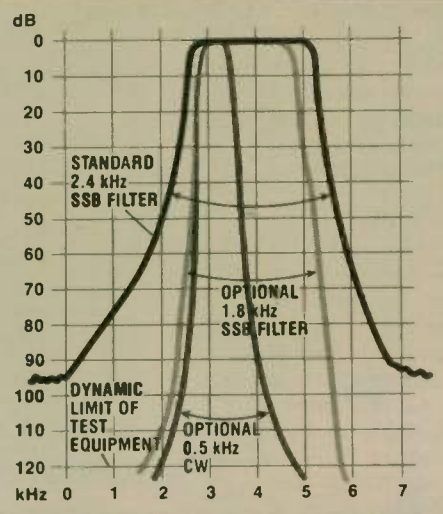
3-mode, 2-range offset tuning. To put you where the others aren't and where the elusive DX is. Move just the OMNI receiver, or just the transmitter section, or the entire transceiver, ±500 Hz or ±4 kHz. For complete freedom of frequency movement to get away from the crowds.

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

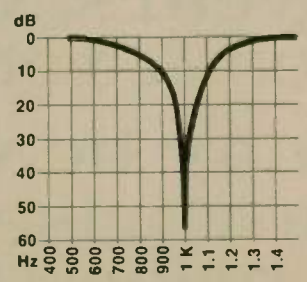
2-speed break-in. When QRM or QRN is heavy, switch to "Slow." Use "Fast" for instant, full break-in for enjoyable rag-chews or stalking DX.

OMNI-C features stand out in any crowd.

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



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



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

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

"Hang" AGC for smoother action.

WWV reception on the 10 MHz band.

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

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

"S"/SWR meter, electronically switched.

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

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

Built-in VOX and PTT with front panel controls.

Built-in phone patch jacks for easy interface.

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

Built-in adjustable sidetone volume and pitch.

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

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

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Model 546 OMNI-C transceiver $1289

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

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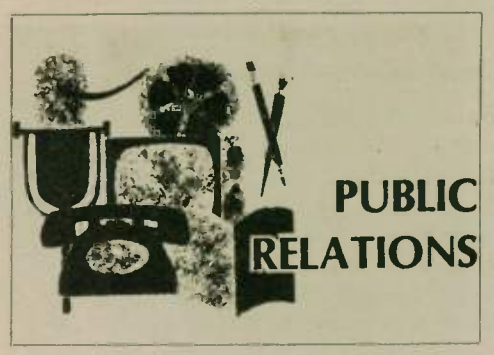
World Radio History



Talk Show gets earful of Amateur Radio

Lenore Jensen, W6NAZ

The huge listening audience of midnight Talk Show host, Larry Glick of WBZ, Brighton, Massachusetts, recently heard from the Radio Room of the *Queen Mary*, Long Beach, California, as Nate Brightman, K6OSC "told all."

In a lengthy phone call placed by the program's entertaining star, Nate was able to describe the club station, W6RO, and its activities as well as a very complete explanation of Amateur Radio itself.

The PR opportunity came about through the good offices of Doug Warner, WA1YVT, of Brewster, Massachusetts — a fan of the program. He alerted Larry Glick to a good story. Obviously the broadcaster realized it would fascinate his audience as he encouraged Nate to tell more and more.

K6OSC is the well-known "sparkplug" of the *Queen Mary* operation, having spent many months working on the effort to have a station aboard the popular tourist attraction. Its present smooth functioning, under the auspices of the Associated Radio Amateurs of Long Beach, has proved popular with tourists coming aboard, affording the public a chance to observe Amateur Radio in action every day.

In addition, Nate has been busy convincing city officials and those of the Red Cross to assign amateurs to various City Disaster Boards of the greater Long Beach Area. He will serve on that of Lakewood; Ron Boan, AK6Y, will be with nearby Bellflower; and Tom Thomas, W6PCI, will advise on the Signal Hill board.

Plans are also underway for amateurs to teach Signal Corps reservists of the California National Guard in emergency communications techniques available with Amateur Radio.

Leadership by Nate Brightman in his area has been very successful in uniting in purpose the amateurs and many officials of the 450,000-person community. □

HARC member promotes Amateur Radio

Dick Totten, WA4CFA

In every walk of life, in every group, every cause and every hobby, there are always one or more people who voluntarily and willingly — and without pay — will act as spokespersons and work very hard to bring to public notice the activities of his or her organization.

The Hollywood Amateur Radio Club (in Florida) is most fortunate in having in its membership just such a person.

I am referring to Jim McCormack, KA4IAY, who — last summer — wrote, produced and directed a large number of 30 to 60 second spot commercials in behalf of Amateur Radio. All of this was done on his own time and at his own expense. These have appeared on 19 radio and seven TV stations in Dade and Broward counties and in other parts of the states of Florida and Alabama, thus far.

Many of you may have seen or heard some of these spots during the past summer and you may have noticed that they are very professionally done. They should be, since Jim is a former broadcaster and knows his way around the business.

In addition to making a living for himself and producing these Amateur Radio spots in his spare time for the Amateur Radio Public Service Corps, Jim is Assistant Emergency Coordinator for Dade and Broward County RACES; his function is to handle publicity through the media. He is a representative and member of Dade and Broward County Civil Defense — handling publicity regarding civil defense emergencies, and is a Public Information Officer for the ARRL.

Jim McCormack, KA4IAY, Assistant Emergency Coordinator for Dade and Broward County Races (Florida) is an active Public Information Assistant, ARRL. He has produced a number of Public Service Announcements in behalf of Amateur Radio. So far they have been heard on many radio and TV stations in the Southeast. Jim is a former professional broadcaster.

All of the aforementioned publicity was given to Amateur Radio at no cost by the radio and TV stations, but if it had to be purchased at today's rates for radio and TV time (some of it in prime time), the cost to date for what Jim has done exceeds $75,000; before he is finished with this season's projects, it will exceed $100,000. So you see, HARC should be happy to have such a member as Jim McCormack and we wish Jim 73 in his future efforts in behalf of Amateur Radio.

— *Florida Skip* □

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World Radio History

Father proud of son's achievement

Sam Wrbican, of Creighton, Pennsylvania, sent us the following letter along with a citation awarded to his son, Bill, KA3BMU.

"You may be interested in the enclosed citation from the chairman of the Telecommunications Committee — the Honorable Roger Duffy.

"Bill, KA3BMU, was 14 years old last year and was excused from school for the days mentioned in the citation. We live in Allegheny County — two counties away from the disaster. Bill is a GATE (Gifted and Talented Enrichment) student and is interested in marine biology, sciences, English, history and math. He sends CW with his left hand and writes with his right hand. This was very difficult at the beginning, but I insisted he keep trying.

Thanks,
Sam Wrbican (Bill's father)
Creighton, Pennsylvania"

Commonwealth of Pennsylvania

Citation by The House of Representatives

WHEREAS, William Wrbican, a student in the Deer Lakes School District, has brought distinction upon himself by acquiring a ham operator's license at the age of twelve. His diligence and hard work have enabled him to obtain his own Amateur Radio station, which he installed in his home. He is a member of the Skyview Radio Society of New Kensington and served the public during the Armstrong County Tornado of June 3rd and 4th, 1980 in the Greater Kittanning Area. He has teamed up with the Fort Armstrong Wireless Association, Local, National, Military Networks and the Worldwide Radio Fraternity relaying emergency and public service messages at 186,000 miles per second.

NOW THEREFORE, The House of Representatives of the Commonwealth of Pennsylvania, extends sincere congratulations to William Wrbican on acquiring a ham operator's license; commends him for the invaluable services he has provided to his community; expresses its hope for continued good work;

AND FURTHER DIRECTS that a copy of this citation be delivered to William Wrbican . . . Creighton, Pennsylvania.

Submitted by:
Roger Duffy, Sponsor
Matthew J. Ryan, Speaker of the House of Representatives □

Silent Key

Submitted by Cal Turner, WB6YZY

On 27 May 1981, H. Edward Olcott, WA6ZAE of Bishop, California passed away. His son Al, K7ICW, daughter-in-law Virginia, W7SNP and grandson Todd, N7AKB are all active radio amateurs.

Ed was an active participant in the emergency radio events in Inyo County. His radio support included vice president of Bishop Amateur Radio Club, president of Eastern Sierra Citizens Radio Association and Assistant Emergency Coordinator. He was responsible for promoting a donation by the Bishop Elks Lodge of a portable generator for the Amateur Radio club, and through his efforts brought the local citizen band REACT team and the Bishop Amateur Radio Club into a team effort for emergency services. □

DON'T FORGET . . .
Include first and last names with call signs.

Neighborhood fights crime

Karen Gallant, WB6DCB

In these days of increased crime, you may have wondered what you can do to help prevent crime in your home and community. The City of Placentia, California has the answer.

We, as radio operators, have skills that are becoming vital to our community. The Placentia Neighborhood Radio Watch is a unique organization which provides service to the police department and the 36,000 residents of the city. It is comprised of 30 Amateur Radio and citizens band operators who volunteer their time for crime prevention activities and public service. The group is now four years old and has enjoyed great success. Members are asked to give a minimum of four hours of service per month, which puts little strain on one's social calendar.

The primary function of the operators is to provide mobile observance of the residential and commercial areas which comprise the city's 6.6 square miles. Suspicious activity is reported via 2-meter or citizens band radios to a control operator located in the dispatch area of the police station.

The 2-meter base equipment was donated to the city by the Placentia-Yorba Linda Elks Club in appreciation of the group's service. The Placentia Police Department has offered great support and encouragement to the organization.

Fred Kalt, KA6OHZ, reports suspicious circumstances while checking home of vacationing resident.

Other activities include communications for the annual Heritage Day parade, sports functions for charitable organizations, assistance in locating lost children, and security checks of property for vacationing residents.

During 1980, members contributed over 1,200 hours of service. Statistics indicate that Placentia is among the lowest crime areas in Orange County. We like to think that the cooperative efforts of the Amateur Radio and citizens band operators of the Placentia Neighborhood Radio Watch have been partly responsible for this fine record. □

Civil Defense member honored

Submitted by J.C. Cosgrove

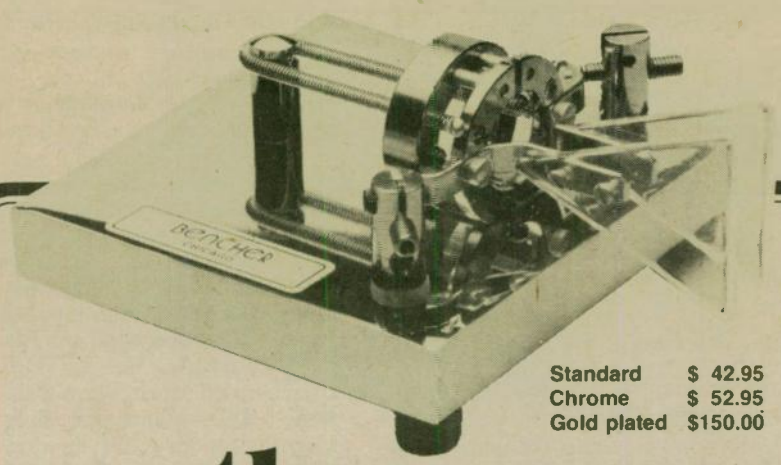
Henry Mills, W8SA, Southfield's Civil Defense, Radio Amateur Civilian Emergency Service member, was presented an "Appreciation Award" from Southfield's Civil Defense Director, Colonel Arthur C. Becker.

This award was given Mills in appreciation for his many untiring and devoted years in Civil Defense.

Mills served in the Merchant Marines as a radio operator. Later he joined the Navy, where he taught electronics at a Navy school and ran the radio station "NAJ" at Great Lakes.

Mills volunteered for submarine duty and served his country on the subs *Sailfish*, the SS-191 and the *Grampus*, the No. 523 SS-523.

—*The Suburban News, MI* □



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World Radio History

HIGHLIGHTS

Bill Grenfell, W4GF

The petition to extend the proposed Plain Language Rules comment period was denied soon after its receipt, by FCC's Private Radio Bureau Chief, Carlos Roberts. ARRL has asked for six months beyond the 19 June deadline (PR Docket 80-729). Some good comments have been received. However, it is evident that a lot are based upon hearsay as to how the proposed rules read. Some comments merely reiterate pet peeves about some of the current rules. Others object to a plain language rule, e.g. requiring a station to be available for FCC inspection, which repeats a general requirement for all radio stations licensed by the Commission! However, some current rules considered basic to the Amateur Service would be omitted and others materially changed. While some FCC personnel might be subject to criticism if the rule-making takes longer than expected, there must be little justification for arbitrary or hasty action in such a comprehensive proposed amendment of the Amateur Radio Service Rules. I understand ARRL has asked the FCC for reconsideration of the action taken by Bureau Chief Roberts.

•

Land mobile radio services representatives are unhappy with Roberts' rule. Besides the amateur and the citizens "band" radio services, the Private Radio Bureau, of which Carlos Roberts is the chief, is responsible for the operating rules and licensing for all of the FCC-licensed mobile radio services (police, fire, forestry, industrial, etc., but not common carrier mobile). I understand the representatives of these services would like to have a change in the Bureau's chief and his policies regarding their services.

•

The 160-meter band is now open to USA amateurs for full power from 1800 to 1900 kHz. The rule change became effective 10 June. Because some Loran A will continue to be used in Canada for awhile, amateur use of the 1900-2000 kHz half of the band will continue to be limited. However, some increase in power is authorized. For example, Virginia amateurs may now use 500 watts daytime and 100 watts at night, 1900 to 1925 and 1975 to 2000 kHz, and Maryland amateur stations 200 watts day and 50 watts nighttime, in the same sub-bands. More details next month.

•

Mary Ann Weyforth Dawson is a new FCC Commissioner. An assistant to Senator Packwood of Oregon for several years, Ms. Dawson was nominated by President Reagan, confirmed by the Senate and was expected to assume her new duties in July.

•

Henry Rivera was nominated by the President to be the third new FCC Commissioner. Mr. Rivera has been a member of an Albuquerque, New Mexico law firm, with experience in regulatory law.

•

James E. Quello, now the senior FCC Commissioner, has been renominated by the President to continue with FCC for the remainder of another term.

•

Amateur license application processing time was expected to be down to 45 days in July. Debugging a new computer program for processing caused abnormal delays beginning in February and lasting well into June. When asked when the 1 by 3 and 1 by 2 letter calls of expired amateur station licenses will be picked up and re-assigned, the Chief of the Private Radio Bureau's Licensing Division indicated that it would be more than two years before they could even consider whether to initiate such a procedure.

•

A number of petitions dismissed by FCC in May proposed the following: (2775) Change Novice and Technician operating privileges; (2838) Provide Novice and Technician A1, F1 and A3 operation between 28.9 and 29.4 MHz; (2863) Provide all General Class privileges to Technicians except telegraphy; (3042) Provide Novice and Technician operation in part of the 28 MHz band; (3180) Increase Novice and Technician privileges; (3565) Extend General Class privileges; (3211) Delete volunteer examiners age limit; (3053) Change the mail examination return requirement; (3027) Delete Advanced and Technician licenses; Grant Extra Class licenses to an Advanced Class licensee with 40 years and a First Class Radiotelephone Commercial license; Extend amateur license terms to life for Extra Class, 10 years for Advanced Class, and reduce to three years for Novice Class; Permit Extra Class licensees to select specific call signs; Permit a five-year grace for renewal of Club and Military Recreation station licenses; Restructure amateur license classes from five to two.

•

ARRL has petitioned FCC to reconsider their adoption of Quiet Zone Rules. These rules limit installation of amateur repeaters in eastern West Virginia and the western part of Virginia. The purpose is to protect radioastronomy and military receiving stations at Sugar Grove and Green Bank, West Virginia.

•

On 4 June, FCC issued an order for a proceeding to suspend the operator, and revoke the station licenses of two amateurs for malicious interference to a net. The proceeding requires that the licenses of Gerard Morin, W1GM and Leonard Boucher, K4MME show cause why their Amateur Radio station licenses should not be revoked. If either wants a hearing, they must file a written request within 30 days. If either waives the right to a hearing, the case will be referred to the Commissioners for their disposition. The Extra Class amateur operator licenses of Morin and Boucher are suspended for the remainder of their license terms.

If either requests a hearing on the suspension within 30 days, his suspension will be held in abeyance until a decision is reached by an Administrative Law Judge as to whether the suspension order should be affirmed, modified or dismissed. If either waives a hearing and submits a statement, the matter will be referred to the Commissioners for their disposition and the suspension will be held in abeyance until a decision is reached. If either waives his right to a hearing on the suspension, the suspension will take effect 30 days after his receipt of the Order.

"If evidence adduced at a hearing indicates that revocation or suspension is not warranted, it may still be in the public interest for the licenses of the respondents to be modified to prevent interference to radio net operation on 14.313 MHz and adjacent frequencies.

"Accordingly, It Is Ordered, that Boucher and Morin Show Cause why their radio station licenses should not be Modified to prohibit operation between the frequencies 14.293 MHz and 14.333 MHz for the remainder of their license terms."

The Commission's PR-964-81, PR-965-81 Order began with a three paragraph description of the public service benefit of amateurs and their net operations. It indicates that at various times from August 1980 to the date of the Order, Morin and Boucher have deliberately and maliciously operated in a manner that interfered with the maritime mobile net on and around 14.313 MHz. It cites instances when Notices of Violation were issued for such conduct. I will report on the progress of this case as it develops.

•

Spread spectrum experiments began in May. Conducted by members of the Northern Virginia-based AMRAD

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World Radio History

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(Amateur Radio Research and Development) group, the experiments are in the 20, 40 and 80-meter bands and "will not be audible by conventional means" states the May 1 issue of *HR Report*. See QST, November 1980, page 15 and May 1981, page 59 for more on these experiments.

•

The proposed requirement for reduction in susceptibility of audio and visual electronic equipment to RFI contained in the S 929 Bill, submitted by Senator Goldwater, is being opposed by TV broadcasters and set manufacturers, according to the trade press. S 929 has progressed out of the committee to the full Senate for consideration.

•

The probable regulatory policy of new FCC chairman Mark Fowler has been characterized by one FCC staff member as being for: "Management by objective"; "Elimination of unnecessary regulations and policies"; "Unregulation — let the market place decide"; "Getting the government off the back of the people"; etc. ☐

USQS

Laryl Myers, N7BMY

Summer greetings from U.S. QSL Service! I would like to thank all those who have helped spread the word about our domestic central QSL bureau. USQS is a "bureau" that handles cards headed for amateurs in the USA and/or Canada, or anyone who has a domestic type call sign manager. Keeping an SASE on file will bring you any cards that come in to us for you. We ask 25¢ per 20 QSLs that you send to us for other amateurs. Please sort by call sign area (0-9).

I would like to take a moment to reflect on a matter that has been taking a lot of my time. It has been suggested that USQS send radiograms to inform people that we have cards on file. The idea came to us at the very beginning; it seemed a natural. As you know, the ARRL has a numbered radiogram that its bureaus use to do just that. You may also have heard some of the many managers sending out radiograms telling others of QSLs on hand. Well, to be on the safe side of unclear FCC rules, we called the FCC in Washington, D.C. Many months later we are still trying to get an explanation of their ruling. In a nutshell — TRAFFIC REQUESTING AN SASE FOR QSL IS PROHIBITED.

I asked why the ARRL could send radiograms regarding QSLs and was told that if any such radiograms were being sent, I could file a complaint with my local FCC Field Office. I am still trying to talk to the official folks to see what can be understood about this matter. For the time being, such traffic is illegal and none of it is coming from this station.

I personally feel that it is unfortunate we cannot offer a good amount of practice for our amateurs who would like to keep their emergency skills in shape. The argument that it is "commercial, or a business affair" is not valid, by the way. The FCC did state that *no* commercial aspect must be present — only that it facilitate the affairs of a "Third Party." I have no desire to shut down the ARRL or private managers when it comes to traffic. I fully approve of traffic and wish I could keep more of our dedicated amateurs busy.

Enough of that. I would appreciate feedback on this, and although I feel my hands are tied, I still hope to pursue this — if only to obtain an understanding of the situation.

In the last month, I have received many cards that have no SASE to claim them. The following list of calls seems larger than usual. To claim QSL(s) for the following, please send SASE with 18¢ postage to: USQS — N7BMY, P.O. Box 814, Mulino, OR 97042.

We have advertised that we are a domestic bureau for all of the USA and Canadian call sign folks and request that your *outgoing* cards be restricted to those. However, we do accept DX INCOMING cards for U.S./Canada folks at the same 25¢ per 20 handling charge. We received approximately 80 cards from Ron Crosby, VK2NHV in late May. Thanks to you, "Bing".

(*please turn to page 16*)

World Radio History

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AMATEUR RADIO IN PUBLIC SERVICE

Tornado net acts fast

Reynolds Davis, K0GND, Lancaster County EC

Two funnels were sighted in the air on 3 April by members of the Lancaster County Tornado Spotters Team during the first call-out of 1981. Those members were: Mary and Grady Rea, WD0FJY and WD0TED; and Carroll Donoghue, WB0ZUY. The result was the activation of the county-wide siren system, including Lincoln. Although a great deal of damage was reported (no injuries) in the county, none of the severe cells passed into the Lincoln area, and the all-clear was sounded at 2:32 p.m., approximately 20 minutes after the sirens were sounded.

The spotters net was started at 1:05 p.m. when EC Reynolds Davis, K0GND, was notified by the city county civil defense director that spotters were needed. Lynn Blesh, K0EK, Assistant EC acted as NCS after spotter assignments were made. The net concluded at 3:42 p.m.

In addition to the three amateurs who spotted the funnels, EC K0GND, and Assistant EC K0EK, the following were active during this emergency: Larry Bymer, N0AJQ; WA0AOP; Howard Cash, KA0AYY; David Knisely, KA0CZC; Roger Cox, WB0DGF; Bruce Colgrove, WD0DMS; Donald Shurtleff, Jr., WB0DVS; Marvin Nystrom, WD0FSV; Clarke Butcher, WB0GAK; Gordon Trout, Sr., W0KBS, Jack Schneider, W0HWF; KA0JMT; Ed Woerner, WA0QJK; Robert Mitchell, WB0RJJ; and Arthur Gakel, WB0YYE.

Repeater WR0AEV was used; frequency was 146.25/85). □

Hawaii SuperWalk

Melvin Fukunaga, KH6H

Thirteen Maui County Amateur Radio Emergency Service members turned out early Saturday morning, 25 April, to provide communications support for the March of Dimes SuperWalk America 1981.

A total of 227 Maui residents solicited pledges and walked the 29-kilometer SuperWalk course. The walk began at the Kahului Fairgrounds and took walkers on a circular route out to the Kihei area and back.

Amateurs used the 10,000-foot high Mount Haleakala repeater, KH6AH/R, 146.34/.94, to provide reliable communications throughout the day on the Maui Emergency Net. Requests for medical assistance to walkers were relayed via Amateur Radio operators, who also reported walkers' progress.

Maui ARES members manned 10 stations, including nine checkpoints along the route and a base station at the Kahului Fairgrounds office. A mobile unit manned by Don Epler, WH6ACT — and later, Gary Fuchikami, WH6ACM — patrolled the route, making sure each checkpoint had enough juice, water and medical supplies.

Also participating in the amateur public service activity were Shiro Yamato, WH6ACS; Ron Takaki, WH6ADG; Courtland Trist, WH6AKS; Les Hieda, AH6AM; Melvin Fukunaga, KH6H; Alex Miguel, KH6HE; Stan Yamato, KH6HHG; Howell Ching, KH6IJS; Don Higa, KH6JWB; Randy Sherman, KH6MD; and Wilmer Hew, KH6NO. All operators did a good job and at the close of the SuperWalk, all agreed it had been a very successful day.

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

Participating in the Mt. Sac Relays Marathon on 25 April 1981 were the following amateurs: (front, left to right) Tony Skvarek, W6ELZ; Tom Gallagher, WB6TQE; Walter Lundy and Elena Zalada. (Standing, left to right) Frank Westphal, KF6E; Leroy Lambert, N6AXL; Hank Saltzman, KB2BI; Susan Stratton, KA6JIS; Lew Lewellen, WA6JTR, Dottie Lewellen, KA6LEC; Joe Lyddon, WB6UFX; Bob Good, WB6NXZ; Jerry Grzelak, WB6GNR; and Chris Peterson, WD6CLT. Not shown: Larry Kinney, WA6HOB; Bill Wilkinson, N6BXD; Wayne Mackenzie, WB6PTJ; Katherin Mackenzie; and Grace Kessey, WA6TLC.

Pomona Valley marathon

On the morning of 25 April 1981, a group of amateurs from the Pomona Valley area in California gathered at the main gate of the Los Angeles County Fairgrounds to provide communications for the Mt. Sac Relays Marathon.

Tony Skvarek, W6ELZ, coordinated the assignments of the amateurs to provide communications between four aid stations, the starting and finishing lines, and the roving mobile units. The amateurs using 2-meter hand-held and mobile units communicated through the Pomona repeater 146.025/146.625 MHz with Frank Westphal, KF6E, as net control.

First aid was provided by Lew WA6JTR, and Dottie Lewellen, KA6LEC, who are fully trained in first aid by the Red Cross and have a mobile first aid station in their camper. Luckily, there was no need for any first aid by any of the race participants.

Interface with the Pomona Police Department was provided by Wayne WB6PTJ, and Katherin Mackenzie — reserve officers who were on patrol in a radio car, using communications with the police dispatcher.

The event went as planned, with no problems or emergencies, and provided the opportunity for community recognition of the services Amateur Radio can provide.

The following amateurs participated: W6ELZ; Tom Gallagher, WB6TQE; Walter Lundy; Elena Zalada; KF6E; Leroy Lambert, N6AXL; Hank Saltzman, KB2BI; Susan Stratton, KA6JIS; WA6JTR; KA6LEC; Joe Lyddon, WB6UFX; Bob Good, WB6NXZ; Jerry Grzelak, WB6GNR; Chris Peterson, WD6CLT; Larry Kinney, WA6HOB; Bill Wilkinson, N6BXD; WP6PTJ; Katherin Mackenzie; and Grace Kessey, WA6TLC.

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World Radio History

Amateur Radio valuable to medical profession

C.E. Haycock, M.D., WB2YBA

The Medical Amateur Radio Council (MARCO), which met at the Imperial Motel North in Dayton, Ohio, highlighted its convention banquet with a presentation by Dr. Earl West on W8BXO, of Birmingham, Michigan on "China Today." Dr. Weston had the opportunity to make a fairly extensive visit to China, during which he was able to view the country and its people in considerable detail. He returned with many interesting slides, which he presented at the banquet during his lecture.

The scientific session included lectures on "Satellite Antennas" by Chuck Pocius for emergency communications, "Common Lesions in Clinical Oral Pathology" by Donald E. Ore, D.D.S., WB9CMT, of Florsmore, Illinois; "Radioteletype and Satellite Medical Communications" by Mervin Grossman, M.D., K5CY, of Mesquite, Texas; and "The Microcomputer and the MARCO Member," by Edward R. Briner, D.M.D., WA3TVG of Acme, Pennsylvania.

Another highlight of the meeting was a report on the development of an emergency manual by Dr. Frederic Simowitz, KØFS, of St. Louis, Missouri, to be used by members of MARCO as a guide in handling emergencies involving Amateur Radio operators where medical assistance is required — such as during an earthquake or flood.

The role MARCO played in providing medical assistance most recently in Honduras was described. A plane load of badly needed medical materials was obtained, paid for and transported to Honduras by the group. Additionally, MARCO had arranged earlier for shipment of medical equipment from an American hospital which was closing to be transported to this same area. Even though this was used equipment, it was much superior to any equipment available in the area and was greatly appreciated by Sister Ethelbert Solnik, WB8GWE/HR2, a medical missionary in charge of the assistance group in the area.

MARCO — an organization of physicians, dentists, veterans and other allied health personnel — is celebrating its 17th year of service to the medical community and Amateur Radio. It elected a new slate of officers at its meeting. The new president is Dr. Christine E. Haycock, WB2YBA, of Newark, New Jersey, Associate Professor of Surgery at the College of Medicine and Dentistry in Newark. The president-elect is Dr. Mervin Grossman, K5CY, of Mesquite, Texas; secretary is Dr. William Sprague, WA6CRN, of Montebello, California; and treasurer and newsletter editor Dr. Edward Briner, WA3TVG, of Acme, Pennsylvania. □

Donald Ore, D.D.S., WB9CMT (right) — outgoing president of the Medical Amateur Radio Council — congratulates new president Christine E. Haycock, M.D., WB2YBA.

LERC amateurs donate blood

Submitted by Bill Welsh, W6DDB

The Lockheed Employees' Recreation Club (LERC) sponsors about 30 special interest groups, including an Amateur Radio club. This Amateur Radio club has actively supported the blood program for several years. It has hosted annual recognition events for local organizations that host bloodmobile visits. It has also hosted annual recognition events for volunteers serving the Burbank, California Chapter of the American Red Cross.

This club collected aluminum and used the resultant income buying supplemental refreshments served at Lockheed-California Company hosted bloodmobiles for more than a year. Radio club members serve as bloodmobile volunteers, Burbank Chapter board members, and one serves as a Los Angeles-Orange Counties Regional Blood Council member. Many of the LERC Amateur Radio Club members are active blood donors; one has donated 150 pints of blood.

Lockheed has been an active participant in the blood program since it started. The Burbank plant employees provide about 7,000 pints of blood per year. Seventy-three Lockheed Burbank employees have contributed at least eight gallons of blood and 10 have donated blood at least 100 times. The term "73" — as all radio amateurs know — means "best regards". These 73 top Lockheed Burbank blood donors certainly have the best regards of the people in their region at heart as they provide some of the blood used by more than 220 hospitals in the two counties. □

Amateurs 'save the day' in Florida

W. H. Richards, Rockledge, FL

The Central Brevard Emergency Net on 28/88 was just about to go into a training drill on 18 March when one of the members called in and reported that civil defense — through its communication supervisor, Mr. John Myers — had requested amateur cooperation in getting a command post set up to control communications for a series of brush fires, with two juveniles lost in the fire area. The training session was scrubbed and the net went into emergency work.

A call was issued for a mobile unit and Charles Bush, W4MPZ, responded and was dispatched to State Road 405 in the Titusville area to assist civil defense and county fire units working the fire. Amateur units from the Titusville ARC, using the Titusville repeater 31/91, were also active in the area sending in reports of fire approaching homes and other buildings. Liaison between CBEN using 28/88 and 31/91 repeaters was provided by Bob Lyon, K4FXP. Net discipline was superior with all hands cooperating throughout the emergency. The juveniles were found and removed from the area, and work continued beating down the fires.

Later in the evening, Civil Defense Communication Supervisor John Myers called to say thank you and offered congratulations on a job well done. □

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USQS

(*continued from page 11*)

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(*continued from page 4*)

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World Radio History

William A. Wilson, K6ARO, and His Holiness Pope John Paul II *(Pontificia Fotografia)*

President Reagan's personal envoy to the Holy See, the governing body of the Vatican, is Bill Wilson, K6ARO.

Although the 85 other countries designate their representatives "Ambassadors," Bill is a "Special Envoy" due to our country's doctrine of separation of Church and State.

He's a long-time friend of the President — a strong, helpful supporter. They have frequently enjoyed horseback riding at each other's ranches which allowed for relaxed exchanges of ideas.

A friend describes Bill as a quiet, modest man with a ready smile — a "man for all classes, equally at home with government officials, in corporate Board Meetings or at a ham club. A businessman, pilot, horseman, communicator, public servant, rancher, gracious host — and so much more. A man who combines the best of early California with modern needs."

While governor, Mr. Reagan had appointed him to the Board of Regents of the University of California and its many campuses. Bill's term for this heavy responsibility still has eight years to go.

He was also ideally suited to an earlier appointment — the Commission of Californias, an organization promoting better understanding between California and Baja California. Bill is fluent in Spanish, has a ranch in Baja and a great affection for its people.

"I've met lots of wonderful friends there," he says. "One especially. He has a sugar plantation and took me for a ride in his plane, insisting I should get a pilot's license. I said I would, if *he'd* get a ham license. He did and I did. And we kept regular skeds after that!"

Bill's ham career has been in two parts. The first started in the early '30s when his second cousin, Cal Smith, W6BRD, taught him the code. (Cal was Chief Engineer of KFAC and later became president of that Los Angeles station.)

Bill found time to operate as W6GAD after high school and from his fraternity house at Stanford, where he earned his degree in Mechanical Engineering. (He's also a registered metallurgical engineer.) But World War II, as for so many of us, put an instant stop to his hamming. In fact, he let his license lapse and had to take a new exam once peace was achieved. This time: K6ARO — "Amateur Radio Operator."

Meanwhile, he joined the Army Ordnance Corps "in charge of LSDs — Large Steel Desks." Actually, Captain Wilson kept extremely busy purchasing tanks, guns, ammunition, etc., and was responsible for inspection and production of tremendous amounts of gear.

He'd learned to be effective in business and with machinery from his father and the Web Wilson Oil Tools, Inc., a company which made drill equipment for the oil well industry.

"I grew up around slide rules, mechanical things and in machine shops," he recalls.

After his father's retirement, Bill assumed the presidency of the firm until it was sold in 1960. Then he became very active in real estate development of subdivisions, shopping centers, condos, gas stations and the like.

Also, he has cattle interests in both our country and Mexico. Too, he's a member of the Board of Directors of the Earle M. Jorgensen Company, which includes 18 steel plants around the nation; he chairs its Audit Committee.

Bill Wilson's devotion to civic and charitable organizations is quiet and generous. His charming wife, Betty, is equally busy in this way. Bill's a trustee of the well-known, well-run St. John's hospital in Santa Monica, serving on many of the committees. "I'm happy to say this non-profit hospital is solvent, able to expand and improve facilities as needed," he adds. (Those who attempt the same for other medical centers know how much skill is required for that feat!)

He's served on the California Postsecondary Education Commission, which coordinates the efforts of state university, college and community college systems. It aims to eliminate duplication of activities and budgets.

Busy people seem to somehow find time for everything, and K6ARO always includes Amateur Radio in his schedule. These days, 2 meters fits in well, via mobile or hotel window operation during his travels.

"But I did have lots of fun on the 'low bands,'" he insists. "However, I'll never forget one incident on 20 meters. I had turned on the rig in the shack to warm up and had gone in for breakfast. The phone rang and it was my sked-friend in Ohio."

"What's the matter?" He sounded very worried.

"What do you mean? Why are you spending money to telephone when we're going to QSO in a couple of minutes?"

"Well," said Ohio, "I just heard someone on your frequency crying 'Help, help, my father's in trouble!'"

Bill thought for a moment, then looked for his 17-year-old daughter.

"Did you talk into my radio microphone?" (Pause)

"Yes, Daddy."

(Well . . . she promised never to do so again!)

Bill travels often. Business has required him to visit Europe "more times than I can count." He's been to the Far East, Venezuela, Saudi Arabia and other spots, in addition to frequent commuting to and from Washington, D.C. (He maintains an office there and in Rome as well as in his home town, Los Angeles.) He likes to ride "the fastest possible planes" and enjoys the speedy Concorde.

Outdoor life has great appeal. Lithe and lean, Bill plays tennis and golf and goes horseback riding whenever he is able to visit his ranch. From Santa Barbara, he had made many of the yearly rides with the 500-member Rancheros Visitadores — horsemen who enjoy the fellowship of camping trips throughout the historic Santa Inez Valley.

Future plans now include spending half his time in Italy as he works with the Holy See. He'll be meeting with various persons of the Vatican, exchanging information between them and our State Department. The Holy See is said to have probably the most effective intelligence-gathering systems of any government in the world. He looks forward to a highly interesting association.

(Bill's friends are very enthusiastic about his abilities. "He's a most capable business man . . . sincere and thoughtful . . . patriotic, great love of country . . . well-organized . . . wide interests . . . kind and generous to friends . . . a true gentleman!")

When asked how he feels about our world situation, Bill thought for a while and replied, "In the mid-60's and through the mid-'70s, our country (as well as the rest of the world) went through a period of illness — with riots, beginnings of terrorism, increase in crime, etc. . . . I do believe we almost lost a generation in those years. But with the election of Margaret Thatcher in England, with the new wholly-democratic election in Chile, the election of President Reagan, the world seems to be coming to a more sensible position. These last acts of terrorism (the attempts on the lives of Mr. Reagan and the Pope) seem the last gasp of a sick society coming back to life again."

No doubt we'll be hearing more from Bill Wilson as the years go by. Meanwhile, he'll enjoy meeting the operators at the two Amateur Radio stations associated with Vatican City, as well as a great many other Italian radio amateurs. For us, another goodwill ambassador! □

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World Radio History

Feedback needed in Chicago

At this time, I am trying very hard to get a club station started at the Museum of Science and Industry here in Chicago. I have the green light, but I need some help — local as well as national — to work out my goal.

I am now working on classes for Novice to Extra. If I can get any feedback, send it to me. I would deeply appreciate it.

I would also be thankful for info concerning disabled people, shut-ins, the blind, etc.

CLARENCE J. MADISON, WB9PME
Chicago, Illinois □

Is there ever a 'first'?

Regarding the article in **Worldradio** (June, page 1) concerning the amateur station on the *Island Princess:* It wasn't the first ham station on a cruise ship. It was the first, perhaps, that was set up for full-scale operation with logs and QSL cards.

No big deal, but I took my 2-meter rig along on a Sitmar cruise to Alaska in July 1976. I operated from the sun deck, some 100 feet above the water. I lashed my ground plane antenna to the rail, used an external battery pack, and worked 2-meter simplex with my powerful 2 watt hand-held. I had a lot of fun contacting W7's, VE7's and KL7's as we sailed.

Just goes to prove that any time someone claims a "first," someone has done it before. I'll bet Marconi had some operational gear on his first cruise to the United States to set up his station!

73,
HERB LIPSON, W8FBH
Detroit, Michigan □

ARRL objects

2 June 1981

Mr. Armond Noble, N6WR
Publisher, Worldradio
2120-28th Street
Sacramento, CA 95818

Dear Armond:

There is a myth, popular in some Amateur Radio circles, that ARRL is an old-fashioned, reactionary organization that is slow to accept new ideas. In your June issue you have unwittingly helped to perpetrate that myth. I refer to the item on page 40 entitled, "SSB Mission Accomplished." It describes an alleged incident involving "ARRL officials" at the "1955 national convention" which paints a picture of the League being slow to accept single-sideband.

Let's look at a few facts.

1. Single-sideband was receiving extensive coverage in **QST** as early as 1949. The **QST** annual index for that year included "Single Sideband" as a separate heading, and a monthly column devoted to SSB was inaugurated that year.

2. ARRL published the first edition of *Single Sideband for the Radio Amateur* in 1954.

3. As far as I have been able to determine, there *was* no ARRL national convention in 1955.

Ironically, at the time, the common accusation was that the League was shoving SSB down the throats of people who were perfectly happy with AM. 73.

Sincerely,
DAVID SUMNER, K1ZZ
Assistant General Manager

Dear Dave:

Very sorry!! If we say five Hiram Percy Maxims, three Perry Williams and bow four times to a DXCC signed by John Huntoon, will you forgive us?

Cordially,
ARMOND M. NOBLE, N6WR
Life Member, ARRL □

A happy ending

In 1978, two antennas were stolen off of Captain Bob Smothers, WA6FKU's automobile in the area of Richmond, California. In 1981, a Sgt. Ken Miller called to say he had them at the San Pablo police station.

You see, we had the good sense to engrave the ham call letters in the base of the coil. When Sgt. Miller found them, he contacted a friend who is an amateur, and thereby was able to find ownership by further looking in the local telephone directory.

We say thank you to all who took part.

BETTY SMOTHERS, WA6GCS
CAPT. BOB SMOTHERS, WA6FKU
Concord, California □

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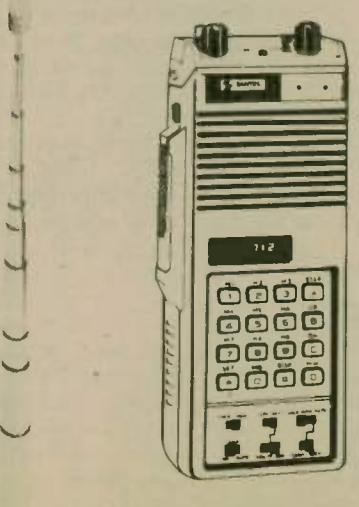

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World Radio History

Ero explains

May 29, 1981

Mr. A. Leonard Sutter, K9YBM
P.O. Box 1663
104 East F Street, #20
Oakdale, CA 95361

Dear Mr. Sutter:

Thank you for your card of May 23 seeking to have me explain why I have been a ham so long when your Callbook says I am a Novice. Maybe I'm in my second childhood! It would be thrilling to relive those moments in the '20s when I discovered the telegraph key. Now it's only an Old Man's dream. The world isn't perfect — least of all, the FCC.

You add that I should at least have an Advanced Class license if I have the knowledge mentioned in **Worldradio**. Your charity is boundless — maybe I should have an Extra grade. However, I do hold 1st Class Radiotelephone and 1st Class RadioTELEGRAPH operator certificates good until 1985. Provided I last that long or if the FCC doesn't further foul things up.

It all started due to an oversight. I forgot to renew W9HPJ in the 12-month period of grace due to not being on the air. A kindly lady in Washington — Ethel Smith, K4LMB — got the FCC to establish a five year period of grace (now in the rules); even so, I missed it.

Now Barry Goldwater, K7UGA, has a bill pending for 10-year licenses. Meanwhile, my KA9DYS has become a protest. Since I have no microphone in the shack, it's no great loss.

Very 73,
ERO ERICKSON, KA9DYS
Chicago, Illinois □

Australian pen pals

I am interested in Australia and would like an Australian amateur for a pen pal.

I'd also like to thank you for the fine job you're doing. I get more out of **Worldradio** than I do **QST** and I look forward to reading it every month.

Tnx and 73,
SHELBY W. HAUKOS, KB0JW
Fergus Falls, Minnesota □

Scanner revived interest for one amateur

Thank you very much for the sample copy. I found it very interesting and would like to subscribe to it.

My first call was issued 4 March 1926 and was 1BMG; there were no prefixes in those days.

This call — W1HWG (1 Hard Working Guy) — I have had since 9 March 1934.

I was off the air 39 years on phone. This may not be a record, but sure is a good average. hi Thirty-nine years ago I sold everything except a 6L6 oscillator which I used every four or five years to renew my license and a couple of years back I bought a Bear Cat scanner. I plugged in the amateur frequencies and this is what got me interested to get back on the air, so last May (1980) I bought myself a Kenwood station and have been having a ball ever since.

I am 72 years old and work every day except Tuesday at my hardware and plumbing supply store here in Stafford Springs. I still have my QSL cards from 39 years ago and have received only one card this past year that I had talked with previously. It was W9OWM 1-6-35, and this time it was on 12-10-80. However, that call had been reissued and was not the same person.

73's
CHARLIE STEVENS, W1HWG
Stafford Springs, Connecticut □

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Worldradio

Good news for radio amateur drivers

Downsizing of American automobiles and trends to copy foreign car designs have created problems for Amateur Radio operators. The smaller cars with floor mount gear shift levers did not leave room to mount radio gear in the 1978-1980 models.

Tom Miller, K8PNW, and Bob Karl, W8HS, of Southfield, members of the Catalapa Radio Club and Southfield Civil Defense, have launched a campaign to inform Amateur Radio operators about which of the new American cars can accommodate the radio equipment.

The first of these is the Chrysler "K" car which can accommodate one or two radio transceivers; the gear shift lever is located on the floor.

In previous correspondence with Chrysler Corporation, it was pointed out to the radio operators that a column-mounted gear shift lever was not feasible in the small cars, because of the shift pattern and the use of collapsible steering columns.

Miller and Karl hope that when amateurs realize they can get a transceiver as well as six Americans in the "K" car, it will help to increase car sales.

—*The Suburban News, Southland, MI* □

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World Radio History

American Radio Relay League

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

In mid-May of this year, I attended the Pacific Division ARRL Convention in Fresno, California. The affair was held as part of the annual Fresno Hamfest.

The Fresno Hamfest is an amateur "happening" with nearly 50 years of history. It is one of the first hamfests I attended in my early days in Amateur Radio.

As in almost every other aspect of Amateur Radio life today, hamfests have changed in many ways. Certainly not the least is the inflation of the price to attend hamfests and conventions.

The banquet speaker at the Convention this year was Roy Neal, K6UDU. One of the comments he made was the age of those who were attending — the average age was probably somewhat over 40.

Over the years, the Board of Directors of the League has been concerned with the fact that the average age of radio amateurs has been rising, although recently it appears that the average age is now starting to fall.

There are probably a number of reasons for the rise in this average. One major factor is the fact that the life expectancy is also rising, and as in the general population, amateurs are living longer. But what is the problem at conventions? One who attends regularly does note that more of those attending are in the older age bracket.

For those of us who are in or near that "older" age bracket, the fact that there are others in the same age category means we probably see some of our friends of "yesteryear." In fact, I can always count on seeing some of *my* "old" friends at conventions, which is fine with me. This is not to say all of my own friends are "old" or that younger amateurs don't attend conventions. I met many fine young amateurs this year, just as I have at every other convention I have attended over the years.

Perhaps the cost of attending conventions has out-priced what the younger amateurs can afford, or perhaps younger amateurs want to put money into purchasing ham gear instead.

Conventions, in general, have changed. Rather than having a single price, which includes a banquet dinner, there are other options — including a lower price ticket allowing participants to attend meetings, exhibits and a swapmeet. More and more individuals are taking advantage of such offerings.

One question I have been asked over the years is why there "has to be a banquet as part of the convention, anyway."

Well, there is no regulation or instruction from the League saying there must be a banquet. In many areas, it is a tradition. In many cases, it is a way to get "free" facilities for holding convention meetings and other activities.

While it is possible to rent convention space, the fees are prohibitively high in some areas. In other areas, the only useable facilities large enough are located at hotels or motels. Hotels will often provide facilities for at least part of the convention if the committee will hold a banquet at the hotel as part of the program. While the hotel may not make a large profit from the banquet itself, they do make money from other services offered, especially in cocktail lounges. Often, hotels will also give facilities for programs on the basis of the number of rooms rented to convention participants.

One solution to the problem of finding space is to rent a large hall and parking area, and hold a flea market and commercial exhibit. Participants are charged for space if they are sellers or commercial exhibitors, or an entrance fee if they are just attendees at the affair — buyers, if you will. Thus, the high cost of renting space can be covered by the various entrance fees. There may or may not be a technical program or other types of meetings.

Sometimes a banquet will be a part of the convention — sort of an added attraction. Most often, the banquet is held at a location away from the main convention site. In such cases, usually only a small percentage of those attending the convention will also attend the banquet.

Over the years, convention committees have tried to find ways to attract amateurs and people interested in Amateur Radio to attend their affairs.

In earlier years, people often attended to find out how to make their radio equip-

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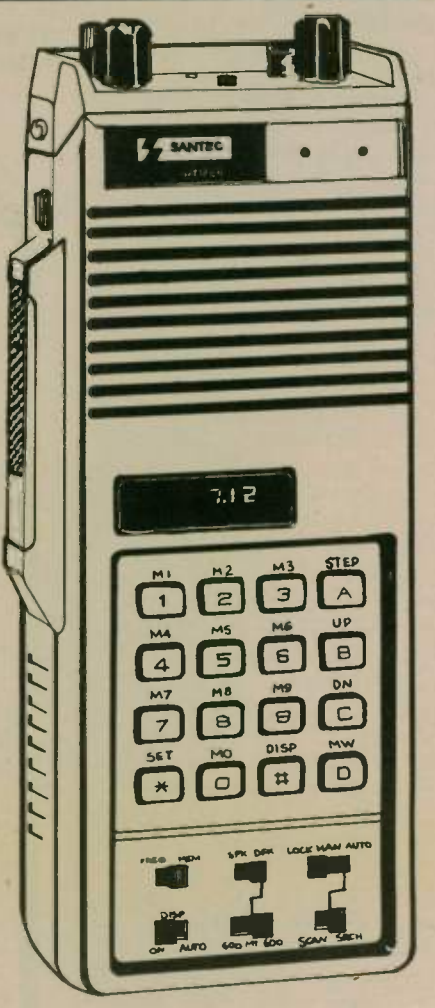

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World Radio History

ment work better, or how to build better ham gear. In these days of greater use of commercial gear, there is not as much interest in learning about the technical aspects, although there are still excellent technical programs being presented.

In these days of specialization, a number of specialized conventions have come into being. These include DX conventions, VHF/UHF conventions, and traffic and repeater meetings. There are also a number of special interest groups who want a special part of a general convention program. These include net and other special groups such as the QCWA. Convention committees will often cater to these special interest groups and give them space for their own meetings as a part of the overall convention program. There is certainly nothing wrong with this approach.

Another technique used to attract participants is to offer registration prizes and/or pre-registration prizes. Sometimes these prizes are donated or at least partially donated. Such prizes range from major station equipment to small items such as test equipment, tools and accessory station equipment.

There is some feeling that using such techniques dilutes the real reason for holding Amateur Radio conventions, but the League's Board of Directors has never mentioned any of these techniques as good or bad.

In fact, the League has a general hands-off policy of how ARRL Conventions and Hamfests are conducted, as long as planning is in good taste, legal and does not libel or disgrace the name of the ARRL. This hands-off policy includes the financial structure of the convention, and the League does not give money for use by the convention committees.

Neither does the League assume any financial liability. To protect the name of the League, all national, divisional, state or provincial conventions and ARRL hamfests are conducted under the watchful eye of the Director in the Division where such an affair is being held. The Division Director has the final say on the use of the League's name and can cancel the use of "ARRL" at any convention if the committee does not follow the rules as laid down by the Board of Directors.

Anyone interested in hosting an ARRL convention or hamfest should contact their Division Director or ARRL Headquarters. The rules for holding ARRL conventions and hamfests are published as part of the booklet *Articles and By-Laws of the American Radio Relay League,* available from ARRL Headquarters.

It is not as difficult to host a convention as some might suspect, and it does not take a large amount of "seed money." Any well-organized Amateur Radio club could host such an affair and the Division Director in most ARRL Divisions is ready to offer advice and help in organizing a convention or hamfest.

In my 35 years as a radio amateur, I've come to order my life by the happenings in our "avocation," such as operating events (i.e., Field Day, sweepstakes and other contests), and by annual and other radio conventions and hamfests.

I look forward to attending Division Conventions and other hamfests. This is where I meet old friends and make new ones. To me, friendships made in Amateur Radio are my most valuable asset. That, after all, is a major part of what Amateur Radio is all about. □

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

Worth the money

Bob McGarvey, WB2EVF

The ARRL 1981-2 Repeater Directory is a big dollar's worth. In addition to listings, it contains much good advice.

Pages 108-9 are headed "Repeater Tips." The first page consists of what to do and the second of what not to do.

Any repeater group which has mailings to its members might well consider reproducing some of the tips and slipping them in with the membership cards, meeting notices or rosters.

If you don't recognize some of the users of your favorite repeater in the two pages, you must live in an electronic parade.

Samples:

• If you can't think of anything worth saying, don't say anything.

• If you like to hear your own voice what you want is a tape recorder, not an FM rig.

• Leave the repeaters available for those who need them. Use simplex whenever possible.

• Don't break into a contact unless you have something to add. Interrupting is no more polite on the air than it is in person.

• Don't try to prove what a great operator you are by criticizing the operating techniques of others on the air.

• Don't monopolize a repeater. The best repeater users are the ones who do a lot of listening and little transmitting.

• Don't forget what you say over a repeater can be heard . . . by anyone with an inexpensive public safety band monitor.

—The Home News □

160-meter antenna problem solved

Ed Marriner, W6XM

I used to use a four position coax antenna switch. One of the coax lines went out to the front yard to a 160-meter vertical antenna where the coax tapped up from the ground end of the coil. Another lead used to go to a Match Box for a 600 ohm open wire tuned feeder system. Other lines went to the garage and antennas fed with coax.

Recently I took down my 600 ohm tuned feeder antenna, and put up a coax fed dipole for 80 meters. My signal reports indicated the signals had dropped considerably. What happened?

I found the 100 foot coax feeder and one half of the dipole was now part of the 160-meter antenna system, acting as a counterpoise. The vertical now resonated in the BDC band: Upon disconnecting the 80-meter dipole. the resonance returned to normal.

By running the coax direct from my transmitter to the vertical antenna without going through the coax switch, I solved my problem. I am now doing away with the coax switch for all my antennas to prevent interaction due to the common ground of the switch. After separating the antennas, I had to readjust the resonance of my 160-meter antenna again! □

A SPECIAL SALE FOR WORLDRADIO READERS

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CONDITIONS OF THIS SALE: Although ample stocks have been brought in, Williams Radio reserves right to back order crystal pairs not in stock or temporarily out of stock, from 1 to 4 weeks depending on order times. Customer will be notified. Check must accompany order to qualify for this special $6.00/pair price, plus 35¢ shipping and handling per order. Special order crystals for radios other than mentioned above are same price and will take approximately 4 weeks for delivery. (Yeasu FT-227 transceiver 220 mhz crystals do not qualify for this sale price due to the unusual multiplier required for the receive crystal)

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World Radio History

AWARDS

Scott R. Douglas Jr., KB7SB
Post Office Box 46032
Los Angeles, Calif. 90046

If your interest lies in the areas of DX, award hunting, county hunting or net operation, you might find the Certificate Hunters Club to be of great enjoyment.

Membership in the "Certificate Hunters Club" is available to both licensed Amateur Radio operators and SWLs. The club sponsors many net operations — both DX and stateside, information assistance for awards and QSL routes, contests, one of the most extensive awards programs in the world and many other worthwhile projects.

Membership in the club is available worldwide to all interested persons displaying an interest in the clubs endeavor. There are NO DUES and the only cost involved is $5 ($6 outside North America) to cover the cost of your membership certificate, mailing and other related costs. The membership certificate measures 11×14 inches and is of DXCC quality and styling.

Complete details can be obtained from the club for your SASE to: **Scott R. Douglas Jr., KB7SB Certificate Hunters Club, Int. P.O. Box 46032, Los Angeles, CA 90046.**

WWDXC Totem

The Western Washington DX Club, the Northwest's largest and most active DX group, takes pleasure in offering the "Totem Award" to any licensed radio amateur who submits proof of two-way contact with the state of Washington.

Applicants must submit proof of QSOs with 100 different Washington stations. Twenty (20) of these must be with members of the WWDXC. DX stations need only confirm 25 Washington stations, including 10 members of WWDXC. General certification rule applies. Submission of the QSL cards is NOT required. Your cards may be checked by an officer of your local radio club or any recognized Amateur Radio society or club. All contacts must be dated 1 January 1973 or later, and your log should be in alphabetical order with date and time in GMT.

The Washington Totem award is FREE to all stations outside of the USA. U.S. stations must include $1. The award may be issued for specific bands or modes if all supporting information is included with the application.

The Western Washington DX Club (WWDXC) will furnish upon request and your SASE a complete list of the membership of the club. For your list or additional information contact: **Awards Chairman WWDXC, P.O. Box 224, Mercer Island, WA 98040.**

XE-EA Award

This award is jointly issued by the Iberia DX Club in Spain and the Mexico DX Club in Mexico City, Mexico for two-way QSOs with EA and XE stations in any HF band or mode after 1 April 1979.

The award is issued in two classes. Class A is for confirmation of eight EA districts and three Mexico districts. Gold Seal class is for confirmed contact with all nine EA and four XE call districts. In both cases it is necessary to work at least

THE EVOLUTION OF A CHAMPION!

FT-101ZD Mk III

The FT-101ZD Mk III is the latest chapter in the success story of the FT-101 line. Armed with new audio filtering for even better selectivity, the FT-101ZD now includes provision for an optional FM or AM unit. Compare features and you'll see why active operators everywhere are upgrading to Yaesu!

Variable IF Bandwidth
Using two 8-pole filters in the IF, Yaesu's pioneering variable bandwidth system provides continuous control over the width of the IF passband — from 2.4 kHz down to 300 Hz — without the shortcomings of single-filter IF shift schemes. No need to buy separate filters for 1.8 kHz, 1.5 kHz, etc.

Improved Receiver Selectivity
New on the FT-101ZD Mk III is a high-performance audio peak/notch filter. Use the peak filter for single-signal CW reception, or choose the notch filter for nulling out annoying carriers or interfering CW signals. In the CW mode, you can choose between the 2.4 kHz SSB filter and an optional CW filter (600 or 350 Hz) from the mode switch.

Diode Ring Front End
The FT-101ZD now sports a high-level diode ring mixer in the front end. This type of mixer, well known for its strong signal performance, is your assurance of maximum protection from intermod problems on today's crowded bands.

WARC Bands Factory Installed
The FT-101ZD Mk III comes equipped with factory installation of the new 10, 18, and 24 MHz bands recently assigned to the Amateur Service at WARC. In the meantime, use the 10 MHz band for monitoring of WWV!

RF Speech Processor
Not an additional-cost option, the FT-101ZD RF speech processor provides a significant increase in average SSB power output, for added punch in those heavy DX pile-ups. The optimum processor level is easily set via a front panel control.

Worldwide Power Capability
Every FT-101ZD comes equipped with a multi-tap power transformer, which can be easily modified from the stock 117 VAC to 100/110/200/220/234 VAC in minutes. A DC-DC converter is available as an option for mobile or battery operation.

Convenience Features
Designed fundamentally as a high-performance SSB and CW transceiver, the FT-101ZD includes built-in VOX, CW sidetone, semi-break-in T/R control on CW, slow-fast-off AGC selection, level controls for the noise blanker and speech processor, and offset tuning for both transmit and receive. The Mk III optional FM unit may be used for 10 meter FM operation, or choose the optional AM unit for WWV reception or VHF AM work through a transverter (AM and FM units may not both be installed in a single transceiver).

Full Line of Accessories
See your Yaesu dealer for a demonstration of the top performance accessories for the FT-101ZD, such as the FV-101Z External VFO, SP-901P Speaker/Patch, YR-901 CW/RTTY Reader, FC-902 Antenna Tuner, and the FTV-901R VHF/UHF Transverter. Watch for the upcoming FV-101DM Digital Memory VFO, with keyboard frequency entry and scanning in 10 Hz steps!

Nationwide Service Network
During the warranty period, the Authorized Yaesu Dealer from whom you purchased your equipment provides prompt attention to your warranty needs. For long-term servicing after the warranty period, Yaesu is proud to maintain two fully-equipped service centers, one in Cincinnati for our Eastern customers and one in the Los Angeles area for those on the West Coast.

Note: A limited quantity of the earlier FT-101ZD (with AM as standard feature) is still available. See your Yaesu dealer. FT-101ZD Mk III designates transceivers bearing serial #240001 and up, with APF/Notch filter built in and AM/FM units optional. 681

Price And Specifications Subject To Change Without Notice Or Obligation

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World Radio History

one member of the Iberia DX Club and one member of the Mexico DX Club

For application form or further information write: **Elicio Munoz, Mexico DX Club, P.O. Box 21-167, Mexico 21, D.F., Mexico.**

10K and 20K Awards

These awards are issued for 10 or 20 contacts with different Pacific and Caribbean U.S. territories or states such as KP4, KS4. KP5, KH6, KL7, KX6, etc. The awards can be endorsed for any band or mode at the time of application. Only contacts after 1 January 1955 are valid.

The award measures 8½×11 inches and is of moderate quality. Send your list of contacts (in alphabetical order) along with $1 and SASE to KB7SB (see address in column head).

Since last month's column, we have some corrected information. IRCs are now worth 30 cents at both the post office and the ARRL. Although the exchange rate around the world for the purposes of "award money" is still about five IRCs for each dollar, I feel sure the increased value will be passed along.

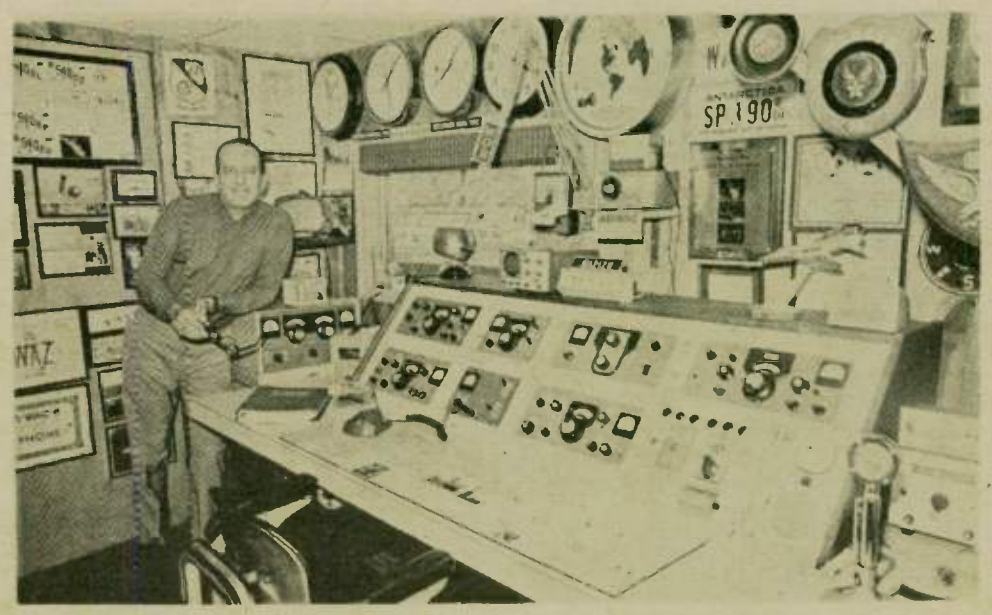
Do you have any questions regarding awards and award programs? If you do, write to me at the address heading this column and we will try to answer them in coming issues. If you're in a hurry, include an SASE and we will reply promptly by mail.

Don't forget — if your local club or organization has an award you would like to see appear in this column, send a sample for reproduction and all the details pertaining to application.

Till next month, 73's and good hunting.

Your comments on WORLDRADIO are appreciated. What would you like to see included and what ways can it be improved?

STATION Appearance



Bill Schiffrin, WA2IZU, shows off his Levittown, New York station. This is the same photo Bill uses on his QSL card.

Five . . . four . . . three . . . two . . . one . . . This is Mission Control.

A visitor to the shack of Bill Schiffrin, WA2IZU, might well think he walked into NASA by mistake. This is one neat way to fix up a station.

As we so often note with the monthly winners of this award, this station has a scope to monitor the quality of outgoing signal.

Topping off this Levittown, New York station is a 145-foot tower with monoband beams for 10, 20 and 40. Such has been used to capture DXCC and WAZ, to name only two of WA3IZU's many awards. Teletype and 2-meter FM are other activities of Bill's.

There also seem to be a great many mementos on the wall and elsewhere, with remembrances of time spent in the service. Indeed, this is "station appearance" and this month's one-year subscription to **Worldradio** is duly awarded. □

Unlisted call?

Bob McGarvey, WB2EVF

You hear the strangest explanations on the radio. There was the guy whose call was questioned by someone, since it was by its nature an old one and did not appear in the Callbook. His answer: It's an unlisted call.

Huh? He went on to tell his auditors the FCC and the Callbook are just like the telephone company and the phone book. You can ask for and get an unlisted call if you don't want to be bothered with QSL cards, circulars and such nuisances.

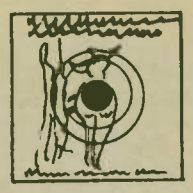
Oddly enough, no one seemed to believe him.

—*The Home News* □

WOODPECKER PRACTICE TARGETS

AND PROTEST DEVICES FOR HAMS WHO ARE SERIOUS ABOUT BLOWING UP THE BIRD

HELP TARGET THE RUSSIAN WOODPECKER FOR EXTINCTION



RUSSIAN WOODPECKER HUNTING CLUB
PO BOX 29000 SUITE 274
SAN ANTONIO, TX 78229 USA

Since 1976 the Russian Woodpecker has disrupted global communications. For 5 years the bird has clobbered Amateur, Commercial, and even vital Military communications. What has been done? Commercial op's in 10 European countries threatened to boycott communications with Russian shipping. FCC protested via the State Dept. Most nations filed diplomatic protests. WARC 79 *talked* about it. Vigilantes try various electronic countermeasures of dubious value, but which add to QRM. Defeatists devised semi-effective blankers; and the Australian hams whipped up a May Day protest to Soviet Embassies....a good idea, at last, but so lacking in publicity that you probably didn't hear about it. For 5 years the Russians have been giving YOU the bird! Don't Get Mad - Get Even! Give it back to them!

With *Russian Woodpecker Hunting Club's* OFFICIAL WOODPECKER TARGET you can laugh as you practice, and get ready to ambush the bird on his next fly-by. Blow him up, or just devastate the 10 Ring with a paper punch. The cute, uniformed bird is unmistakably Russian. Unlike the real bird, this one sits still, begging to be blasted. Poor shots get 2 points just for blowing his tail off. 5 years of his rat-tat-tat have been hard on your nerves, so for a buck, indulge yourself. Have some fun...Zip Public Enemy Number One! Also makes an appropriate dart board for your ham shack. When he forces you to QRT, throw darts!

Now all of this is not without purpose. It is hoped it will start a protest that will be successful in putting the Russian Woodpecker on the Extinct Species List. 5 years of soft diplomacy only got us more Woodpeckers; they now seem to hammer in shifts! Isn't it time for some heavy-duty diplomacy? Send a no-nonsense message, and urge others to send them! Send your best target to: Brezhnev, PO Box 88, Moscow. Shoot the Soviet Ambassador one!!

TARGETS 3/$1 PP US, Canada, Mexico
2/1$ (3 IRC's) Airmail Elsewhere

° T-Shirts: *Russian Woodpecker Hunting Club*, Expert
° Marksman, Target Logo. Give Adult size. A real
° banger for hamfests & meetings. $8 PP US & Canada

HUNTING LICENSE: A gag of course, but you might need this.....especially if you're into electronic countermeasures (ECM). 50¢ or 2 IRC's, PP, with target order.

World Radio History

DX WORLD

John F. W. Minke III, N6JM

6240 Rio Bonito Drive Carmichael, CA 95608

Coming attraction

15-16 August SEANET Worldwide DX Contest (Phone)

Details for the above event can be found in **CQ Magazine**.

W-100-N

Looks like this was a slow month for applications for the **Worldradio** Worked 100 Nations Award. Congratulations to the sole recipient:

125. W7KTI Thomas F. Crawford.

Tom resides in Elma, Washington, and completed the requirements by completing 119 valid contacts — all on SSB.

Burma (XZ)

That XZ5A operation in May was the work of Jin Fukuta, JA8BMK and company for a short stay in Burma. They made about 3,000 contacts from Kawthule with 90 percent of the contacts with Japan and Europe.

The group expects to be back in Burma later this summer, and has the documentation authorizing the operation. Although there are several Burmese licensees, it is reported that they have not been allowed to transmit for 16 years. Perhaps there will be a change for the better.

Spratly Islands (1S)

JA6CKX has been reported to have gone to this island group for a DXpedition 26 May through 4 June. As of this writing (10 June), nothing has been heard from JA6CKX/1S.

The last DXpedition to Spratly was fired upon as their craft neared one of the islands. To this day, the group still doesn't know who was occupying the island as they didn't stay around to find out.

Desecheo Island (KP2)

The KP2A operation from Desecheo Island is still in operation as I write this. They have pretty well worked out the deserving, and there is feeling in the ranks of those who are away from their stations that the DXpedition group may shut down early after all is pretty well worked dry.

The DXpedition group, sponsored by the International DX Foundation (IDXF), consisted of the team of: John Ackley, KP2A; Stuart Greene, WA2MOE; Wayne Carlson, K2DT; Steve Sullivan, WB2VFT; Garson Katona, K2UQ; Jim Grauser, WB2KXA; Bob Schenck, N2OO; Eugene Fry, N2CW; Ron Oberholtzer, N5ADC; Fred Fischer, K8CW; Charles Dye, K8HV; Alfred Taylor, WB8ZJW; Jim Dionne, K1MEM; and Dave Novoa, KP4AM. The permit for this DXpedition was granted by the Department of the Interior, and probably not another one will be issued for some time to come. **Jay Musikar, AF2C, RFD 2, Putnam Valley, NY 10579** is the route for your QSL card. And a tax deductible contribution to IDXF would be greatly appreciated.

Tokelau (ZM7)

Jim Smith, VK9NS and company were in competition with Desecheo as they were on the same time. This team includes VK9NS; D.H. Mead, VK2BJL; Jack Binder, KB7NW; and possibly S.R. Chambers, VK2BKD. Both SSB and CW contacts were given out to the deserving using ZM7JS, ZM7KD and ZM7ZR. After this operation, it looks like ZM7 goes to the bottom of the list along with Desecheo. Now what!

New Caledonia (FK8)

This one is in the area of Wallis Island, but with a bit more activity. Look for Maurice Florentin, FK8DK on CW from 0700 UTC on 14.016 MHz. He has also been found as late as 1100 UTC.

Other stations from New Caledonia active from 1100 UTC include FK8BR on 14.209 MHz; Dominique Hoareau, FK8CE on 14.207 MHz; Stanislas Etienne, FK8CL on 28.007 MHz; and Bill Pihahuna, FK8CW on 14.028 MHz. The last one has been active at other times on both 20 and 15-meter CW.

Also, Samuel Torope, FK8DD has been reported on 28.602 MHz from 0100 UTC; Guy Francois, FK8DH on 7.045 MHz at 0530 UTC; and FK8DR near 14.220 MHz at 1000 UTC.

Gus!

Gus Browning, W4BPD, has purchased a boat and plans a five-year around-the-world DXpedition, due to commence this July.

Those of you who are new to DX probably don't remember Gus and his travels many years ago. After awhile, Gus gave up his DXpeditions to publish his **DXers Magazine** out of Cordova, South Carolina. Gus was one of the pioneers of DXpeditions. From what I understand, his daughter will take over his publication while he is away.

China

As reported in *The Long Island DX Bulletin*, the president of the JARL, JA1AN, while in Peking, saw an Amateur Radio setup with a three-element beam on the roof of a 10-story building. The station, BY1PK, was in the basement with two donated Kenwood R-1000 receivers in operation. The transmitters were still in sealed crates. They said they are awaiting the go-ahead from China government, which will not be forthcoming until after the Japanese amateurs celebrate their 30th anniversary of reinstatement of Amateur Radio in Japan following World War II. If I remember correctly, that was back in 1952, so it looks like that will be sometime next year.

All we can give you now is memories. Please refer to the Antique QSL Department.

Southern Sudan (ST0)

It has been reported that Arve Danielsen, LA1RR has been signing portable ST0, often found near the low end of American phone portion of the 10-meter phone band from 1000 UTC. Check long path for this one. This station anticipates a stay of two years.

Brunei (VS5)

Look for Derek, VS5DG, often busy on 28.506 MHz from 1500 to 1700 UTC. He also maintains a schedule with the United Kingdom on Fridays on this frequency. If conditions are poor, he will move to 21.200 MHz.

Albert Cantley, VS5PP, has been found on 21.160 MHz after 1600 UTC with a schedule with his son who signs G4EXY. All the frequency reports received for Albert have been below the American phone band limits.

For you 20-meter buffs, look for Kan Kam Yuen, VS5TX found after 1200 UTC between 14 210 and 14.220 MHz.

Indonesia (YB)

Wayne, YB9ADE, is active on all bands 10 through 160 meters, both CW and SSB. Look for Wayne on 21.325 MHz from 0530 UTC, or near 21.355 MHz at 1230 UTC for arrangements to change to your needed band or mode. If for some reason he goes off the air during a contact, it is due to the fact that the timer has shut down the power generator.

Another station active from this one is YB8AEG, who says he will be there for about 18 months. He has been reported on 21.007 MHz from 1600 UTC for the deserving CW types, and on 14.208 MHz from 1300 UTC for the other mode.

Jack Sproat, YB0ACL will be another station active from Indonesia starting this August. Jack, who signs W4LCL when stateside, was active from Indonesia for nine months during 1979-80.

Other stations from this one include YB3DC, who has been found on both CW and SSB on 14.022 MHz at 1100 UTC and 14.220 MHz at 1300 UTC, and Albert Buntaran, YB0PG, found near 14.208 MHz from 1200 UTC.

Tanzania (5H3)

Pat, 5H3AA can be found near 14.280, 21.280 or 28.580 MHz sometime around 1100 UTC and 1900 UTC, daily.

Another station, 5H3PA, has been reported on 10 meters. Look for this one near 28.610 MHz from 2100 UTC.

Wallis Island (FW8)

FW8SC has been reported on 28.595 MHz near 1000 UTC. Perhaps activity will pick up with visiting DXers signing with an FW0.

Papua New Guinea (P29)

John Mowatt, P29JM is an active station on the island of Bougainville in the North Solomons province of Papua New Guinea. John reports that also on the island there is Harry Vanrooy, P29NHR, and Geof, P29BG, plus a few listeners. John is employed by Bougainville Copper, Limited, as an analyst/programmer for their computer services in Arawa. You can find John most evenings (his time) from 1000 through 1200 UTC between 14.325 and 14.332 MHz. P29JM is also a member of ISSB.

Other stations from this country include several on 20-meter SSB, most of them active after 1000 UTC. On the low end of the 20-meter phone band look for C.R. Hawkins, P29CH; J.V. Dicky, P29DI; P29BG and P29FV. In the 14.250 to 14.275 MHz slot, D. Birner, P29LB, and D. Coyle, P29CC have been found at the same time segment.

If you hang out on 10 meters, look for P29AX who has been reported on 28.634 MHz at 2400 UTC. If 1000 UTC is a poor time for you, try around 0700 UTC with R.A. Sutherland, P29BS around 14.220 MHz and K.V. Ford, P29EJ who prefers CW operation near 14.002 MHz.

Working enough of these P29 stations will qualify you for the Bird of Paradise Award, which has been discussed a few times in the past.

Qatar

A couple of stations represent Qatar for the deserving DXer. Mike, A7XD frequents 21.305 MHz from 1700 UTC, while

Propagation

Maximum Usable Frequency from Burbank, CA

(courtesy of W6LS)

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

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

SEPTEMBER 1981

UTC	AFRI	ASIA	OCEA	EURO	SOAM
0100	27.6	31.6	36.9	15.9	27.0
0200	23.6	30.1	36.5	14.7	27.8
0300	20.4	28.1	34.8	13.4	25.3
0400	20.1	25.3	32.5	13.1	23.5
0500	18.3	22.3	30.1	14.4	22.9
0600	16.9	20.0	28.2	16.6	22.7
0700	15.4	18.5	27.0	16.3	21.1
0800	13.7	17.5	25.9	15.2	17.0
0900	12.3	17.2	24.5	14.2	17.4
1000	11.7	17.2	23.3	13.7	19.2
1100	12.1	16.6	22.0	13.6	17.8
1200	13.8	15.5	20.0	14.4	18.3
1300	16.7	15.3	18.4	16.9	22.1
1400	20.1	17.6	19.8	20.8	27.1
1500	22.8	19.5	21.9	24.5	30.4
1600	24.3	19.3	20.1	26.7	31.4
1700	25.3	19.4	17.8	27.6	32.1
1800	26.2	19.6	17.2	26.9	33.3
1900	27.0	21.2	20.2	25.2	33.7
2000	27.7	25.2	26.3	22.8	32.2
2100	28.6	30.3	32.6	20.5	30.4
2200	29.7	32.8	36.2	18.6	29.1
2300	30.1	33.0	37.2	17.5	27.7
2400	29.4	32.6	37.1	16.7	26.6

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ward, you must
each of the 19
ates are as follows:

... Anambra
5N5 Imo, Cross Rivers
5N6 Gongola, Bauchi
5N7 Plateur, Benue
5N8 Bornu, Kano
5N9 Kaduna, Sokoto
5N0 Lagos/Abuja

Send your application with a certified list of confirmed contacts with a fee of 10 IRC's to: **Awards Manager, P.O. Box 2873, Lagos, NIGERIA.**

The following Nigerian stations have been reported active recently. Look for Robert Blynn, W3IVP/5N1, 21.354 MHz at 1800 UTC; 5N2LED, 14.064 MHz at 0300 UTC, or on SSB on 14.222 MHz at 2400 UTC. In the sixth district, 5N6FKB has been reported on 21.365 MHz at 2345 UTC with 5N6ATT on 21.315 MHz at 2400 UTC and 28.700 MHz at 1600 UTC. Look for 5N8BRC on 14.212 MHz at 2200 UTC; Geiorgio Micheletti, 5N9GM on 21.272 MHz at 2350 UTC; and P.E. Ekpe, 5N0PEE on 28.510 MHz at 1445 UTC.

SMOM (1A0)

Not much more is to be added to what was said last month regarding the 1A0KM, Sovereign Military Order of Malta, operation. I received a letter from David Siddall, K3ZJ, containing the same information that was in last month's column with an additional note. Dave says that QSL manager Mario Gallavotti, I0MGM has answered all cards that have been received as of April, and all future ones received will be answered. The station will be activated some weekends even if the ARRL headquarters refuses to grant DXCC status, so that Worldradio W-100-N Award seekers can work 1A0KM. SMOM will be granted status as it meets our country criteria. It also will count as a prefix for CQ Magazine's WPX award.

Guinea (3X)

Ian Doncaster, VK4NIC/3X shut down at 1916 UTC on 20 April. Ian and others using his station completed about 17,000 contacts during his stay there. There was an interesting article in **Amateur Radio Action** — an Australian magazine — concerning Ian's operation in the Republic of Guinea. A copy of this article was received here and was submitted by John Parrott, W4FRU, Ian's QSL manager. Rather than return this article, it is suggested that those who are interested write to John for a copy. Include an SASE plus a bit to cover copying (two pages). John's adddress is **4640 Ocean View Avenue, Virginia Beach, VA 23455.** The operation of VK4NIC/3X was supported by the International DX Foundation.

Prefixes

A couple of odd prefixes are coming out of the Soviet Union! YL1P, an all-YL operation, and EK1P. Not only are they some interesting prefixes to catch, they represent Franz Josef Land!

YL1P has been reported on 14.195 MHz at 1745 UTC working Europeans. The operators included Natasha and Rita, whose home calls are unknown. They were part of a USSR YL Arctic Expedition, whose next stop was to be Dickson Island signing YL0B. Another report has the Franz Josef Land YL call as YL2B, but I question that as it does not follow the Soviet oblast suffix identification of calls. Maybe they meant YL0B on Dickson.

The 'DM' prefix for the East Germans seems to have been completely replaced by the 'Y' prefix followed by two digits.

If you worked JT60UB, that was a special prefix to celebrate 60 years of independence for Mongolia. This was reported worked the early part of May on 21.031 MHz at 1320 UTC.

To collect prefixes a few years ago, it required working a lot of stations in many countries. By accumulating the required amount, one could apply for CQ Magazine's WPX Award. With the ruling set by the FCC a few years ago with the new prefix assignments, one could now almost apply for WPX by working stateside stations only.

NCDXF

NCDXF, the Northern California DX Foundation, was started in 1972 by Vincent Chinn, K6KQN for the purpose of assisting radio and scientific events with funds or equipment. The foundation consists of a board of trustees and advisors — responsible persons prominent in the electronics or business world who have an interest in Amateur Radio, especially DX.

Some of the past DXpeditions supported by NCDXF include: KP6KR (1974), KC4NI (1975), HK0AA (1976), KP6BD (1977), YI1BGD (1978) and 1S1DX (1979). Of course, these are only a few of the many the foundation has supported.

Anyone is invited to join the NCDXF. A donation of at least $5 gets you a handsome certificate and a tax receipt. There are no dues or demands, although a yearly donation is encouraged.

Send your donation to the NCDXF in care of **Merle B. Parten, K6DC, 341 Laurel Street, San Carlos, CA 94070.**

Incidentally, notice the shirt Gerhard Jaeger, DF2RG, is wearing in the picture this month. That is the NCDXF logo!

Meet Gerhard Jaeger, DF2RG of Schwandorf, West Germany. Gerhard is 20 years of age and has been into Amateur Radio since he was 15. His main interest is DX (what else??), and is QSL manager for several stations. He is presently working at completing his requirements for *Worldradio's* W-100-N. *(Photo courtesy of DF2RG.)*

The DX EDGE

The DX EDGE, a new invaluable operating aid designed for radio amateurs, should be of particular interest to contesters and DXers. This new item will help you make the best use of your operating time.

By accurately showing sunrise and sunset times for any location in the world, The DX EDGE provides instant visual solutions. Daylight and darkness areas anywhere in the world are clearly presented. Developed by Anthony Japha, N2UN, several years ago, The DX EDGE is now available commercially from Xantek, Inc. This item will aid the amateur in choosing the most productive times and frequencies for working DX. In particular, optimal times for Gray Line and long path openings may be predicted with accuracy. The DX EDGE may also be useful in determining the best times for daylight paths on 10 and 15 meters.

The DX EDGE consists of a carrier and a set of 12 slides, one for each month of the year. The carrier is a plastic unit imprinted with a double map of the world showing the 40 **CQ Magazine** zones (WAZ award) and several country prefixes. The DX EDGE is ready to use without any modification.

Each of the slides shows an area of darkness, a shaded area within a curve, and an unshaded area within the curve to indicate daylight areas. The two areas are separated by a curve called the terminator — or the Gray Line. The slide is slipped into the carrier and is moved back and forth similar to that of a slide rule. By moving the slide toward the left, or westward, you are simulating the rotation of the Earth under the sun. You will see how the day and night positions of the Earth appear at any time of the day during the current month. Use your own standard time (not Daylight) as a reference, and align this time on the slide with the line through your own location.

The slides are of heavy plastic and are

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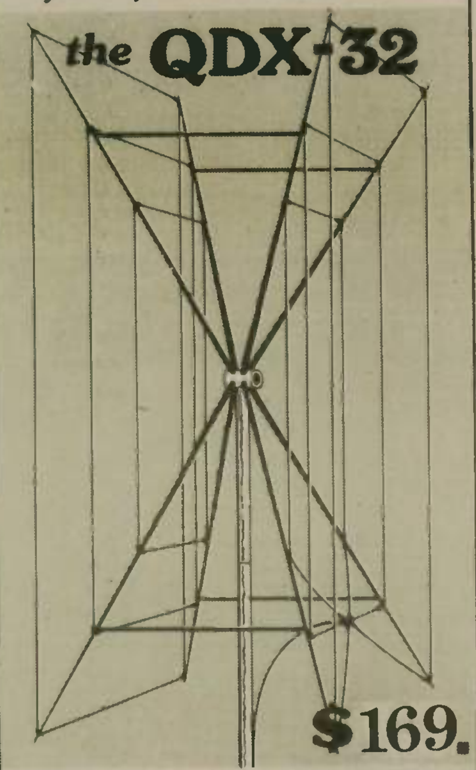

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World Radio History

shipped with protective paper seperators to prevent scratching. No calculations or tables need be used. All that needs to be done is to mark your location on the map and draw a vertical line through this point. This must be done twice as your location is shown twice.

Tony has given some examples of the many problems that can be solved using The DX EDGE. These include:

1. You are a West Coast amateur looking for European DX on 40 and 80 meters. What are the best times to look during February?
2. What time should a Midwestern U.S. amateur look for Central Asia, (UL7), on 10 meters on an October morning?
3. Is there likely to be a long path opening between the Eastern United States and Japan on 80 meters during December?
4. A DXpedition may become active from 5R8 during March. What time should a Gulf Coast amateur look for this station on the low bands?
5. A Kansas contester needs an elusive KX6 multiplier on 10 and 15 meters during the VK/ZL contest in October. When should he spend a few minutes looking?
6. In what direction should a Texas amateur look for some unusual Gray Line DX before school or work on a November morning?

The Gray Line curves on the 12 slides are tracings of the locations on Earth for which the zenith angle of the sun is 90 degrees; i.e., the sun is just at the horizon. The curves are drawn accurately for sunrise and sunset times on the 15th of each month. Interpolation between adjacent months can be made with The DX EDGE by placing slides for both months over the map, with one outside of the carrier. In searching for Gray Line openings, operation should begin slightly before sunrise for paths to the east and extend slightly after sunset for paths to the west

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Station, New York, NY 10

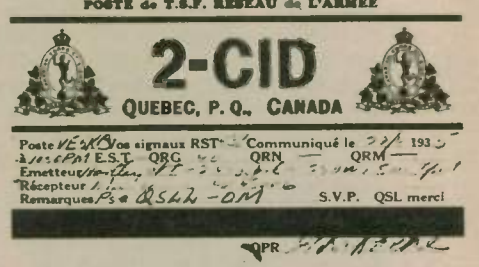
Do you really need The
Perhaps not. But then, you do
clock either, as you can always
station you are working for the tim

Antique QSL Department

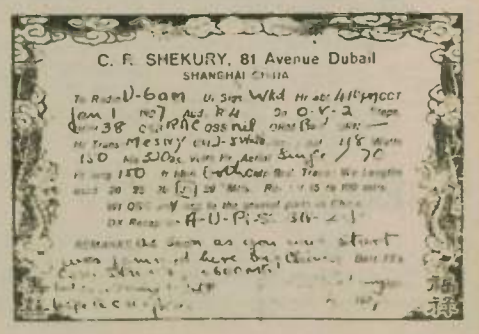
Al Miller, VE7KC contributed a few more old-time QSL cards for us. The VE9AJ call was for a club station in Vancouver. Al writes:

"The reason the card's not filled out is because I was one of the operators. I recieved my operating certificate on 29 July 1933, but couldn't apply for my own call at that time as it was depression days and I just didn't have $2.50 for the license. I was a club member so I operated the club station until the $2.50 came along. The club rig was a TRF receiver and PP 45's THT with an end-fed zepp 132 feet long."

The 2-CID QSL is another card submitted by Al. It was assigned to an amateur in Quebec City. In the early days there were no prefixes, and 2-CID could as well have been for a station in New York City. Date of this contact was 22 April 1935. I'm sure the VE prefix was in use at that time as Al was signing VE5KC out of Vancouver, then in the fifth Canadian call district.



The date of contact for this QSL is 1 January 1927. This card was submitted by Don Wallace, W6AM for a contact he made with CHA-CRS in Shanghai, China. Don was signing U-6AM at the time. In those days, the Radio Commission issued only the 6AM. Don says the ARRL suggested that a 'U' be placed in front to indicate that he was in the USA.



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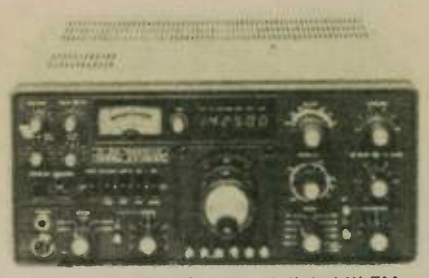

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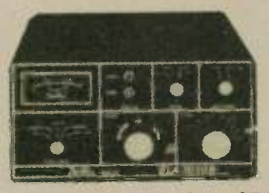

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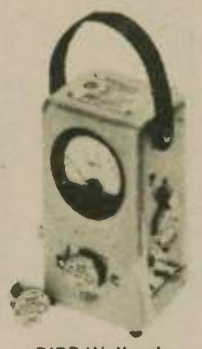

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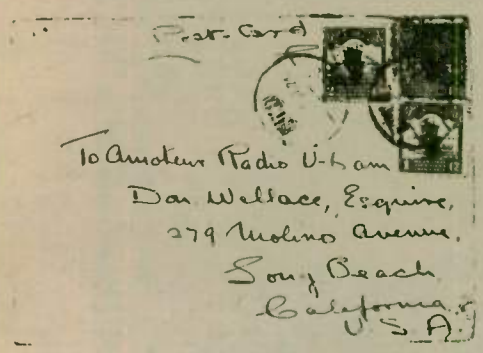
World Radio History

Don found about 20 cards for pre-World War II China contacts and about 17 cards for post-World War II China. China amateurs were more plentiful in those days than were Japanese amateurs, so they paid little attention to China QSOs.

The reverse side of the QSL shows that it cost 6 cents (Chinese currency) to mail the card.



QSL routes

A4XCA	—WA3HUP	OX3KM	—OZ4KM
A7XE	—DF4NW	PJ4CR	—WB2LCH
A9XCE	—AF4K		*(See Note 2)*
A9XCW	—DL2SB	PU8ZBJ	—SM4CJM
A35MB	—DF2RG	S2BTF	—W5RU
A35UW	—ZL2UW	TY9ER	—DL8DC
AH2AI	—WA3HUP	U4DP	—UK4ABZ
C5AAA	—DL1LD	U4SB	—UK4AAB
C5ADU/6W8	—DJ6SI	UX4L	—UA4LM
C5ADZ	—DK9KD	VK5ATB	—WB2LCH
C31PA	—G8DAY		*(See Note 3)*
C31PQ	—F6BSA	VK0LP	—VK2VNG
C31VY	—F6BSA	VO2CW	—VE3ICR
CN8ED	—N9BSD	VP1SGX	—JA1SGX
D4CBC	—KA1CY	VP2KAU	—N6ST
	(See Note 1)	VP2KAV	—N6ST
DA1WA/HB0	—DJ6LC	VP2MDS	—W2IRS
DF1EQ/VP2A	—DF1EQ	VP2MKU	—N6ST
DF7NM/KX6	—DF7NM	VP8AEN	—GM3ITN
DJ1NK/ST3	—DF2RG	VQ9AN	—K4QX
DJ1US/ST3	—DF2RG	VQ9PF	—KA2EER
DJ6SI/6W8	—DK9KD	VU2LQA	—DK6TU
DU1CK	—WA3UBA	W1DV/DU2	—WA2RKX
ED5FPV	—EA5TX	W1JTI/OY	—W1JTI
ED7AGO	—EA7AGO	W5VFO/HC7	—N5BET
EK1P	—UP2BBM	W6YB/ZS6	—KA7IJA
F1SJ/ST2	—F1SJ	W6YB/3D6	—KA7IJA
F0HI/FC	—GU3KFT	WB8CSH/SV9	—K8CW
FG0DDV/FS	—W2QM	XT2AU	—WA1ZEZ
FK8DH	—DJ9ZB	YB2BJM	—I8YCP
FY7YE	—W5JLU	YB3MD	—JH8RTP
HF0POL	—SP5EKZ	YB8AEG	—WA2JOC
HG10IFI	—HA5KDX	YB9ADE	—WA7ILC
HI8CH	—WB2LCH	YL1P	—UP2BBM
HL9DX	—W3HNK	YL0B	—UP2BBM
HS7AMI	—VE3DPB	YS9YS	—WD8RGU
HW6FIT	—F8PD	ZD8RH	—G4DBW
IP5FGM	—I5JHW	ZK1AR	—AA6Z
J5HTL	—SM3CXS	ZK1X1	—VE7JY
J73EB	—KB5PO	ZK1XJ	—3D2ES
J88AH	—WB2AMO	ZK2AV	—DF2RG
J88AK	—W4UG	ZS2MI	—ZS6AJG
JD1AMA	—W7EDA	ZS3TL	—W7PHO
JD1BAE	—JG3KAB	3D2BB	—DF2RG
JW2FL	—LA4YF	4N0JZ	—YU1KO
JY5YK/OD5	—I2YCP	4S7MY	—JA1RCD
JY8YC	—I8YCP	4S7QD	—JE1QDQ
JY8ZX	—I8YCP	4S7US	—DF2RG
JY9RV	—GW3RVG	4X4II	—DL3BE
K0PCG/KV4	—W0ANZ	5B4JE	—DF4FX
M11PA	—F6CXJ	5W1BM	—DF2RG
N2DH/SV9	—N2DH	5Z4C1	—PA0TQL
N5SB/KH6	—DF2RG	5Z4UQ	—W3HNK
N7KA/VP2A	—N6NK	5Z4YG	—DJ5IL
OH1LW/OH0	—OH1LW	5Z4ZA	—DJ6JX
OH1MA/OH0	—OH1MA	6O1TI	—I0SSW
OH3JR/OJ0	—OH3JR	6W8JO	—W2TK
OH3VV/CT3	—OH3VV	8J3ITU	—JH3DPB
8J5SUN	—JA1RL	9G1PA	—PA0TQL
8P6OR	—K5MHZ	9G1RD	—WD8PCH
8Q7NN	—JH4RUG	9L1NP	—9G1DY
	(See Note 4)	9V1UY	—W5AB
A7XD	—Mike, P.O. Box 4747, Doha, Qatar		
AH6CH/KH3	—P.O. Box 4, APO San Francisco, CA 96305		
CN29FIC	—P.O. Box 299, Rabat, Morocco		
FW8SC	—P.O. Box 15, Lano, Wallis Island		
HS4ANK	—Joel Dunlap, P.O. Box 38, Khonkaen, Thailand		
TA1MO	—P.O. Box 7, Osmanbev, Istanbul, Turkey *(See Note 5)*		
VS5DG	—Derek, P.O. Box 63, Kuala Belait, Brunei		
ZD9CH	—P.J. Retief (ZS6UD), 13 Knoppiesdoorn Ave., Thabazimbi 0380, Republic of South Africa		
ZK2EGD	—Brian, P.O. Box 37, Alofi, Niue		
ZL3PAC	—D. Jenner, Waitangi, Chatham Island, New Zealand		
5H3AA	—Pat, P.O. Box 83, Bago Moyo, Tanzania		
6T1YP	—P.O. Box 80, El Morada, Omdurman, Sudan		
7P8AC	—K.A.J. Younger, Private Mail Bag A-4, Maseru, Lesotho		

Notes:

1. KA1CY handles cards for operator Dave only.
2. WB2LCH handles only contacts made since 01 August 1980.
3. This route is for North America only and after 24 March 1981.
4. If your CB has no address for JH4RUG, try: Naka, 966 Yakage-cho, Oda-gun, Okayama 714-12, Japan.
5. As in all TA cards, leave off all reference to Amateur Radio on the envelope.

Contributors to this month's column include WB2LCH, N2UN, K3ZJ, W4FRU, W6AM, W6GO, DF2RG, P29JM, VE7KC, International DX Foundation, Northern California DX Foundation, Lynx DX Group, *DXers Newsletter, The Long Island DX Bulletin, DX News-Sheet* and *The DX Bulletin.* Hope you all are having a nice summer, at least those of you who live on top of the world. Very 73 es GL DX de John, N6JM. □

Keymen's Club of Japan (KCJ) CW contest

Object: To work as many amateur stations in as many Japanese prefectures as possible using Japanese CW bands.

Eligibility: Single operator amateur stations worldwide.

Period: Starts 1200 UTC Saturday; ends 1200 UTC Sunday (15-16 August 1981).

Categories: Single operator, CW only on a) All bands and b) Single band.

Contest exchange:
JAs — RST plus Prefecture Code.
Others — RST plus Continent Code.

Invalid contact:
a) Contact with a multi-operator station.
b) Crossmode or not CW.
c) Crossband, via repeater or satellite.
d) Out of Japanese CW bands (by JAs only).

Scoring:
a) **Points:** One point for the complete contact with a station in Japan on each band.
b) **Multipliers:** JAs — 47 Japanese prefectures and six continents on each band. Others — 47 Japanese prefectures on each band.
c) **Final Score:** Multiply points by sum of multipliers.

Logs: Log should indicate time in UTC, call sign and exchange. Multipliers should be clearly marked in the log only the first time it is worked on each band. Use a separate sheet for each band. The entrant's call sign should be indicated in every sheet of the log. Each entry must be accompanied by a summary sheet.

Awards: Certificates will be awarded to a) The top through the third scorer in each entry category; and b) Top scorers in each continent and Japanese prefecture who are ranked in the higher half of all the entrants in each category. All scores will be published. It is available with 1 IRC (surface mail) or 7 IRCs (air mail) enclosed with the log.

Disqualifications: An entry with more than 2 percent duplicate and/or invalid contacts left on the log will be disqualified. Violation of Amateur Radio regulations and/or the rules of the contest will cause disqualification. Decisions of The KCJ Contest Committee are official and final.

Deadline: All entries must be postmarked no later than the third Sunday in September (20 September 1981), and mailed to: **Kikuo Takamitsu, JA9FT; 4-16-22 Izuminomachi, Kanazawa; Ishikawa 921 JAPAN.**

Sponsor: Keymen's Club of Japan, since 1976. President is Yasuo Taneda, JA1DD; Contest commissioner: JA9FT.

REFERENCE

Japanese CW bands

1.907.5	-	1.912.5 kHz	28.000	-	28.200 MHz
3.500	-	3.525 kHz	50.010	-	50.100 MHz
7.000	-	7.030 kHz	144.000	-	144.100 MHz
14.000	-	14.100 kHz	430.000	-	430.100 MHz
21.000	-	21.150 kHz	1.296.100	-	1.296.500 MHz

Japanese prefecture codes

AC Aichi	HS Hiroshima	MZ Miyazaki
AM Aomori	IB Ibaraki	NG Niigata
AT Akita	IK Ishikawa	NN Nagano
CB Chiba	IT Iwate	NR Nara
EH Ehime	KA Kagawa	NS Nagasaki
FK Fukui	KG Kagoshima	ON Okinawa
FO Fukuoka	KM Kumamoto	OS Osaka
FS Fukushima	KN Kanagawa	OT Oita
GF Gifu	KO Kochi	OY Okayama
GM Gunma	KT Kyoto	SA Saga
HG Hyogo	ME Mie	SG Shiga
HK Hokkaido	MG Miyagi	SN Shimane
SO Shizuoka	TO Tokushima	YG Yamaguchi
ST Saitama	TT Tottori	YM Yamagata
TG Tochigi	TY Toyama	YN Yamanashi
TK Tokyo	WK Wakayama	

Japanese multi-operator stations can be identified by their call signs: Prefix 8J1 through 8J0 and 7J1; suffix RL; suffix of three letters originated by Y or Z. □

Appeal from the Sudan (ST0)

Martti Laine, OH2BH; Ville Hiilesmaa, OH2MM; and Miika Heikinheimo, OH2BAD

(The QSL card from Martti and Ville's DXpedition to the Southern Sudan as ST2FF/ST0 carried a photo of the fly-covered corpse of a starved East African child. Here are pertinent parts of the card's written message.)

"Juba is the center of the autonomous region of the Sudan. The area close to the equator is different from the rest of the country — not only in terms of a more favorable climate and tropical nature, but also in regard to its people with a different color, race, religion and language.

"Ours was the first flight made in three months across the 400-mile desert along the Nile River. We stayed four days in the area previously isolated due to cholera. People mostly plagued by chronic malaria were extremely friendly to foreigners assisting them in health care, education and other programs.

"9,000 QSOs were made from the Juba Hotel where Nile fish was served for breakfast, lunch and dinner due to the food shortage. The equipment functioned flawlessly on a shaky 160 VAC . . .

"There are hundreds of people in Eastern Africa starving every day. The refugee camps in Somali and Sudan have nearly 2 million people. Drought is destroying a whole generation. We cannot give them rain. Food we can. A fund is established by the Red Cross for this area. Please contact OH2BAD for details."

—Totem Tabloid, Seattle, WA □

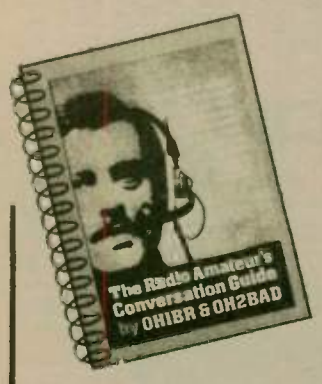
DXers, take note

Jack Bock, K7ZR

DXers have an obligation under paragraph (e) of FCC Rule Subpart A, 97.1 to "Continuation and extensions of the amateur's unique ability to enhance international goodwill." How much do today's pulverizing pile-ups and "5-9 PSE QSL" contacts contribute to THAT? The problem is not lack of communication channels but a dis-inclination to run any meaningful information through the ones we already have. We settle for a stylized, banal exchange with forced cordiality designed to wheedle a QSL card.

—Totem Tabloid, Seattle, WA □

A great gift for your overseas amateur friend is a *Worldradio* subscription.



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World Radio History

Dyna-"mite."

Miniaturized, 5 memories, memory/band scan

TR-7730

The TR-7730 is an incredibly compact, reasonably priced, 25-watt, 2-meter FM mobile transceiver with five memories, memory scan, automatic band scan, UP/DOWN manual scan from the microphone, and other convenient operating features.

TR-7730 FEATURES:

- **Smallest ever Kenwood mobile**
  Measures only 5-3/4 inches wide, 2 inches high, and 7-3/4 inches deep, and weighs only 3.3 pounds. Mounts even in the smallest subcompact car, and is an ideal combination with the equally compact TR-8400 synthesized 70-cm FM mobile transceiver.
- **25 watts RF output power**
  Even though the TR-7730 is so compact, it still produces 25 watts output for reliable mobile communications. HI/LOW power switch selects 25-W or 5-W output.
- **Five memories**
  May be operated in simplex mode or repeater mode with the transmit frequency offset ±600 kHz. The fifth memory stores both receive and transmit frequency independently, to allow operation on repeaters with nonstandard splits. Memory backup terminal on rear panel.
- **Memory scan**
  Automatically locks on busy memory channel and resumes when signal disappears or when SCAN switch is pushed. Scan HOLD or microphone PTT switch cancels scan.
- **Extended frequency coverage**
  Covers 143.900-148.995 MHz in switchable 5-kHz or 10-kHz steps, allowing simplex and repeater operation on some MARS and CAP frequencies.
- **Automatic band scan**
  Scans entire band in 5-kHz or 10-kHz steps and locks on busy channel. Scan resumes when signal disappears or when SCAN switch is pushed. Scan HOLD or microphone PTT switch cancels scan.
- **UP/DOWN manual scan**
  With UP/DOWN microphone provided, manually scans entire band in 5-kHz or 10-kHz steps.
- **Offset switch**
  Allows VFO and four of five memory frequencies to be offset ±600 kHz for repeater access (or to be operated simplex) during transmit mode.
- **Four-digit LED frequency display**
  Indicates receive and transmit frequency during simplex or repeater-offset operation.
- **S/RF bar meter and LED indicators**
  Bar meter of multicolor LEDs shows relative receive and transmit signal levels. Other LEDs indicate BUSY, ON AIR, and REPEATER offset.
- **Tone switch**
  Activates internal subaudible tone encoder (not Kenwood-supplied).

Optional accessories:

- **MC-46** 16-button autopatch (DTMF) UP/DOWN microphone
- **SP-40** compact mobile speaker
- **KPS-7** fixed-station power supply

More information on the TR-7730 and TR-8400 is available from all authorized dealers of Trio-Kenwood Communications, Inc., 1111 West Walnut Street, Compton, California 90220.

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  For ±5 MHz transmit offset on both VFOs and four of five memories, as well as simplex operation. Fifth memory allows any other offset by memorizing receive and transmit frequencies independently.
- **HI/LOW RF output power switch**
  Selects 10 watts or 1 watt output.
- **DTMF autopatch terminal**
  On rear panel, for connecting DTMF (dual-tone multifrequency) touch pad (for accessing autopatches) or other tone-signaling device.
- **Virtually same size as TR-7730**
  Perfect companion for TR-7730 in a compact mobile arrangement.
- **Other features similar to TR-7730**
  Five memories, memory scan, automatic band scan (in 25-kHz steps), UP/DOWN manual scan, four-digit LED receive frequency display (also shows transmit frequency in memory 5), S/RF bar meter and LED indicators, tone switch, DTMF autopatch terminal, and same optional accessories.

Specifications and prices are subject to change without notice or obligation.

World Radio History

"Cents-ational."

IF shift, digital display, narrow-wide filter switch

TS-530S

The TS-530S SSB/CW transceiver is designed with Kenwood's latest, most advanced circuit technology, providing wide dynamic range, high sensitivity, very sharp selectivity with selectable filters and IF shift, built-in digital display, speech processor, and other features for optimum, yet economical, operation on 160 through 10 meters.

TS-530S FEATURES:

- **160-10 meter coverage, including three new bands**
  Transmits and receives (LSB, USB, and CW) on all Amateur frequencies between 1.8 and 29.7 MHz, including the new 10, 18, and 24 MHz bands. Receives WWV on 10 MHz.
- **Built-in digital display**
  Large, six-digit, fluorescent-tube display shows actual receive and transmit frequencies on all modes. Backed up by analog subdial.
- **IF shift**
  Moves IF passband around received signal and away from interfering signals and sideband splatter.
- **Narrow/wide filter combinations**
  Any one or two of three optional filters . . . YK-88SN (1.8 kHz) SSB, YK-88C (500 Hz) CW, YK-88CN (270 Hz) CW . . . may be installed for selecting (with "N-W" switch) wide and narrow bandwidths on CW and/or SSB.
- **Wide receiver dynamic range**
  Greater immunity to strong-signal overload, with MOSFET RF amplifier operating at low level for improved IMD characteristics, junction FETs in balanced mixer with low noise figure, and dual resonator for each band.
- **Built-in speech processor**
  Combines an audio compression amplifier with change of ALC time constant for extra audio punch and increased average SSB output power, with suppressed sideband splatter.
- **Two 6146B's in final**
  Runs 220 W PEP/180 W DC input on all bands.
- **Advanced single-conversion PLL system**
  Improved overall stability and improved transmit and receive spurious characteristics.
- **Adjustable noise-blanker level**
  Pulse-type (such as ignition) noise is eliminated by built-in noise blanker, with front-panel threshold level control.
- **RF attenuator**
  The 20-dB RF attenuator may be switched in for rejecting IMD from extremely strong signals.
- **Optional VFOs for flexibility**
  VFO-240 allows split-frequency operation and other applications. VFO-230 digital VFO operates in 20-Hz steps and includes five memories and a digital display.
- **RIT/XIT**
  Front-panel RIT (receiver incremental tuning) shifts only the receiver frequency, for tuning in stations slightly off frequency. XIT (transmitter incremental tuning) shifts only the transmitter frequency, for calling a DX station listening off frequency.

More information on the TS-530S is available from all authorized dealers of Trio-Kenwood Communications, Inc., 1111 West Walnut Street, Compton, California 90220.

Matching accessories for fixed-station operation:

- SP-230 external speaker with selectable audio filters
- VFO-240 remote VFO
- AT-230 antenna tuner/SWR and power meter
- MC-50 desk microphone

Other accessories not shown:

- VFO-230 remote digital VFO with 20-Hz steps, five memories, digital display
- TL-922A linear amplifier
- SM-220 Station Monitor
- KB-1 deluxe VFO knob
- PC-1 phone patch
- HS-5 and HS-4 headphones
- HC-10 digital world clock
- YK-88C (500 Hz) and YK-88CN (270 Hz) CW filters and YK-88SN (1.8 kHz) SSB narrow filter
- MC-30S and MC-35S noise-canceling hand microphones

KENWOOD
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World Radio History

WITH THE HANDI-HAMS

Bruce L. Humphrys, KØHR

TIME

"Time for a change." "Gimme a sec." "Time after time." "I'll do it when I have time." "Have a good time." "Seven times seven is . . ."

Nobody can doubt that *time* plays a really big part of everyone's life — this is especially true for the handicapped amateur. Usually, a handicapped radio amateur has a lot of time to spend operating. This is why so many HANDI-HAM System members are such good traffic-handlers — they have a lot of time to practice! And yet, so many of us don't really know what time is all about — how it's figured, how it's used, etc. Especially in communications, time — or rather, a good knowledge of time — is absolutely essential.

For example: Everyone says you should keep your log in GMT (or, more properly, UTC). How come? To make things easier for the other guy when you QSL and give a time . . . and so on. Well, sure, that's one reason; but there are some others, as well. But first, let's look at time.

Before going any further, we have to establish some definitions and explain some concepts. The first one we have to explore is *arc*. If you take two straight lines, you will have constructed an *angle*. The "sharp" end — where the two lines come together, let's call a *focus* (technically speaking, it's not a focus yet — but it will be!). Now, there is some distance between the two outer ends of the two lines, isn't there? If we were able (and of course, we are) to keep one of the lines stationary and swing the other line out further from the first — keeping the two lines joined at the focus — then the end of that second line (the one that's moving) would describe a portion of a *circle* as it swings away from the first, stationary line. That part of a circle is called an arc.

It's handy to be able to describe the actual distance between the outer ends of the two lines — along the arc. I suppose we could do this in inches, but it's handier to describe the distance in *degrees of arc*. That's because: if both lines ("sides") of an angle are the same length, the arc between the outer ends of the lines will contain the same number of degrees as the angle. That is — an angle of 90 degrees creates an arc of 90 degrees.

Degrees are split into units called minutes and seconds (ya kinda get the idea that "time" is gonna slip in here??) But let's go back to our original angle for a second (there we go again!)

If we had swung that moveable line all the way around until it exactly coincided with the stationary line, we would have constructed a circle, right? Let's go ahead and do it — let's make a circle with those two lines, remembering our point where the two lines originally joined (we called it the focus). Now, fellas and gals, we do, indeed have a point — smack dab in the center of the circle just constructed — and it's called the focus. If a fly landed somewhere on your circle, it would be a certain distance away from the focus, wouldn't it? In fact, no matter WHERE he landed on your circle, he would always be the *same distance* from the focus.

Next concept: *Great Circle*. No, wise guy, that's not just a bigger circle! When we constructed our circle, we did it on a piece of paper, right? We just took a clean piece of paper, drew some lines on it, rotated one line about the focus, and voila! A circle. Okay — the paper on which we drew this circle can be described as a *plane*. A plane is a flat thing with a whole bunch of things on it, and there are no things above or below it. (How's *that* for a good, scientific explanation?) The circle we constructed on that plane could — no, *would* be — a Great Circle of a *sphere* constructed by rotating that circle about an imaginary straight line drawn through its focus, and long enough to exit the circle at both ends. The exit points would describe the *poles* of the sphere.

You might say that a Great Circle is an arc described on a sphere by a line drawn between the two poles.

On the Earth, as with any other sphere, there are an infinite number of Great Circles. The ones which concern us most, however, are the ones which are constructed through the North Geographic and the South Geographic poles. These little babies are called *meridians*. (The name comes from some ancient sea-going tradesmen who peddled a certain kind of spaghetti which, no matter how long you cooked it, never softened up and just stayed straight.) There is a meridian every 15 degrees of arc, starting with a Great Circle which passes through Greenwich, England. This puppy is called the

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World Radio History

Prime Meridian (here, again, some ancient mariners decided to sell some prime beef in addition to the spaghetti . . .) All directions, East and West, are reckoned from this meridian — in degrees of arc.

The meridian defines those points on the Earth where the sun is *directly* overhead (precisely midway from horizon to horizon) at exactly *noon.* (Meridian means "midday" from the Latin; you didn't really buy that business about spaghetti, did you??) Here's where time comes in. Ooops — gotta go back to one thing, first.

The Ancient Babylonians came up with the idea to "slice" the Earth up into units which would help them find out where they were. They divided the Earth into 360 degrees (smart — a circle has 360 degrees). Then they noticed that the sun and moon did things in the sky at regular intervals. They called these periods months (month — as in *Moon*). Further, they sliced up the months into more easily handled units called days, and the days further into hours, and so on.

Each of these Babylonian hours would correspond nicely with a certain angular distance (arc) on the Earth. And since there were 24 such hours in a single day, the Babylonians carved up the globe into 24 equal parts of 15 degrees each (try it, 360 divided by 24 is 15). Each 15 degrees of *longitude* (which is what angular distance east or west of the Prime Meridian is called — the parallels of the equator are called *latitudes)* corresponds to one hour of the sun's transit upon the face of the Earth, with the meridian placed upon the sphere at the place where the sun is directly overhead at noon. Or, to be more precise, noon is defined as that time when the sun exactly transits the zenith at a particular meridian!

(please turn to page 45)

Vern Hansen,
WB6UWQ/AAA9W

The following article, entitled "MARS in Conjunction With the Sun (or) Solar Power for Communications Equipment," appeared originally in the Chief, U.S. Army MARS Bulletin, February 1981 edition. The article was prepared by Army MARS member H. Scott McCann, AAR3FK/W3MEO of Annapolis, Maryland.

A long-time interest in solar power — one like many others put on the back burner for various reasons, more notably high cost — finally came to fruition for Army MARS member H. Scott McCann. AAR3FK, Annapolis, Maryland. Solar cells are now beginning to become available to the experimenter at a price that allows a reasonable project to be assembled. This was the catalyst which moved the interest to the front burner.

Up to the time Scott went "solar," the source of power for his Atlas 210 SSB transceiver (100 watts out), Ten-Tec Argonaut SSB transceiver (3 watts out), and Drake ML-2 VHF transceiver (10 watts out) was a Sears Marine type storage battery. The battery required a normal charging about once a month.

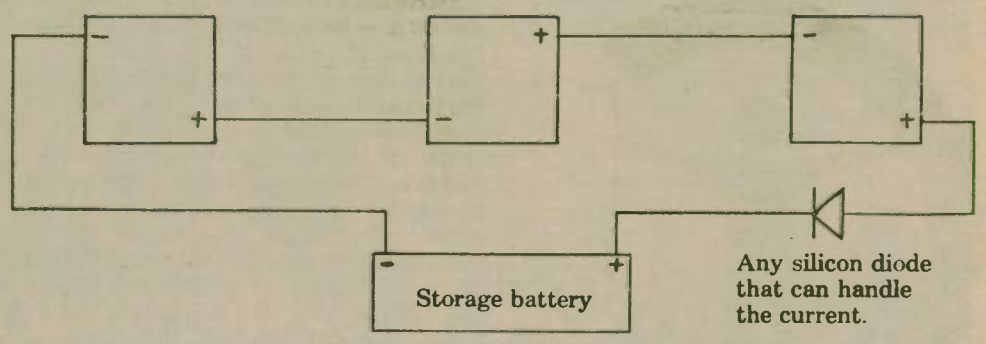

Figure 1

As Maryland averages about four hours of sunshine daily over the year and the solar battery puts out about 5 watts in maximum sunlight, Scott applied the following mathematical formula:
4 hours sun daily × 5 watts × 7 days = 140 watts per week.[1]

As the average MARS operator may put in five hours of participation a week, most of which will be receiving, MARS lends itself to solar power. A typical power budget for AAR3FK might look like this:
5 hours participation × 300mA (receive current of Atlas) × 12 volts = 18 watt hours receiving per week.

30 minutes (estimated transmitted time) × 100 watts (average SSB input power) = 50 watt hours transmitting per week.

This gives a positive power balance and leaves some for cloudy weather and hamming. If operating with the Argonaut, or similar low power equipment, this balance will be extended considerably. If a lot of NCS or RATT work is desired, a larger solar system or help from a battery charger may be required.

Scott's solar battery consists of three NASA surplus arrays, each about 3 × 8 inches, bonded to a light aluminum backing panel and rated by NASA at 4.9 volts at 360mA each. Purchase price from Surplus Electronics in College Park, Maryland was $75 for all three.

The arrays are connected in series with a silicon diode rectifier which is necessary to keep the battery from discharging back through the solar cells during the night. The solar array is mounted in a wooden tray made from plywood with an edge of 1 × 2 inches and a mounting bracket on the back. A piece of ordinary window glass glued with silicone sealant covered the cells. In areas with indigenous small children and flying rocks, it is suggested Lexan be used instead of glass. A pair of 3/16 holes at bottom provided entrance for the electric leads and allowed an outlet for condensation water. The box was mounted at a 45 degree angle on the TV mast.

Since January, Scott has been operating with solar power and averaging 20 hours a month MARS participation. Other activities include local VHF chatter, WPC contest, and worked 10 new countries for his QRPDXCC using the Argonaut, losing power only once at the end of a net.

Scott notes there is no question solar electricity is still expensive on a per watt basis; but if you compare the cost of one transceiver power supply to solar cells and storage battery, realizing they handle three transceivers at his station, solar power begins to look better. Added benefits are an excellent emergency power system, a nice warm charged battery for cold morning car starts, and it's fun.

[1]*Ham Radio Horizons, April 1978*

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AMSAT OSCAR K6PGX

Dr. Norman L. Chalfin

During the Saturn Flyby which Voyager II will be making in August, the Planetary Society will be having a PLANET FEST '81. The Planetary Society was founded by Dr. Carl Sagan of Cornell University, Dr. Bruce Murray and Louis Friedman of JPL to further the activity of Space Exploration.

As many of you are probably aware, when the current Saturn Flyby is accomplished, it will be the last space spectacular until 1986 when the Voyager II spacecraft will encounter Uranus.

Since the early '60s, there has not been a year in which some space event has not occurred. The crowd which stood in the rotunda of Grand Central Station in New York City and other public places to watch large screen TV of the landing of United States astronauts on the surface of the moon, and the millions who watched all through the night at their television screens indicate the intense public interest in space exploration. The popularity of Dr. Sagan's "COSMOS" presentations on Public Television, and the recent programs during the Voyager Jupiter and Saturn encounters indicate that, contrary to the present administration's view of the matter, there is current public interest in and public support for a program of space exploration.

The Planetary Society now has nearly 50,000 members. There are a number of other people's groups throughout the land which are promoting space activity, and among them are many who are putting up personal funds to support space activity. One of these is, of course, AMSAT. Another is the ARRL. In the case of AMSAT and ARRL, the launches of amateur communications satellites were supported principally by the members of these organizations. The Phase III spacecraft activity, the ill-fated Phase IIIA and the currently-in-construction Phase IIIB and C have been accomplished by individuals at their own expense and with the help of many individual and corporate donors. If launched successfully in the next year on ESA facilities, there will be no cost whatsoever to U.S. taxpayers, since no U.S. funding is involved. Other governments are supporting the developments by *their* amateurs which will be incorporated in Phase III spacecraft. To our shame our government seems to be withdrawing from the support of space programs generally — the only activity which enhances our prestige around the world, is a peaceful activity, and the funding of which provides jobs and advances the economy of our country.

Carl Sagan reported that he was told by a congressman that the congressman received supporting letters for space projects mostly from "young people too young to vote." This was his excuse for not supporting the funding of space projects. How sad that this doesn't make Congress realize where our future lies . . . in our young people. What these young people are interested in should be supported.

The PLANET FEST is a celebration of a milestone in space exploration, youth achievement and science. At the PLANET FEST '81, there will be a display of the amateur space activity including models of the amateur spacecraft and literature about how this activity can be used in school science programs, particularly with the UOSAT to be launched soon.

The PLANET FEST will take place 23-25 August at the Pasadena Center in Pasadena. For full information, write to: Planetary Society, 110 South Euclid, Pasadena, CA 91103, or call (213) 793-5100 for other information or applications for membership in the Planetary Society. As a member you will receive the beautifully written and illustrated "Planetary Report" every two months.

The European Space Agency Ariane LO3 was successfully launched on 19 June at 1202 UTC, carrying an Indian communication satellite named Apple and a European Space Agency weather satellite — Meteosat II — into orbit. The success of this LO3 launch indicates a very good chance of a Phase IIIB launch in 1982. Current conjecture is that the AMSAT spacecraft will be aboard LO7.

In the next issue, we hope to have a full story on UOSAT and its capabilities. The particular interest of the educational community in this satellite lies in its array of beacons in most of the ham bands that will provide propagation studies and tests of a wide range of frequencies for future satellite transponders. The Earth-pointing Slow Scan camera and synthesized voice telemetry reporters are being anticipated with great expectations.

In the 1980 Annual Report of the ARRL it was reported that new projects for teachers using amateur spacecraft signals are under way all over the world. For example, a government-funded OSCAR antenna construction seminar was conducted in Melbourne, Australia by Richard Robbins, W8VNE/VK3ARR.

Four organizations — California Microwave, Microwave Associates, Scientific Atlanta, and the Northern California DX Foundation — contributed to the development funds totaling $4,300 toward an OSCAR 8 command station for W1AW, the ARRL station. Six manufacturers: ICM America, Inline Instruments, KLM Electronics, Inc., TET USA, and Times Wire and Cable donated the equipment. Although set up as an OSCAR command station, it will be in position to provide bulletins for the Phase III spacecraft when launched.

The SYNCART Digital Design Group, which is based in Southern California, has been designated the AMSAT Digital Support Group. They will be providing help to AMSAT in a variety of projects. Support is also being provided by this group in the UOSAT launch preparation. They will assist in getting the spacecraft up to the NASA Lab at Vandenberg for integration near the end of August. The present official UOSAT launch date and time will be 0300 local time, 15 September 1981.

The SYNCART project has been committed $15,000 in funds by AMSAT through 1981. SYNCART launch may occur in 1983 or 1984 with the vehicle not yet assigned. The prototype Digital unit for SYNCART has been completed and is operational. The RF section being developed in the San Francisco Bay area is nearing completion with operating units to be available for field testing around 1 October.

We hope to add information from the Canadian operation relating to the SYNCART IF system in the next column.

If you have not yet asked for your free copy of AMSAT Satellite Report, do so. Send an SASE (#10 size) to Verne Riportella, WA2LQQ, P.O. Box 177, Warwick, NY 10990. It appears on alternate Mondays. □

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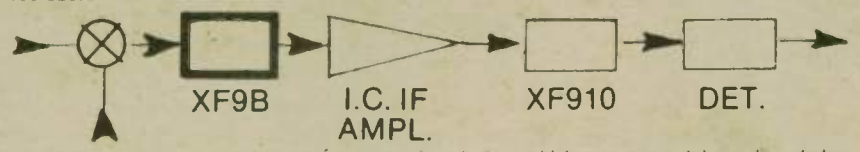
The XF-9B crystal filter is the heart of good, modern receiver (and transceiver) designs. It is used between the mixer stage and the IC IF amplifier stage to suppress adjacent channel interference by over 100 dBs.



The XF-9B can also be used to upgrade older receiver designs which use vacuum tube or discrete transistor IF amplifier stages. **PRICE $68.60** plus shipping

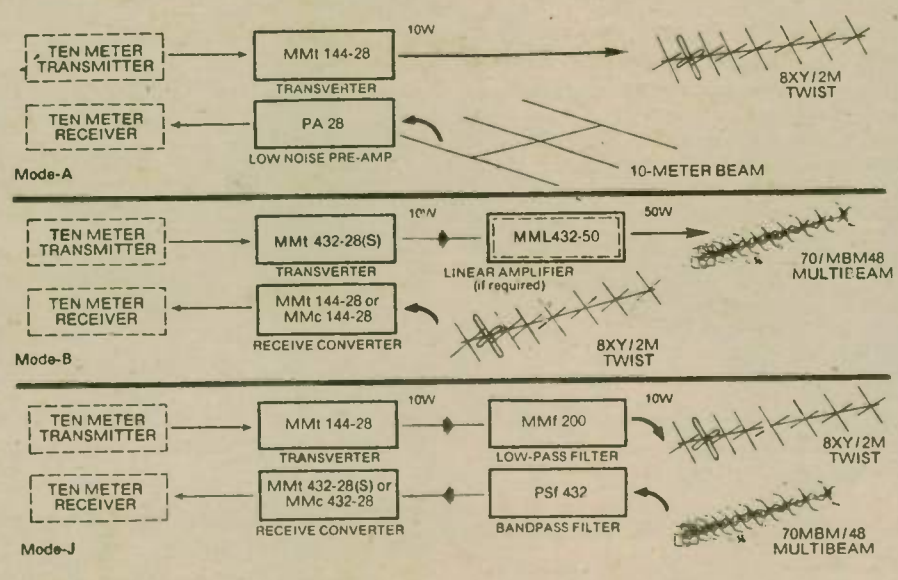
Specification XF-9B			
Centre Frequency	9.0 MHz	Shape Factor 6:60dB	1.8
Bandwidth	2.4 KHz	6:80dB	2.2
Passband Ripple	◄2.0 dB	Ultimate Attenuation	100 dB
Insertion Loss	◄3.5 dB	Terminations	500 ohms
			30 pF

Export Inquiries Invited

TRANSVERTERS FOR ATV OSCARs 7, 8 and Phase III

Transverters by Microwave Modules and other manufacturers can convert your existing low band rig to operate on the VHF and UHF bands. Models also available for 2M to 70cm and for ATV operators from Ch2/Ch3 to 70cm. Each transverter contains both a Tx up-converter and a Rx down-converter. Write for details of the largest selection available. Prices start at $199.95 plus $3.50 shipping.

Attention: owners of the original MMt432-28 transverters — update your transverter to operate OSCAR-8 and Phase III by adding the 434 to 436 MHz range. Mod kit including full instructions $26.50 plus $1.50 shipping.



Send 30¢ (2 stamps) for full line catalogue of KVG crystal products, J-Beam antennas, plus detailed specs and application notes on all your VHF & UHF equipment requirements.

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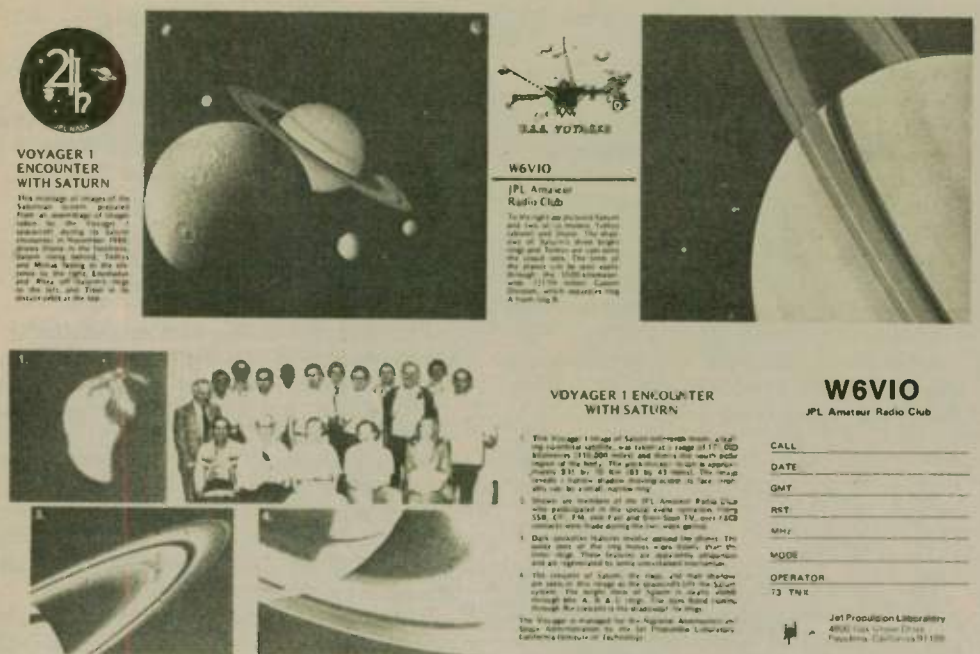
World Radio History



If you had made a contact with W6VIO during the November 1980 Voyager I Saturn Flyby Commemorative operation, this is the QSL card you would have received. A similarly beautiful QSL card in full color with photos of Voyager II's images of Saturn will be available to those who have made contact with JPL Amateur Radio Club's Station W6VIO during the 15-30 August 1981 Voyager II Commemorative Activity. Send your QSL and a self-addressed stamped #10 envelope identifying the date, time (UTC) and band of operation when you made the contact to: George A. Morris Jr., W6ABW, JPL Amateur Radio Club, MS 238-420, 4800 Oak Grove Drive, Pasadena, CA 91109.

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

AMSAT

Radio Amateur Satellite Corp.

P.O. Box 27, Washington, DC 20044

Telephone: 301-589-6062

Dear Fellow Radio Amateur:

Do you know that the AMSAT Phase III Program is designed to bring you a new world wide DX/local Amateur band via communications satellite? This new band will be scarcely affected by the ionosphere, so that unlike the current hf bands or the three new bands we gained at WARC-79, propagation via this band will be 100 percent predictable. For the first time, the technology used to provide the reliability, predictability and ease of use of a two-meter repeater will be applied to provide world wide coverage. The AMSAT Phase IIIB satellite will be capable of providing repeater quality contacts to all stations within its range, be they local to you or DX up to half way around the world. There will be no skip zones in this new satellite communications band: for example, stations in New York, New Jersey, London, Paris, Tel Aviv, Moscow and Tokyo will be able to hold a round table QSO. The potential for nets, Jamboree-on-the-air, RTTY, computer, emergency, and public service communications is tremendous

You owe it to yourself to be informed about this new band. The new band almost happened last May, but the launch vehicle malfunctioned and the Phase IIIA satellite did not achieve orbit. Our replacement Phase IIIB satellite is a million dollar undertaking. We are going full steam ahead secure in the knowledge that we can do our part to make the new band happen following the successful launch of Phase IIIB. Why don't you join the AMSAT Team and receive regular news as to the status of the Phase IIIB Program.

73,
The AMSAT Team

P.S. We still have two working communications satellites in orbit, AMSAT-OSCAR's 7 and 8, and are building a satellite for Science, UoSAT, due for launch in the Fall of 1981. It will contain scientific experiments as well as a slow-scan television (SSTV) camera. This satellite will be ideal for use in classrooms all over the world for live demonstrations of various aspects of space research.

Yes, I want to be a member of the AMSAT Team and receive ORBIT Magazine. Enclosed are my dues of $16 ($20 overseas) for 1981 ($200 for Life Membership).

☐New Member ☐Renewal ☐Life Member ☐Donation (tax deductible)

Name _____ Call _____

Address _____

City _____ State _____ Zip _____

Columbia commemorative

The Marshall Space Flight Center (MSFC) in Huntsville, Alabama held a worldwide Amateur Radio commemorative, starting at *Columbia* lift-off, 1200Z, 12 April 1981, and ending 1820Z, 14 April 1981. Thirteen operators manned four operator positions in the Marshall Amateur Radio Club (MARC) station, WA4NZD on 2, 10, 15, 20, 40, 75 and 80 meters. A total of 2,141 two-way contacts were made with radio operators in all 50 states and 30 foreign countries.

The QSL certificate, being sent by QSL request, is shown. A special certificate was presented to *Columbia* Commander John Young and Pilot Robert Crippen by Ed Stluka, W4QAU at the MSFC picnic held on 7 May 1981. This presentation, shown in the attached NASA photo, extended congratulations to the astronauts on behalf of the Amateur Radio community, who enthusiastically participated in this historic event. □

STS-1 prime crew members. John Young (left) and Robert Crippen (right) receive certificates from Ed Stluka, W4QAU at the 7 May Marshall Space Flight Center picnic. (*NASA photo. Photographer Dennis Keim)*

Ford Museum special event

America's newest presidential museum, the Gerald R. Ford Museum, will be dedicated this September in Grand Rapids, Michigan during a week-long celebration that will also call attention to the multi-million dollar revitalization of the city's downtown area.

To commemorate the event, the Woodland Amateur Radio Club is planning to establish a radio station at one of the main locations of the celebration operating under the call sign of W8FM. Amateur operators who contact W8FM during the celebration will receive certificates with the official Ford Museum Dedication Seal and Gerald R. Ford's signature.

The Woodland Amateur Radio Club members plan to operate the station on 17 and 18 September from 1600 to 0000 UTC. On 19 September the station will operate from 1300 to 0100 UTC. Plans call for operation on frequencies on or near 28.650, 21.410 and 14.310 MHz.

To receive one of these unique certificates send a QSL card to W8FM, P.O. Box 6102, Station C, Grand Rapids, MI 49506. Do not send IRCs or self-addressed envelopes. The certificates will be forwarded to each confirmed contact through the cooperation of civic groups in recognition of the amateur operators' efforts to acquaint the world with Grand Rapids' newest civic attraction. □

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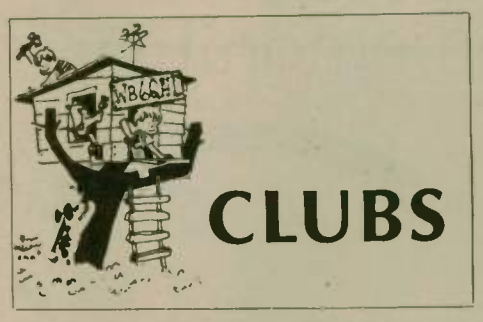
Warren — K2IXN
Bob — WA2MSH

World Radio History



CLUBS

TMI DXpedition

The Central Pennsylvania DX Club will hold the world's first DXpedition to Three Mile Island, Pennsylvania on 22 and 23 August, from 1200Z, Saturday until 2100Z, Sunday.

TMI is the site of the Three Mile Island nuclear power facility made famous in the news recently. It is located on an island on the Susquehanna River, about 10 miles southeast of Harrisburg, Pennsylvania.

Tentative frequencies on phone are: 3900, 7240, 14260, 14290, 21325, 21375, 28625 and 146.58. Tentative CW frequencies are 21125 and 7125. Call sign used will be WB3DNA/Portable TMI.

An attractive photo QSL card will be sent to all contacts upon receipt of an SASE or IRCs. Please QSL to: CPDXC, c/o Tim Fanus, WB3DNA; 6140 Chambers Hill Road; Harrisburg, PA 17111, USA. □

Fire Muster

A special events station, N0ARU/0 — "Fire Muster" — will be on the air 12 September 1981 from 1400 to 2200 UTC, commemorating Burnsville, Minnesota's Third Annual Fire Muster.

Amateur Radio in Public Service is the theme of this year's event. Over 40 states and 12 countries participated in last year's demonstration via Amateur Radio.

Operating frequencies include: 7.260, 14.285, 21.285, 28.550 MHz ±5 kHz depending on QRM and propagation. Local 2-meter contacts will be on 16/76.

Any station wishing a commemorative QSL certificate should send an SASE to: Dr. David L. Justis, N0ARU, 14129 Frontier Lane, Burnsville, MN 55337; or via the ARRL DX Bureau. □

Pumpkin Award

The Morton Amateur Radio Club will operate a special event station, W9EEB, during the Annual Morton Pumpkin Festival. Operation will be 16-18 September 1981. Hours will be 2300 to 0200 UTC. Frequencies will be 7.280, 14.280, 21.380 and 28.680 ± QRM.

An attractive certificate — The Pumpkin Award — will be sent to all who QSL. To receive award, send QSL and large SASE to W9EEB, 701 Columbus Ave., Morton, IL 61550. □

Davy Crockett

The Lakeway Amateur Radio Club announces the second annual Davy Crockett Tavern Operating Event on Saturday, 15 August 1981 (his birthday celebration).

Hours of operation will be 1300-2200 Z. The location will be the tavern in the boyhood home of Davy Crockett pioneer, frontiersman and congressman. The call sign to be used will be KA4EWX on SSB only, near the following frequencies: 7235, 14280, 21360, 28560 MHz, ± QRM.

A handsome commemorative certificate will be awarded to all who send $1 to P.O. Box 1428, Morristown, TN 37814. □

Old Threshers Reunion

The Mount Pleasant, Iowa Amateur Radio Club will be operating a station at the Midwest Old Threshers Reunion in Mount Pleasant during 2-7 September 1981. Using club call W0MME, they will be on or around 3970 kHz during the event. A special Old Threshers QSL card is being issued to those who work the station and can be obtained by sending an SASE to Dave Schneider, WD0ENR, 507 Vine, Mount Pleasant, IA 52641.

Amateurs from the Mount Pleasant area will also be handling emergency communications on the grounds and will be providing talk-in on Mount Pleasant's 147.99/.39 repeater and 146.52 simplex for those attending.

Over the past several years, over 500 amateurs from 15 states and Finland have signed the guest book at the ham shack on the grounds. Roy Lewis, WA0KLD along with WD0ENR are in charge of Amateur Radio's roll at Old Threshers.

The Old Threshers Reunion is an annual event which returns to yesteryear with steam engines, antique cars and tractors, old-time electric trolleys, and other memorabilia from Americana. There is always plenty to see, such as hundreds of gas engines powering sawmills and pumping water, antique tractor pull, threshing by horsepower, and collections of old radios. Thousands of people regularly attend this giant steam festival, now considered the largest attraction of its kind in the world. □

Pioneer memories

The Sweetwater Amateur Radio Club of Wyoming will be conducting a mini-DXpedition to old Ft. Bridger, Wyoming on 12 and 13 September. Operation will be from 1800 GMT on the 12th to 1800 GMT on the 13th.

The club will operate at historic Ft. Bridger to commemorate the annual mountain man "ron-de-voo" held there.

Ft. Bridger is an old fort, located in southwestern Wyoming and established in the mid-1800's, famous for its early day meetings of well-known explorers and mountain men of that time.

Activity will be on the following frequencies, on a rotating basis, providing good propagation and available space. ± 5 kc. in all cases: 7.250, 3.950, 14.300, 21.400, 28.580. CW frequencies will be announced on the phone frequencies.

The club will issue a specially designed certificate, depicting the old fort, for each contact. A donation of $1 is requested to help defer some of the costs of mailing, printing and handling.

Mail all QSLs to: D.L. Zwemke, KB7LZ, 1010 Bridger Dr., Green River, WY 82935. See you on the band in September. □

Golden anniversary

On 12-13 September, the Warwick Amateur Radio operators will sponsor a special event, in honor of the City of Warwick, Rhode Island's 50th anniversary. To commemorate this event, any amateur contacting a participating Warwick, Rhode Island amateur will be awarded a certificate signed by the mayor of the city.

GMT times: 1300Z to 2200Z on 12 and 13 September

Frequencies: Phone — 28750, 21380, 14300, 7275, 3950; **CW** — 28075, 21075, 14075, 7075, 3575; **Novice** — 21175, 7125.

QSL information

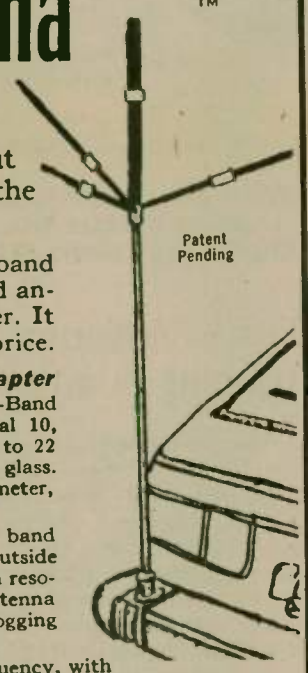
Mail with three first class stamps to: **Pat Mancini, K1COI, 11 Amherst Dr., Warwick, RI 02889.**

In the event you have any questions, please contact: **Robert A. Weigner, KB1C, 61 Kirby Ave., Warwick, RI 02889; 401-738-2021.** □

A new concept in mobile antennas—

The Spider™ Antenna

The modern multi-band mobile antenna for today's all solid state transceivers. Switch to 10, 15, 20 or 40 meters without changing resonators. Just switch bands—the antenna takes care of itself!



The Spider* Adapter converts any mono-band antenna with a ½" mast into a modern four-band antenna with all the features of the regular Spider. It gives you the latest convenience at a modest price.

Features of the Spider* Antenna and Spider* Adapter

- The 4-Band Spider* Antenna is six feet high — the 3-Band five feet. The mast is made of ½" aluminum. The radial 10, 15 and 20 meter resonators project out from the mast 11 to 22 inches, and are ½" in diameter. They are wound on fiber glass. The vertical 40 meter resonator is 20" high and ¾" in diameter, and is wound on polycarbonate plastic.
- Each resonator is tuned to the desired portion of the band by a tuning sleeve which slides from end to end over the outside of the resonator. Use an SWR bridge to tune to the chosen resonant frequency, tuning for minimum SWR. If desired an antenna noise bridge may be used for tuning. Each resonator has a logging scale to provide resetability.
- SWR is approximately 1:1 at the selected resonant frequency, with generous band widths before the SWR exceeds 1.5:1. The typical band widths are about 500 kHz on 10 meters, 200 kHz on 15 and 20 meters, 60 kHz on 40 meters.
- Base impedance is approximately 50 ohms, requiring no matching network. Any reasonable length of 50 ohm coax may be used.
- Slim profile, low height and light weight offer little wind resistance and eliminate the need for a spring mount.
- Ideal for use in mobile home parks, apartments and condominiums. Also on motor homes, travel trailers, vans and campers.
- Guaranteed for 90 days against defects in workmanship and material.

The Spider* 4-Band Antenna $110.00
Four foot aluminum mast and 10, 15, 20 and 40 meter resonators. Weight 2 lbs.

The Spider* 3-Band Antenna. $85.00
Four foot aluminum mast and 10, 15 and 20 meter resonators. Weight 1¼ lbs.

The Spider* Adapter. $65.00
Mounting collar to fit ½" round mast and 10, 15 and 20 meter resonators. Wt. ¾ lb.

Prices include surface shipping by UPS in the 48 contiguous United States.
**Trade Mark* *California residents include applicable sales tax.*

LEN—W6FHU *For further information write to* FRED—K6AQI

MULTI-BAND ANTENNAS
7131 OWENSMOUTH AVENUE, SUITE 63C, CANOGA PARK, CALIF. 91303

VISIT YOUR LOCAL RADIO STORE

CALIFORNIA

Ham Radio Outlet
2620 W. La Palma
Anaheim, CA 92801

Henry Radio
931 N. Euclid
Anaheim, CA 92801

Ham Radio Outlet
999 Howard Avenue
Burlingame, CA 94010

Jun's Electronics
3919 Sepulveda Blvd.
Culver City, CA 90230

Jun's Electronics
7352 University Ave.
La Mesa, CA 92041

Henry Radio
2050 S. Bundy Dr.
Los Angeles, CA 90025
(213) 820-1234

Ham Radio Outlet
2911 Telegraph Ave.
Oakland, CA 94609

The Radio Place
2964 Freeport Blvd.
Sacramento, CA 95818
(916) 441-7388

Ham Radio Outlet
5375 Kearny Villa Road
San Diego, CA 92123

Tele-Com/Alltronics
15460 Union Avenue
San Jose, CA 95124
(408) 377-4479 or 371-3053

Quement Electronics
1000 S. Bascom Avenue
San Jose, CA 95128

Ham Radio Outlet
6265 Sepulveda Blvd.
Van Nuys, CA 91401

ILLINOIS

Aureus Electronics Inc.
1415 N. Eagle
Naperville, IL 60540

MASSACHUSETTS

TEL-COM Communications
675 Great Road
Littleton, MA 01460
(617) 486-3400 or 486-3040

NEW YORK

Radio World, Inc.
Oneida Cnty. Airport Terminal Bldg.
Oriskany, NY 13424
(315) 337-0203
(800) 448-9338/out-of-state

MISSOURI

Henry Radio
211 N. Main Street
Butler, MO 64730

OHIO

Universal Amateur Radio, Inc.
1280 Aida Drive
Reynoldsburg, OH 43068
(614) 866-4267

World Radio History

Happy 125th!

On the weekend of 22-23 August, the Tri-County Amateur Radio Club (W9MQB) will be operating from a site on a hill overlooking the beautiful Rock River in Watertown, Wisconsin. This special event is being held to commemorate the 125th anniversary of the first kindergarten in America which was founded here by Margarethe Meyer Schurz in 1856. The original building has been moved to this beautiful location which also includes the Octagon House, constructed during the same period by the Richards family — early pioneers in Watertown. The entire site has been made into a museum by the Wisconsin Historical Society.

Operation is planned from 1500 UTC to 2200 UTC on Saturday, 22 August and Sunday, 23 August on frequencies of 3.944, 7.144, 14.344, 21.144 and 21.444. On CW, the call given will be CQ KID, while on phone CQ, KINDERGARTEN will be used.

For a historical commemorative certificate of your contact, please send two QSL cards, and an SASE 4½" × 9" or larger to Tri-County Amateur Club (W9MQB) c/o Jerry Arndt, 445 Concord Avenue, Watertown, WI 53094. We are asking for two QSLs so that one may be contained in a book with a copy of the commemorative, which will be presented to the Wisconsin Historical Society since they are assisting us in this venture; the book will become part of the Kindergarten Museum. □

See Ford Museum event, page 35.

Petition

(continued from page 3)

long ago. I like code operation and very seldom operate voice; however, I cannot understand why American amateurs who operate voice have allowed this situation to exist so long. Amateur Radio is international in nature, and I believe it is improved by having band segments and operating privileges alike wherever it can be done. With DX amateurs far outnumbering American amateurs, it is long overdue for the low end of the American voice segment to be moved down into this "DX phone band." It would greatly benefit Novices and Technicians if the bottom 50 kHz of this present DX phone band were added to the "Novice bands." When the 10 and 15-meter band drop out, Novices just have 40 and 80 available. However, 40 meters is often just about useless to Novices because of the high power international shortwave broadcast stations at every 5 kilohertz point (7105, 7110, etc.) throughout their band. At such times, 14.1 to 14.15 MHz would provide a useful second band with excellent DX possibilities. About one-third of all American amateurs are Novices or Technicians who have no real DX band available when 10 and 15 are dead. A 20-meter Novice band could greatly improve their evening operating activity.

Having taught Amateur Radio licensing courses since 1948, I have more interest in the needs of newer amateurs than most amateurs. Nevertheless, I believe I am correct in my opinion that the existing difference between Novice/Technician and General HF operating privileges is too high at 80.3 percent. I recently had two Novice band-related petitions adopted without assignment of an FCC "RM" file number to my knowledge. One granted Novice code privileges to Technicians. The other established the 10-meter Novice band. These were portions of petitions which also covered other subjects, which is probably why no separate file numbers were assigned.

The previous paragraph is intended to provide an example of the type of comments I hope readers will submit to the FCC. If we pool our best ideas, we are sure to improve our Amateur Radio Service. I much prefer having amateurs recommend changes instead of the FCC; we certainly should know our problems and needs better than anyone else knows them.

Unless the FCC extends the comment time for this petition, it ends 7 May 1981. If they are considering adopting any part of it, the comment time will probably be extended and you will still be able to submit your views in writing. (As of 22 June, states W6DDB, the petition is still alive.) Regardless of the disposition of this petition, I hope **Worldradio** readers will consider the need for improved license upgrade incentives. It is about time the amateur Extra Class license became more than a mere status symbol. □

VISIT YOUR LOCAL RADIO CLUB

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

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

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

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

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

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

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

Satellite Amateur Radio Club, W6AB
PO Box 1615
Vandenberg AFB, CA 93437
1st Thursday/monthly — 8:00 p.m.
Building Z1160, Vandenberg AFB

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

S.C.A.T.S./WB6LBU
S. CA Amateur Transmitting Society
P.O. Box 1770, Covina, CA 91722
Cortze Park Rec. Hall
1st Monday/monthly — 7:00 p.m.

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

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

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

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

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

ILLINOIS
Illiana Repeater Systems, Inc. (IRS)
Palmer Amer. Nat. Bank Comm. Rm.
Danville, IL
3rd Monday/monthly — 7:00 p.m.
Call-in WB9YJF/R 146.22/82 "Super 82"

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

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

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

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

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

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

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

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

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

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

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

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

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

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

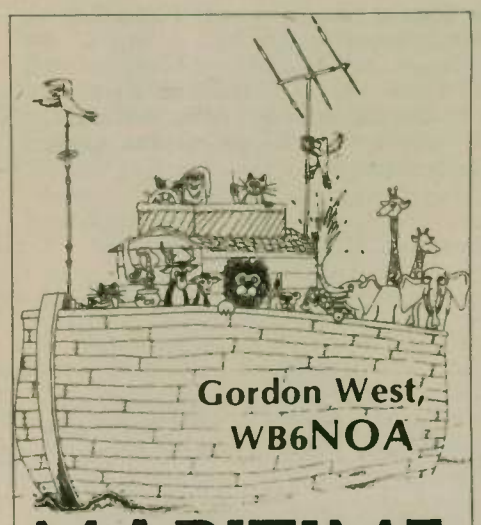
OREGON
Clatskanie Amateur Radio Club
Route 2, Box 553
ClatsKanie, OR 97016
ClatsKanie Grade School Library
2nd Tuesday/monthly — 7:00 p.m.

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

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

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

World Radio History



MARITIME MOBILE

This month, let's take a review of some marine ham products that I have received mail about.

First of all, that half-wave VHF stainless steel antenna that will work on both 146 and 156 MHz is manufactured by Metz Communications Corporation, corner Route 11 and 11C, Laconia, New Hampshire 03246. You may call Metz toll free at 800-258-4680 for more information. That same antenna will also fit on the top of your 2-meter handi-talkie for extended range.

We received many letters from our West Coast readers wanting to know more maritime mobile frequencies, especially for the South Pacific. Here are some additional listings that you may wish to monitor before you set sail.

Pacific Maritime Nets

Time GMT	Frequency kHz	Net name and area covered	Net control/ name
0230	14313	Seafarers Net — Pacific	
0530	14313	Pacific Maritime Net — Pacific	KH6HEO/ Mac
0715	3820	Bay of Islands Net — South Pacific and Australia	ZL1BKB/ Colin
0800	14313	Pacific Interisland Net — Pacific	P29CC/ Danny
1200	14320	SEA Net — Southeast Asia, Indonesia and Australia	WB8JDR/ Carl
2000	14305	Confusion Net — Pacific	N7GYR/ Al
2300	21404	Pacific Maritime Net — Pacific and Caribbean	KH6CO/ Odia
2400	14320	SEA Maritime Mobile Net — Asia, Japan and Australia	VS6BE/ Lyle

Coax fittings at sea

It's important to inspect all your coaxial fittings aboard. Coaxial fittings exposed to sea water can be dangerous to the health of your radio equipment. Moisture in a coax connection may exhibit a lower feed point resistance, and a mismatch will develop.

How many times have you improved your on-board radio setup by cutting off an old connector and soldering on a new one? The problem wasn't really in the connector, but rather all the moisture that the connector absorbs. Capillary action then transfers this moisture all the way down the braid of the coax cable. Finally, sea water moisture completely wipes out the copper braid.

A new product on the market that eliminates this moisture problem is called Coax-seal™. Coax-seal forms a moisture and corrosion barrier around your coaxial fittings exposed to the weather.

RIG TROUBLES GOT YOU DOWN?

- YOU COULD SHIP YOUR RIG TO THE FACTORY FOR REPAIR.
- YOU COULD SHIP IT TO RQ SERVICE CENTER FOR REPAIR.
- BUT YOU STAND A GOOD CHANCE OF FIXING IT YOURSELF WITH HELP FROM YOUR OWN COPY OF "OWNER REPAIR OF RADIO EQUIPMENT"
- THIS BOOK WILL BE SHIPPED POSTPAID FROM K6RQ FOR $8.95

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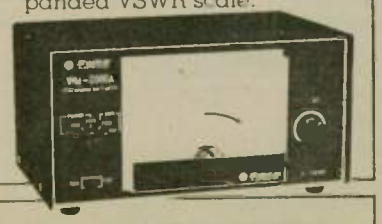
Los Gatos, CA 95030

SWAN METERS

THE TOP OF THE LINE

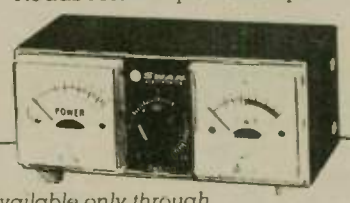
PEAK READING WATT METER WM-2000A reads power in 200, 1000, 2000 watt ranges. 3.5-30 MHz. Reads average or PEP power output. Includes expanded VSWR scale.



IN-LINE WATT METER WM-2000 reads power in 200, 1000, 2000 watts. 3.5-30 MHz. Incl. expanded VSWR scale.

MOBILE WATT METER HFM-200 with remote directional coupler reading 20 or 200 watts. 3.5-30 MHz. Illuminated with VSWR scale.

SWR BRIDGE SWR 1A with dual reading meters. 1000 watts RF. 3.5-150 MHz. Reads relative power output.



Available only through authorized dealers.

THE RADIO PLACE
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Sacramento, CA 95818
(916) 441-7388

Author Gordon West with an Apple setup.

This flexible sealant is packaged in a roll for easy application. Peel off approximately six inches of the Coax-seal from the paper backing. Start winding this seal from the coax until it covers the actual coaxial connector. Each winding should overlap the next winding by one-half.

Now mold and form the seal with your fingers to make a smooth covering of the coaxial connector. Presto, water is kept out of your fitting.

If you need to work on the fitting at a later date, it's easy to peel back the protective coating that never dries hard. This seal is about the only sealer which will adhere to vinyl and polyvinyl coax outer coverings.

It's also possible to use this seal in deck fittings where wires run through the deck, marine dipole installations, and other applications where you need to expose the center conductor and braid of the coax cable to the salt water environment.

Coax-seal™ can be used at all frequencies, as it is non-toxic, non-corrosive and non-conducting. It is available from Universal Electronics Incorporated, 1280 Aida Drive, Reynoldsburg, OH 43068, and at your local Amateur Radio dealer.

RTTY news

Another handy item for the mariner this summer is a new book entitled *World Press Services Frequencies.* This handy book covers worldwide radio teleprinter news stations that transmit in English 24 hours a day.

Now with your computer setup aboard, or with your teleprinter (heaven forbid) aboard, you may receive all the news from AP, UPI, as well as overseas press services.

The book lists these RTTY news frequencies by transmitting time, by frequency order, and by nature of the service. The book also has an introduction to RTTY equipment, and antennas necessary for pulling in RTTY stations. It's good reading if you would like 24-hour news at sea with RTTY gear aboard. This book is available from Universal Electronics Incorporated (see address above), and at your local radio store.

Maritime computers

Do you own an Apple computer? Thinking about buying a computer? You may wish to integrate your computer with your maritime equipment. To do this, you will need peripheral equipment that will tie the two together.

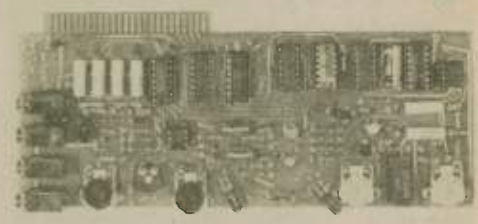
Apple owners should enjoy this review. A product called Radcom Plus will make your Apple computer a vital part of your Amateur Radio operating. But before we tell you what you need for your computer, let me tell you — in this exclusive product review — what the Radcom Plus peripheral package will do for you and your station:

- Send and receive Morse code on your keyboard and TV screen.
- Send and receive RTTY.
- Send and receive ASCII.
- Split screen, receive, transmit and transmit buffer.
- Automatic ID
- Live keyboard, prepare transmit text while receiving.
- On-screen CW and RTTY tuning indicators.
- Normal/reverse RTTY receive key control.

This is just a partial list of what the Radcom package will do for your Apple computer. We'll talk more about all of the "extras" that back up each one of these functions.

Computer requirements

You will need an Apple 2 computer or Apple Plus with integer along with a disk drive to make their system work. You can use the package with 16K of memory, but a fully loaded (64K) Apple will give you more receive buffer as well as room for more stored messages.



Radcom Plus computer interface board.

The Radcom Plus package contains a high quality printed circuit board that simply plugs into your peripheral slot No. 2. Once you plug in the board, you will notice four jacks that are accessible through the back panel of your Apple 2. The four jacks on the Radcom Plus board are for audio input, transceiver T/R switching, CW key, and FSK output to the input on your radio. The T/R jack will allow grounding of the "send" switch for PTT operation.

The audio input will be derived from your transceiver's low impedance speaker output — not from the headphone jack.

The Radcom board also has variable pots for selecting RTTY threshold settings: two pots for mark and space bandpass, a pot for CW center frequency, and

World Radio History

a pot for CW threshold settings. All of these controls were preset by the factory, and none needed adjusting.

Sent along with the Radcom board is a fully detailed operating manual with special indications of final settings on each of the pots. In other words, you know that the board was indeed tested before being sent to you out there in radio land!

You also receive a diskett for your disk drive. The Morse code and RTTY software is by Dr. Chris H. Galfo and the text file utilities by Alex M. Massimo are outstanding.

Here's a partial list of what the software will accomplish:

- Select baudot speeds continuous, 32 to 300 baud.
- Select ASCII speeds continuous to 110 baud.
- Select Morse code speeds, 2 to 125 wpm.
- Save the received texts.
- A text editor.
- Load texts that were saved.
- Output text to screen/printer.
- Store messages to limit of ram.
- Log all contacts to the disk/printer.
- Convert programs to text files for transmit.

There are about twice as many functions that both the board and the software will accomplish, that are not listed!

Operation

I am not a computer buff. I possess just enough knowledge to be able to program the darn machine, and have the TV screen light up with something half-way intelligent. I know nothing about computers. Repeat, nothing.

Transmitting and receiving CW was a breeze. Everyone would ask me how well it would copy CW when the signal went into the mud. Very well, by my standards. When *I* had a hard time hearing the signal, so did the computer.

Same thing with RTTY, and even ASCII. The reception without the use of any external terminals was phenomenal. Only when the signal would dip into the mud would the screen go crazy. When the signal would reappear, it would take about one second to reaccess the sounds, and the screen would begin spitting out correct messages.

The logging concept is neat. But even more fascinating is the ability for this unit to receive and transmit programs. Now I need to buy a printer. I think I've finally been bitten by the computer bug.

For you computer technical buffs, your best bet is to write for more details. Your contact is Alex M. Massimo, AF6W. This lad is very technical, but also a good marketing man. His address is 4041-41st Street, San Diego, CA 92105.

The Radcom Plus package sells for $219, and will add a complete new avenue to your Amateur Radio operating. Contact Alex for more details about this exciting computer that I have only barely explained in basic detail. If your're not into computing, but own a computer, you're like me — and you'll like this package.

Good cruising! □

Silent Key

Donald E. Ebbert, KA8EVE, died recently, after a long illness.

He was born 3 June 1920, in Mansfield, Ohio and lived in the area all his life. He was a member of the Crawford County Amateur Radio Club and the Springfield Township Volunteer Fire Department. He served with the Corsair Fleet of the U.S. Coast Guard during World War II.

—*News Journal, Mansfield, OH* □

Maritime emergency

Bud Ogren, WA6UEI

"Distress at sea. Distress at sea. Any amateur station monitoring please respond." This is a dreaded call for any maritimer, but on the evening of 29 May 1981. that initial call was answered by Poppa 29-CC, Danny Coyle — a New Guinea amateur who knew exactly what to do. He had been monitoring 14.275 MHz. He handled this distress call like he was rolling out of bed.

"Here is motor vessel *Echo Bell* operator Mark. We are alongside the fishing seiner *Junita* which has limited radio gear. Our location is 32.24 N 178.33 W and the captain of the *Junita* has a severe injury to his hand, caused by machinery. Several fingers are at the point of amputation and we are requesting medical advice . . . over."

"*Echo Bell*, this is Poppa 29- Charlie Charlie New Guinea . . . OK. Mark copy 100 percent. Please stay on this frequency 14.275 MHz. All other stations please QRT while we handle emergency traffic. Stand by, Mark."

"*Echo Bell* P29-CC returning. Mark, we have a medical doctor on phone patch to advise with the medical aspect . . . Doctor. Please go ahead with the *Echo Bell*."

"Right *Echo Bell* this is Dr. MacLaughlin. I have been apprised of the situation and recommend that the crew first stop the bleeding by tourniquet, then firmly wrap the fingers in as near as possible to the original position. Give the patient antibiotics and transfer that patient to a hospital within 24 hours . . . over."

"Roger, doctor. This is the *Echo Bell* returning. We are alongside the other ship and are transferring our medical kit which contains antibiotics, penicillin, and codeine . . . over."

"OK, *Echo Bell*. That should do it. We will stand by if further advice is needed."

"*Echo Bell* P29-CC return. Mark, what is *Junita's* course and nearest port of call . . . go.

"OK Danny. They are heading for Midway Island. The course will be 257 degrees true, at 6 knots . . . E.T.A. Midway Island 32 hours . . . over."

"OK Mark, eight hours too late. We have Honolulu Communications Station coming up on frequency. Please stand by for them . . . Hopefully for air-evac the injured skipper."

With a booming transmission of 9-5-30 over the next radio modulation followed.

"Here is Honolulu U.S. Coast Guard Communications Station on frequency requesting the station that has info regarding injured person at sea. Please come now . . . over."

If there was any doubt in anyone's mind monitoring 14.275 MHz that night, the only station who could handle that traffic was P-29-CC.

After Danny filled in the Coast Guard with all of the information available we heard . . . "Honolulu Communications Station says "We copy all of your transmission and will handle from this point on. We will try to establish contact on another simplex frequency . . . out.

End of story . . . not quite.

This reporter will try to fill in the rest. Surely Honolulu Coast Guard will make preparations for the air-evacuation of skipper Bill Szabo of the vessel *Junita* and hope his recovery will be swift and speedy.

Next, kudos to all the amateurs, doctor, and crewmen of the vessels *Echo Bell* and *Junita* who helped that evening on 14.275 MHz.

The last transmission we heard from Danny Coyle was: "73s to everyone on frequency and after this four-hour ordeal, I seem to have missed my dinner . . . This is Poppa 29 Charlie-Charlie and we will be QRT."

OK Danny Coyle . . . if you ever get to stateside and California, I'll buy you the best darn dinner you ever had. Fair enough? □

Book Review

Digital Electronics Troubleshooting

Attention technicians, electronics students, experimenters, and hobbyists — *anyone* who needs to learn about and understand the principles behind digital electronic circuits in order to troubleshoot and maintain them — this big volume is for you!

Written by Joseph J. Carr, K4IPV, it's a thorough guide that'll take the reader from the very beginning of digital troubleshooting right through total working familiarity with all the terms and methods. Begins with a chapter that unmasks the mystery of digital circuits, and ends with discussions of common problems and every type of equipment . . . making this a valuable book for anyone entering the world of digital repair. One can easily get in the know about logic gates, circuits, registers, and just about any other digital device . . . and learn the real intricacies of troubleshooting step-by step along the way.

The price of this book (published in November 1980) is $16.95 hardbound, $9.95 paperback. *Digital Electronics Troubleshooting's* TAB BOOK number is 1250, and can be ordered through TAB BOOKS Inc., Blue Ridge Summit, PA 17214; telephone 717-794-2191. The book's 350 pages contains 331 illustrations.

Anyone who's in the dark when it comes to number systems, like binary, octal, and hexadecimal shouldn't worry — this book contains a complete course, with plenty of diagrams, schematics, and illustrations to make it all crystal clear. There's even complete data on binary arithmetic, logical operations, and digital codes — including binary coded decimal, gray, excess-3, alphanumeric, baudot, ASCII, and EBCDIC, plus full instructions on converting from one system to another.

Carr shows how logic gates really work — NOT, OR, AND, NAND, NOR, Exclusive-OR — along with a summary of logic gate actions with experiments. This volume teaches all about those useful flip-flops — both clocked and unclocked. Next come digital counters and decoders, with complete info on synchronous, decimal, and preset counters, simple binary readouts, Nixi tubes, seven-segment readouts, display multiplexing, and many TTL/CMOS examples of digital devices.

Memory I/O interfacing in computers is very important in digital electronics, and the author goes from binary word decoders through eight-bit word decoders all the way to memory-mapped I/O. Data conversion resolution, DAC circuits, analog-to-digital conversion, single-slope integration, ramp circuits, SA circuits, software conversion techniques, and flash converters are covered as well . . . plus DC power supplies — the heart of all computers.

Other highlights include digital servicing test equipment, plus common problems like power line foulups, glitches, radio-frequency interference, and bus disconnections. Covers printers, paper tape readers, magnetic storage devices, plotters, and recorders. PLUS, there are *four* fact-filled Appendices to put the icing on the cake! So for anyone who might be wondering why their digital clock stopped working — especially if they'd like the know-how to fix it — this manual is perfect for the workshop!

Joseph J. Carr is the author of several TAB books on electronic and Amateur Radio topics. An electronics engineer with the U.S. Government, he lives in Arlington, Virginia. □

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International Vice Commander, Paul Hower, WA6GDC
Box 2323, La Mesa, California 92041 - (714) 465-5288

DF knowledge grows

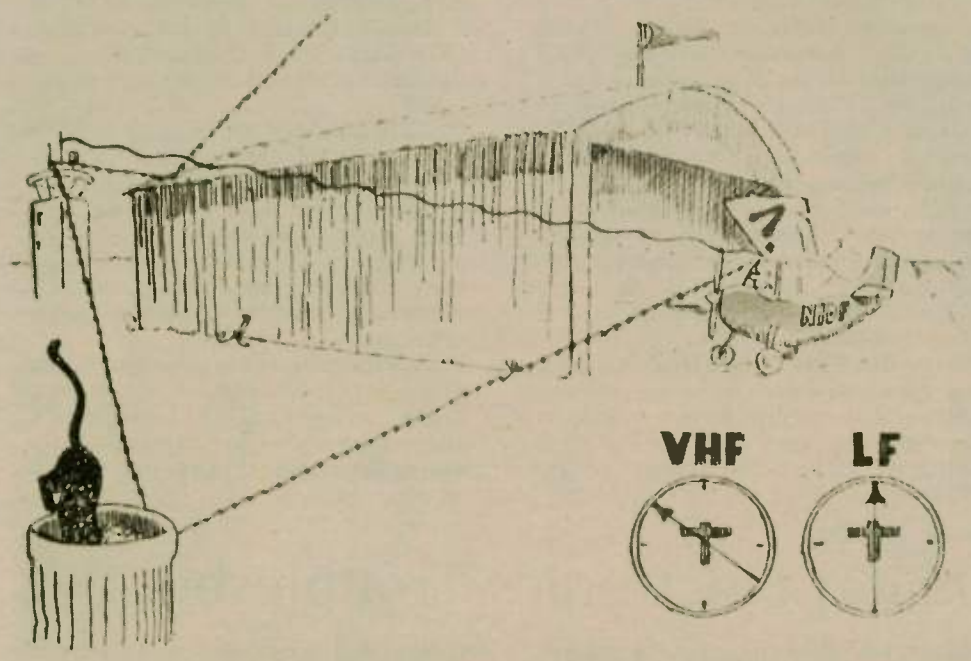
With great relief, we are happy to report signs that more and more people are learning the idiosyncrasies of VHF direction-finding (DF). For a number of years now, HAPPY FLYERS from both Amateur Radio and Search and Rescue backgrounds have attempted to point out the difference in RF propagation at VHF, when compared to RF propagation at lower frequencies. In our free loan slide/sound DF show, we attempted to point out that one wavelength of RF at a broadcast frequency of 650 kHz was about 1,500 feet. By contrast, one wavelength at the 121.5 MHz international distress frequency used on the ELT would be about eight feet. At 156.8 MHz (used for calling on the marine band), the single wavelength approaches only six feet.

You will note in the cartoon that Paul Hower, WA6GDC has attempted to illustrate the practical difference in DF when a low frequency transmitter and a VHF transmitter are located in the same spot. If the plane in front of the hangar were equipped with DF equipment for each band, the indicators might look as displayed. The low frequency RF waves would be able to make it to the ADF and indicate the correct bearing to the tower (even though the hangar was directly between them). On the other hand, the VHF signal would probably find a path to the plane via some reflective path. Depending on the type of DF system used, it might well point to the garbage can instead of to the tower. If one thinks about it, logic would dictate that a DF point to the direction it sees RF arriving from. At VHF, the RF might not arrive from the same direction of the original source.

If you did not read the story on the Los Angeles area Coast Guard Auxiliary DF work, written by Keith Cordrey, W6KVR in the July 1981 issue of **Worldradio** get it out and read it carefully. We need more articles of this nature. Anyone can write about theory, but this is the story of actual work. His tests have proven the things we have been trying to say for years. VHF DF is not the same as lower frequency DF. No matter the brand or type of DF, it must operate within its design limitations. It must tell you what it sees according to the method it uses to arrive at its conclusion. What it sees at VHF may not be the same as what you wish to know. The Coast Guard (and auxiliary) are interested in finding people to save their lives. They wish to know where the actual signal is coming from. As mentioned in Keith's article, they found that known signals — from known points — had different relative bearings at different times and under different weather conditions. We long ago discovered the same things, but have had great difficulty getting others to listen. Since my operation will be in Long Beach, I plan to meet with them and share some of our findings.

One area not covered in Keith's article is that of the variations in the methods of achieving DF information in different types of equipment. There are now numerous commercial brands of DF units available for VHF DF. Some use very similar designs, while others are unique in their approach. In our humble opinion, there is no *single type* of VHF DF for all circumstances. We feel there are advantages in each of the various types, under each special circumstance. For instance, beams and quads have a considerable edge when looking for an extremely weak signal. They can hear signals many other DF systems may not hear at all. However, in a very strong and reflective RF field at VHF, signal strength readings could become semi-worthless. The switched antenna DF systems are presently the most acccurate (the two antenna types). However, there are a number of different methods of acquiring DF information from these switched antenna systems. As a matter of fact, we found that at least one DF manufacturer who sold to the military did not appear to understand exactly how the DF they manufactured, operated. Their description of how it worked was totally erroneous.

We have strong feelings that those who are involved in DF, where life-saving is the desired end result, should know how the type they plan to use works, and spend at least a co·ple of hours locating



International Vice Commander Paul Hower illustrates the difference in VHF and LF DF by showing the VHF signal bouncing and incorrect, while the low frequency signal shows correctly on the ADF. See text for explanations.

DIRECTION FINDING?

New Technology (patent pending) converts any VHF FM receiver into a modern Doppler Radio Direction Finder. **No receiver mods required.** See June 1981 issue of 73 for technical description. Kits available from $235. Write for full details and prices.

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known signals with it. This is what Keith's group has done. In their case, they have been able to devise methods to DF, in circumstances that would otherwise fail. DF on known targets can be one of your greatest allies. For instance, glance at the cartoon showing the two DFers. They have actually claimed three different points. Using voltage averaging techniques, the DFer on the left has decided the transmitter is in the valley. The DFer on the right is using a phase-type DF and sees a direct signal from the actual transmitter on one hill, and the reflected path from the other hill. Under these circumstances, the voltage averaging method is not too acurate for "line of bearing" information.

Let's carry this a step farther. If instead of smooth, even hills as drawn, we were looking for a downed aircraft in heavy, rough terrain with considerable foliage, things would change as the two DFers approached the area. As the number of reflected signals increased, the effectiveness of the phase type will greatly decrease. By the same token, the effectiveness of the voltage averaging type will increase. The more paths that are averaged, the closer to the correct direction will be the readings. It is fair to say that certain circumstances give one type of DF the advantage, while other circumstances point to using the other type of DF. The L-Tronics Elper has done a tremendous job in ground DF over the years. I used the Micro Electronics VH 12 for the Sheriff's Air Squadron for over a year and found it superb in my airplane. Both could easily be used in opposite circumstances, so long as the user knew how to use each device properly in the opposite circumstances.

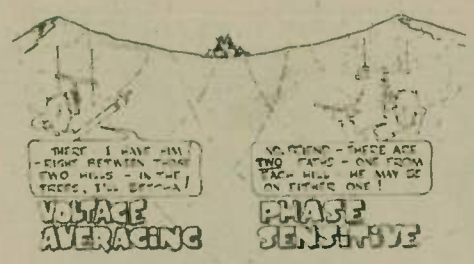
A while back, the multiple array, electronically rotated DF units emerged. The four-element units spoke of plus or minus 22½ degree capabilities. When the "dopplescant" was introduced, some thought it to be a bearing device. If you read the article in QST that described how to use it, you would notice the designer used it as a homing DF. His directions were correct for his device. Recently a new company has introduced a similar design, and added a digital readout ostensibly in magnetic heading. According to the logic of the foregoing, that appears to mean they give you the average readout of all information arriving. Remembering that multipath at VHF is the rule rather than the exception (on the ground), the only way you can display a single bearing answer is to average all information. This still leads us to believe that this type unit is best designed for homing rather than plotting.

Another method not yet covered is the simple age-old body shield method. Last week I spent over an hour teaching this method to a Civil Air Patrol Squadron. Another Search problem we face is the location of false alarms (accidentally triggered ELTs) on airports. With planes parked close together, wings overlapping, metal hangars, odd-shaped items, etc., the VHF RF tends to bounce off of everything. Once the airport has been identified and the area on the airport localized, one of the best ways to find the exact plane is by using a field strength meter. Again, we have gone full circle and are back to the premise that one should attempt to use the proper equipment for the circumstances of intended use. When this is not possible, we should be prepared to make the best use of what we do have available. We hope this trend of growing DF knowledge and capability continues to grow.

Coast Guard Auxiliary clarification

A few months ago, I made reference to our Bay Area Auxiliary and some work I was doing with them. I received a very nice letter from another CGA member suggesting I clear up some impressions I left. Auxiliary members normally do not act in an enforcement capacity, such as we do in the Sheriff's Air Squadrons. The rapport enjoyed between boaters and the auxiliary may be partly because of their dedication to mutual benefit. Their inspections are to help, not punish. They do a tremendous service — to the country and the boating public.

As you notice in Keith's article, there is a real place in the Coast Guard Auxiliary for you. Many tasks need to be done in the air, on the air, on the water and on the shore — DF, typing, teaching, etc. No one can steal the great feeling you get when you do something for others! □



Possible errors that can occur when different types of DF units are used under various circumstances are illustrated here and explained in this month's HAPPY FLYERS column.

The Exchange

Armond Brattland, K6EA

7 June 1981

Armond, K6EA/Ø:

First let me say that I have been receiving Worldradio for about five months now and find it about the best amateur publication that exists. Your article and others are unique and are a definite need to the amateur community. The reason NTS (National Traffic System) lacks operators is not enough publicity. Many hams, some who have been licensed many years, still have never heard of our traffic system. With an article such as yours, we should look forward to more interest and participation in NTS.

A few months ago, when I first learned of your efforts for a 15-meter Novice net, I sent you a radiogram expressing my desire to help in any way I can. However, it appears my call did not arrive correctly. In your last article I was listed as KA4SIG instead of WD4SIG. No hard feelings though, I am still ready to help! hi! NIN (National/International Net) is a great idea and I hope we can get it going well. I will try to bring as much traffic to the net as I can, as I know this is what determines whether or not a net will survive.

I would also like to thank you for the great publicity for ARTS. I have been an active member of that net for two years now. It is an excellent net and consists of some really fb operators. I have spoken to Bill Bonnell, W5TI and Hub Williams, W5UH about NIN and they are very interested in its operation.

The ARTS format of no NCS works great, as can be seen by the net's monthly totals. However, as you have noted, it helps to have some "noise" on the net frequency so as not to lose operators who get discouraged by a dead frequency. This is why periodically, on ARTS, one can hear a station simply call ARTS and say QRU. This, in addition to letting the net know who is on frequency, can keep the frequency QRL as to prevent an unknowing CQ.

Hopefully on NIN we can keep things running smoothly. However, due to the 15-meter propagation, relaying traffic will not necessarily work as it does on ARTS which operates on 40 meters. On ARTS a QTC is generally sent as close to the destination as possible through several relays, all putting the message a little closer to this destination. This is due to the fact that on 40 meters, stations close to each other can generally copy one another better. However, on our 15-meter net this may not necessarily be the case.

For example, if a station in Tennessee has a QTC for Arkansas (which also has a station on the net), it may have to be passed to a station in New York, for example, for relay to Arkansas since the two southern stations could not copy each other on 15 meters. In other words it will take a lot of cooperation, close attention, and GNBS to pass some of the traffic.

Also, I have noticed that among the volunteers for NIN assistance, none are west of Texas. Hopefully we can get some western stations involved. However, if NIN becomes a principally eastern net, I may be able to provide liaison between this net and ARTS, a principally midwestern net. This way I can bring ARTS east traffic to NIN and take west NIN traffic to ARTS. We nationwide nets, including HBN, must work together! At any rate, I am looking forward to our July 4th start and will have my beam and rig fired up.

Aside from NIN, I would like to bring your attention to a Novice net that is of special interest. This net is TSN (Tennessee Slow Net). It operates on 3710 kHz at 2300 GMT. The managers are Anita, NG4J, and Dave, N4EAM. They have done a tremendous job to create one of the most successful Novice nets I have heard. Anita and Dave have brought about a net that has averaged 15 QNIs and 4.5 QTCs

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per day. This is excellent for a 90 percent Novice net. The non-Novices are mainly the NCS stations; however, Novices are now taking these positions too. This net fits in perfectly with the other TN nets as a great system. Dave even publishes a very interesting newsletter, including pictures, which is sent to all stations who QNI a certain number of times per month. He has also sponsored contests with trophies as the awards. These contests were for more QNI and QTC stations for a certain period of time.

In his newsletter he has tidbits of information about net members who create a "family" of operators on TSN. He also has a monthly feature in the newsletter called "quality control" where he covers a certain aspect of traffic handling in detail.

Dave sends information about TSN to all newly licensed Novices in Tennessee using a list provided by ARRL. When a new station checks in for the first time, Dave makes a note of it and sends this station a special TSN QSL greeting card. The attractive QSL is enclosed and provides the net time and frequency at a glance. And we know how important and exciting receiving QSLs are, especially to new Novices.

We have also had a TSN forum at one of the state hamfests. It was a great time for all to have eyeballs with fellow TSN members. Dave has really done a great job with the net, and I am sure he would gladly provide information and ideas to others who might be interested in getting such a program started.

Very 73, Armond and keep up the great work!

Kerry S. Long, WD4SIG
Memphis, Tennessee

Thank you, Kerry for your fine letter — excellent publicity for the nets mentioned and for traffic handling, in general. Hopefully, the 4th of July experiment brought NIN a little closer toward realization. If the number of letters expressing a desire to help is an index, surely there must be a need and future for such a net. The fact that it gives both Novices and other licensees a common place in a net serving our nation and the world, is unique.

However, this time nothing should be taken for granted. How about going back on a Sunday only basis? Should it be at 2300Z? Only one or two have requested another time, but weekdays, they work until about 2300Z, so if the net were earlier, they could not participate. If the net were later, the band might be going out.

QUESTION: Is it practical to set the net time differently for various days of the week? Hopefully, these are points a net nucleus can work out. Those who expressed concern about operating without net control stations should regularly listen to ARTS around 7060 kHz and 1400Z, and make up their minds that it *can be done!*

How about that article on ground — What Ground?

Before I had learned of the problems encountered by Hy-Gain Electronics, I wrote them asking for permission to reprint an article written by Robert Ruyle, WØFCH. About a month later, a letter over the signature of John Magnusson, WØAGD — the national sales manager of the Telex Communications Corporation — advised that I could print the article, as Telex had taken over Hy-Gain. He also advised that a more recent unpublished article would be sent to me, so that will likely be coming later.

WØFCH's letter follows:

What Ground?

Many people take ground for granted. By pushing a copper rod into this substance that is beneath us, you think you have a perfect ground. This is far from true. Let us investigate this substance that is beneath us to see what factors affect the resistance of a ground.

Actually, the resistance of a ground is made up of the resistance of the lead, the resistance of the rod, the resistance of the rod-to-earth contact, and the resistance of the earth surrounding the rod. The resistance of the lead, the rod and the rod-to-earth contact is insignificant when compared to the resistance of the earth surrounding the rod. Bureau of Standards tests show that if the rod is free of paint or grease and the earth is packed close around it, contact resistance is negligible.

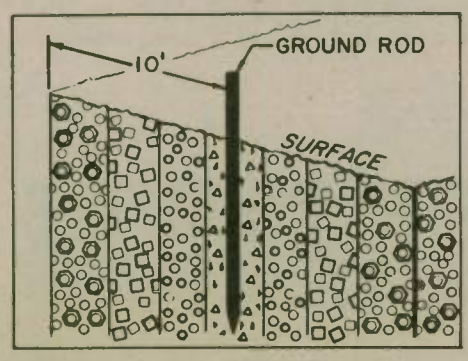

Figure 1

Now, to understand earth resistance, picture the ground rod as being surrounded by successive shells of uniform resistance earth of equal thickness. See *Figure 1.* The first shell, the one nearest the rod, will have the smallest cross section of soil at right angles to the current flowing out from the rods; so it will have the most resistance. The next shell will have a larger cross section and will have less resistance. As we keep adding shells further and further from the rod, the cross section of each shell increases and its resistance goes down until we finally reach a point where the addition of more shells adds next to nothing to the resistance of our ground.

If you were to investigate how far from ground center this point actually is, you would find that 90 percent of the total electrical resistance is generally within a radius of 6 to 10 feet from the rod.

Effect of soil composition

Bureau of Standards tests show the least resistance in soil made up of more or less refuse such as ashes, cinders and brine waste. An average ground in this material tested 14 ohms. Clay, shale, adobe, gumbo and loam soils came next with an average ground resistance of 24 ohms. Mixing these soils with varying amounts of sand, gravel and ashes shot the resistance up to 93 ohms. Finally, when only sand, gravel or rock was present with little or no soil present, the resistance rose to 550 ohms. See *Figure 2.*

Effect of moisture

Another factor has a great effect on the resistance of ground and this is the dampness of the earth. When the moisture con-

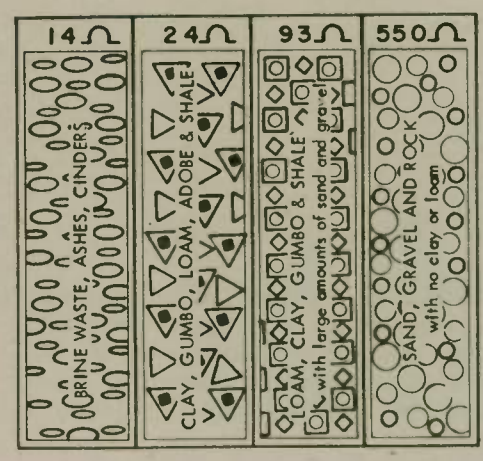

Figure 2

tent of the soil falls below 20 percent, the resistance goes up rapidly, as you can see in the graph shown in *Figure 3.*

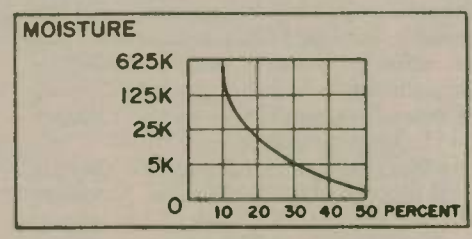

Figure 3

For example, a given sample of soil with 10 percent moisture has a resistance of 350,000 per cm³. Increasing the moisture to 20 percent brings this resistance down to 10,000Ω per cm³ and increasing the moisture to 35 percent cuts this to 5,000Ω per cm³. Moisture content of the soil varies from about 10 percent in dry seasons to around 35 percent in wet seasons, averaging out at about 18 percent. This is why the resistance of a ground rod driven into the earth will often more than double from a wet spring to a dry fall.

Effect of temperature

Another item that greatly affects the resistance of ground is temperature. A great change takes place especially when the ground freezes. The resistance of a soil sample with a stable moisture content rose from 200Ω per cm³ to 500Ω per cm³ as the temperature fell from 70 degrees to 35 degrees Fahrenheit. When it dropped suddenly to 20 degrees, the resistance went up to 6,000Ω per cm³ and at 0 degrees it was more than 40,000Ω per cm³. See *Figure 4.*

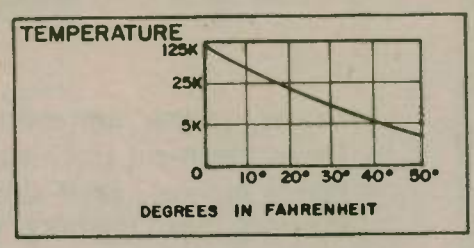

Figure 4

Where the ground freezes, it is especially important to be sure the ground rod is long enough to reach below the frost line. In fact, the ground rod should be long enough to reach down a distance of two feet below the freeze level. This will usually put it into ground that has a permanent moisture level; the temperature is stable too. The top soil has the most resistivity and is subject to wide variations in resistance with changing seasons. The greatest reduction in resistance is ordinarily encountered in going down the first 6 feet, but the 8-foot ground rod is the most popular. In most cases, this length of rod will reach permanent moisture levels.

How about the size of the rod?

Thinking about these facts, one might think the size of the rod would have something to do with a low resistance ground. A comparison was made between a one-half inch and a one inch ground rod driven into the earth, and it revealed that the one inch rod with twice the diameter and four times the area, decreased the resistance only 7 percent. In general, the rod need only be large enough and strong enough to withstand driving without bending.

How do I measure my ground?

Now you say if there is such a variation in ground, how can I measure the resistance of my ground to see if it is adequate? There are several methods, which will be explained below.

Using a Megger — is one method. It is probably the easiest and most accurate. Most of you may not have come in contact with this versatile test instrument. If you do not have one or a friend who has one, your best bet is to borrow one from the local Utility Company or the Telephone Company. If you have access to military test equipment, the old PSM-2 is a good Megger.

To use a Megger, an auxiliary ground rod is driven some distance away from the ground to be measured; the Megger in use will tell you how far. Then by turning a crank or pushing a button (depending on the type of Megger in use), you will generate an AC voltage that will cause the meter on the Megger to read the resistance of your ground in ohms. See *Figure 5* for an illustration.

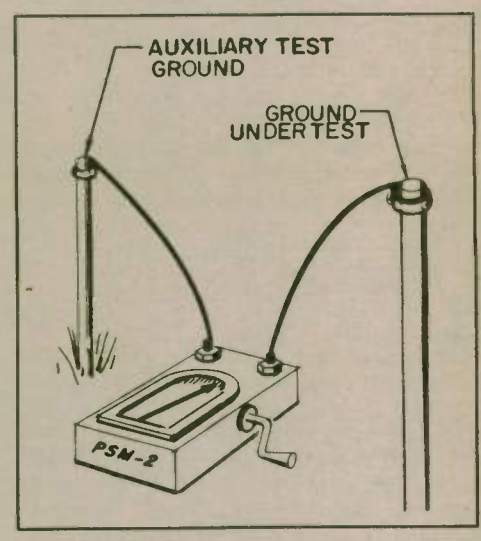

Figure 5

Using an ohm meter and two ground rods — is another method. You say why two extra rods? Well, the ground you are now using — whether it be a water pipe or an 8-foot ground rod driven into the earth near your antenna — has an AC and a DC component. Therefore, we need two more sources so that we can take a series of readings and eliminate the AC and DC components and get a true reading.

See *Figure 6* for placement of the rods

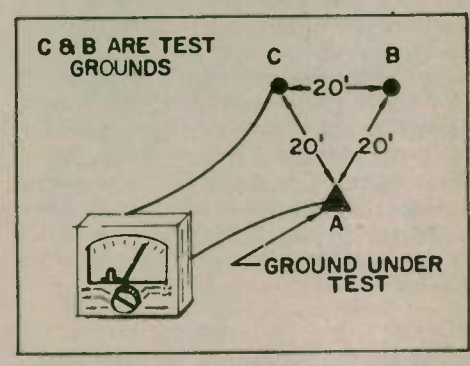

Figure 6

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with respect to the ground to be measured.

After driving the ground rods, label the rods "A", "B" and "C", with "A" being the ground rod you wish to know the resistance of. Take a reading between A and B, then reverse the leads and take a reading between A and B again. You need to reverse the leads to nullify the effect of the stray DC component.

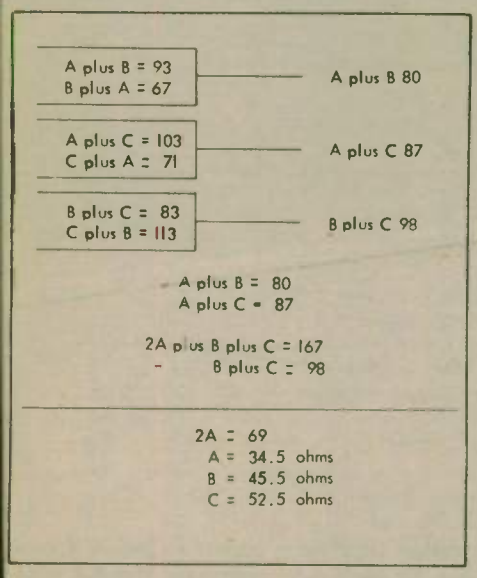

Figure 7

Let's take a typical example such as the ground at my QTH when I checked it. In measured readings between A and B, I found a stray DC voltage of .05 volts and an AC voltage of .16 volts and an average ohmic reading of 80 ohms. Between A and C, 87 ohms and between B and C, 98 ohms. Now using these figures, refer to *Figure 7* for their proper use. For good accuracy, the resistance of the auxiliary grounds should be near that of the one being measured and they should be at least 20 feet from that ground and from each other in order to prevent overlapping of their effective resistance areas. *See Figure 6.*

You can see that the use of two more ground rods and the ohm meter is a more involved method, takes more time and work, and is only as accurate as your readings. It is best to use the Megger whenever possible.

(To be continued next month.)

How to pass a multiple choice test

Lee Price, K6PHT

How much do you need to know to pass multiple choice tests? Less than you might expect! You can "psych out" a multiple choice test by means of a few common sense rules. You must prepare yourself in at least three ways:

1. PHYSICALLY. Don't spend a lot of hours before the examination trying to cram all night and arrive exhausted at the examination. Get a good night's rest.

2. MENTALLY. Relax at the time of the examination. Remember that you need only 75 percent to pass. Also, remember there is another time coming. Treat the exam as a learning experience. You are taking it to see what it is like.

3. STUDYING FOR THE TEST. Use more than one source of study material and be sure it is up to date. No two authors express an idea in the same way. Buy good materials to study. Class study lends interest and motivation.

In taking the exam, don't read anything into the question that isn't there. First read the question while covering up the multiple choice answers. Ask yourself, "What is the question saying?" Then read the question again very carefully in conjunction with each of the multiple choice answers. In particular, watch out for expressions such as "not true", "not false", "incorrect", etc. Do not be too quick to pick an answer which is partly correct. Even though some answers may not be wrong, the proper answer is the one which is the most complete and the most nearly correct.

Go through the examination carefully and answer only the questions which are obvious to you. Remember that you have plenty of time. As you go through the questions, you will find things that may help straighten out your thinking on the questions you skipped. If you let it simmer while you go on to another question, the computer in your sub-conscious will work on it and the answer will come. If you fatigue yourself at the beginning on difficult questions, you could suffer more wrong answers on other easier questions. Think on your scratch paper rather than in your head. It's more accurate. Double check to be sure that you have marked the answer sheet correctly. When you skip difficult questions, be sure to skip the corresponding spaces on the answer sheet. Be sure the number of the question corresponds to the number on the answer sheet. Answer every question, even if you have to guess. If you can discard choices that are obviously wrong, you have improved your chances of guessing correctly.

Don't be afraid of failing. Taking the test didn't cost much. You can hit it again in 30 days. You might even get the same questions next time. Make notes right after the exam of things you observed and what bothered you. Don't wait. Take the test again as soon as you can. Get someone to go with you. You would be surprised at the number of people who take the exam with a friend for the fun of it or on a dare, and end up with a new license!

73, and good luck!

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TRAFFIC

Chuck Clark, K4ZN
Assistant Director
Roanoke Division, ARRL

Restructured NTS

For about a year, the National Traffic System (NTS) has integrated the daytime and the evening cycles into one system. The NTS began just after World War II mainly as an evening CW system, so it never had a policy of restricting membership to CW nets meeting during the evening hours. Official policy was to be open to all modes at any hour, provided only that the nets met the qualifications: coverage restricted to a defined area — usually a section or smaller, and regular liaison to the net — usually a region net, designated to act as the point of contact with the rest of the system. However, most of the nets were CW nets working during evening hours.

In the 1970s a daytime cycle was set up, this time using voice. Again, CW was not excluded entirely, but the hope was that phone operators would participate; so the initial organization selected frequencies in the General Class phone bands for the region and area nets. The original NTS started rather shakily, and the daytime cycle had the same experience. But after a bit of feeling their way, both cycles became reliable and effective ways to route traffic.

For several years, each went its own way. There was some crossover for traffic between the two systems, but often traffic in one net would be held for the next cycle of the same net instead of being relayed to the other cycle and thus reach its destination hours sooner. The Transcontinental Corps, for example, was set up on an evening-to-next-evening or day-to-following-day basis, which was particularly hard on eastbound traffic because the western nets met after the East Coast traffic people had closed shop.

A year ago, the NTS staff and the ARRL Communications Department decided to combine the two cycles in such a way that relay from one to the other would be the normal thing. In addition, provision was made for additional cycles between the existing ones if needed because of heavy traffic or emergencies. It now operates like this (times are local):

Nets	Cycle 1*	Cycle 2	Cycle 3*	Cycle 4
Section	10:00 a.m.	1:00 p.m.	4:00 p.m.	7:00 p.m.
Region	10:45	1:45	4:45	7:45
Area	11:30	2:30	5:30	8:30
Region	12:30	3:30	6:30	9:30
Section	1:00	4:00	7:00	10:00

* Cycles 1 and 3 not normally active.

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Actually, the times set for the section nets are merely nominal. There has always been considerable variation in meeting times for these nets, and does not disqualify one for membership in NTS. The only requirement is that they have regular representation in their region net. Section nets need this flexibility, as they are generally open to any amateur who wants to participate, and so they select times when they can reach as many as possible. Many sections have several nets meeting at different times to provide an opportunity for almost everyone. Region and area nets, however, are expected to keep to these schedules.

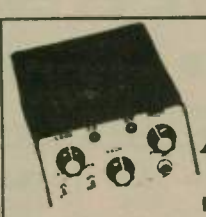
June QST announced that the present arrangement will continue the remainder of this year, giving time for the NTS staff to evaluate the system, to discuss it at staff meetings — probably in November, and then to announce any changes in the structure in time for them to go into effect 1 January 1982.

If you have any comments or suggestions, by all means communicate them to the NTS staff. All region and area net managers belong to the NTS staff, so contact any of them. Your Section Traffic Manager should be able to tell you who they are, as can anyone who regularly handles traffic on region and area nets.

Incidentally, some of the Cycle 2 nets are now being conducted on CW on weekends because the phone bands are usually congested then. It makes it easier to move traffic, and at the same time makes for better relations with non-traffic phone operators.

Copying CW

Most operators who participate in region and area CW nets can handle code at 20 or 25 words per minute, and usually do when conditions are good. The volume of traffic they handle in a limited time makes it almost necessary. They will slow down if you ask, or usually if you send more slowly yourself. But it's helpful to get your speed up so that you can copy 10 or 15 messages in the time the net is in session and be ready to pass them on in the next net.



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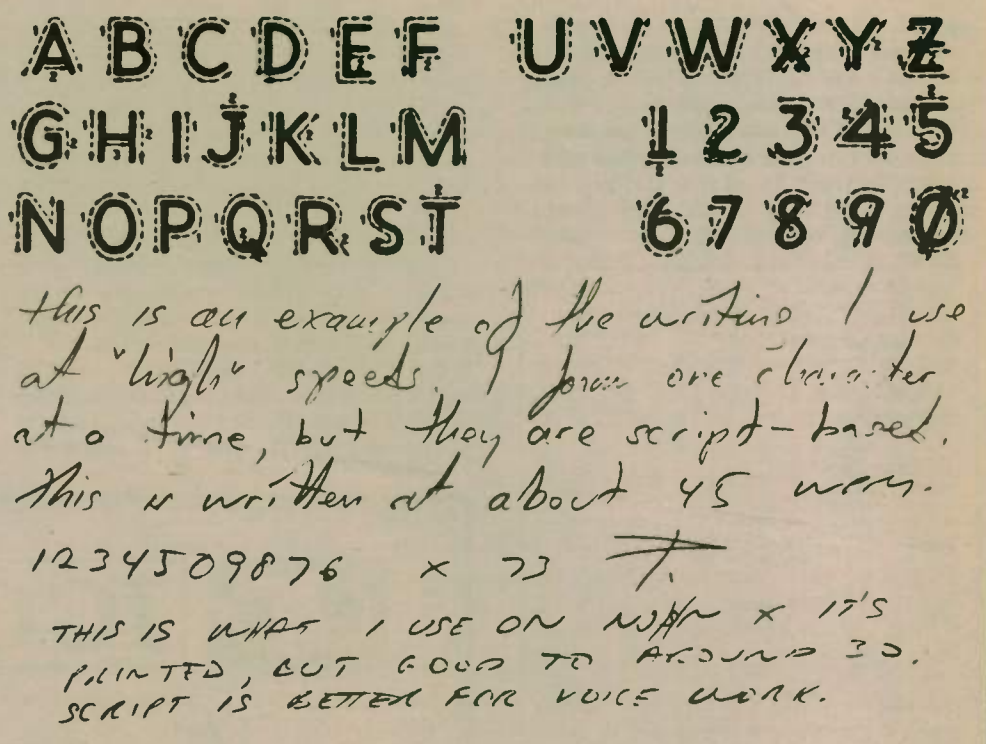

Figure 1

Armond Brattland, K6EA has given many suggestions for improving your speed in his "Exchange" column, called the "Novice" column in earlier issues. Here are a few more, condensed from what Pete Skorupsky, WB2IQJ, wrote in the March-April *New Jersey Traffic Bulletin:*

"I often notice needless strain by net operators in copying traffic. I do not suggest that accuracy be compromised; only that the copy process can be easier, faster and more fun. You say you can't copy fast? The first step is to resolve that you can; you can if you think you can. Otherwise, you've failed before you begin. What I say applies to both voice and CW modes.

"Get comfortable. You're inviting distraction if your dog is jumping over you, if it's too hot or cold, your operating position is cluttered, or ambient noise is high.

"Touch typing or stenography are fast and accurate. If you can't type, learn. There are plenty of books and courses available. But even if you don't type, you can copy by hand.

"Choose a comfortable pen or pencil. If your knuckles get white, you're clutching it too tightly and it's probably too thin. It should provide low friction as it glides across the paper. Soft pencils and "rolling" point pens are fine. Ball point pens are out! It should not be too short, should balance well in your hand.

"Writing quickly requires economy of stroke and efficient character formation. A fast scrawl may not remain legible to you even a few hours later. It's worthwhile to invest a little time learning a better way to write. Several styles of fast writing have been developed. You may be able to develop your own, once you get the idea. An example of one alphabet is shown in *Figure 1.* My preference depends on transmission speed. Below 30 words per minute I tend to print, and use script above. I break up longer words into shorter groups with subtle spacing for clarity.

"Abbreviations and phonetic symbols may be used. The Phillips code, highlighted in a past issue, was developed for telegraphy. For a copy, send a #10 SASE to Dan Ostroy, K2UL, 54 Mark Twain Drive, Trenton, NJ 08690. And there are our customary amateur abbreviations.

"The typewriter is both fast and readable. Copy the preamble on one line. Copy the address on one line, too. It wastes time (and paper) to begin a new line for each AA. Represent the AA with a slant bar (/) or extra spaces. Since typewriters are noisy creatures, use well insulated, cushioned headphones. And the shift key wastes time too, use lower case. It is not hard to learn to copy five or 10 words to the line (10 words are copied as two groups of five). Indicate the call of the station from which the message is received and the date and time in the lower left corner of the page, and the call of the station to which it is sent and date and time in the lower right corner.

"When handwriting, strive to write legibly. Speed will come with practice. Strategies define themselves if one analyzes needed skills. It is wasteful to anticipate what the next word or character will be. Among the most important strategies, *copying behind* is, I feel, the most important. It applies both to code and voice messages. It is worth learning.

"Don't write an incoming letter as it is sent; wait until the next or several letters have been sent before writing the first. This may at first appear awkward. But if you write each letter as it is sent and try to keep up with it a letter at a time, copy will suffer. You will tire more quickly, your hand will cramp. You will try to guess the next letter and guess wrongly. You will make errors in copying or copy erroneous characters as they are sent without time to make clean corrections (in your head before it ever reaches paper). You will find it difficult or impossible to decipher sloppily sent code.

"Suppose you are writing each letter as it comes and you hear 'didit dahdit' so you write 'in.' If you had waited until the phrase was sent, you would have seen clearly that 'F' was meant. In voice or CW, certain phrases may be spoken or sent too fast for you to copy, but you can copy behind and catch up when the transmitting operator pauses. If you can't copy behind, you have the choice of either throwing the pen up in the air and missing more text, or continuing to copy what follows. From memory, guessing from the context, or asking for a fill, you may fill in what you missed — hopefully you have left room for it. (And hopefully you have guessed right — don't guess!) If you can copy behind, your troubles will be less, if any.

"One learns to copy behind progressively. In the case of CW, instead of writing each letter as it comes, wait until the next letter is completed. Now write the first

World Radio History

letter. As the third letter is sent, write the second. When it becomes easy, try copying two letters behind. By the time you master three letters behind, you will find CW easier and more enjoyable than you thought possible. In the process you will have learned to disassociate listening from copying. Hard copy becomes automatic. You are freed to pay attention to what is being said, what you want to say in return, or even hold another conversation. When copying behind you must relax, and the ease of the method will relax you more. You cannot anticipate; you have no need to. And you can copy some (not all!) sloppy code."

Deliveries

The same issue of the *New Jersey Traffic Bulletin* has another item by another Pete — Pete Gebert, W2WSS, reprinted from the *Empire Slow Speed Net Bulletin*. It's a good discussion of the final act of traffic handling — making delivery. Here is a condensation:

"Many traffic handlers enjoy making delivery: the gratitude and pleasure of the recipient reward the effort. Others find deliveries the least welcome aspect of traffic: they can consume much time and have very little to do with the pleasures of Amateur Radio. After you have dialed the putative addressee's number three times without answer, the fourth call reveals the telephone number in the message is wrong. You look in the phone book only to find that your addressee doesn't exist, or perhaps is a child residing under another listing. You try to match the name with the address: try doing that with all the four and a half pages of Browns in the Manhattan directory; or maybe it should be Browne — are you sure an E did not drop off on the way from San Francisco? Multiply that by a large number of deliveries, add the occasional apathetic or rude response; is it any wonder that many would rather spend their time on the air or rebuilding that beam for the next DX contest?

"Nevertheless, most amateurs accept the responsibility of making delivery. How then do we make delivery to create the most favorable impression on the recipient?

"I usually say something like 'This is Amateur Radio W2WSS and I have a greeting message for you from (place of origin),' or perhaps, 'from (person signing the message) in (place of origin).' It is important not to alarm the recipient; the voice of doom is definitely out of place.

"Unless the recipient is another amateur, I do not read the full preamble, just the place of origin and sometimes the date (read on); nor do I repeat the full address, just 'It's addressed to you' or 'to you and Mrs. Brown' and then into the full text and signature.

"If the message is only a day or two old, I mention the date. If the filing time is given and it's within 24 hours, I'll mention that too. More elderly messages are delivered without mention of the date unless the date is obviously relevant to the message. Of course I don't lie (who, me?). If the recipient asks for the date, I must tell. In my experience, most don't ask.

"When there appear to be mistakes, I read it as received, but add what I think to be the correct version; the addressee will usually have little difficulty deciding.

"Try to get a return message? It's a good idea, and some messages require an answer. But sometimes we may not be able to put a return message on the air for awhile. In those cases, I'd rather not solicit a return message unless it carries an HXE or the text requires it. Even then I may say 'The message asks me to get an answer but I won't be able to get it on its way for three days. Is that OK?'

"It used to be recommended that telephone deliveries be followed up by mailed 'hard copies,' but the rising cost of postage makes this impractical for any but the most sporadic of deliverers. I limit occasional written confirmations to those recipients who seem to have found a special significance or pleasure in the message.

"And now back to the telephone book . . ." □

HANDI-HAMS

(*continued from page 31*)

Whew . . . on to "Yesterday, Today and Tomorrow." Try this on for size: It's not the same day everywhere on the Earth right now. Right now it might be Tuesday for some people, and Wednesday for others! At midnight we change dates, right? But when it's midnight in Paris, France, it's only 7:00 p.m. in Paris, Illinois. A few minutes later, in both places, the day changes in France. So, you have Wednesday in Paris, France and Tuesday in Paris, Illinois. Each day, however, there is one moment during which the day *is the same day* all over the world. At precisely midnight on the International Date Line (which is Longitude 180° from the Prime Meridian), it is the same day all over the world. A moment later, and we're into a new day there, and the old day everywhere else.

Now . . . if you're like most people, you're thoroughly confused by now. Our lives are largely compartmentalized; we couldn't care less what's happening outside our own little sphere of influence, be it the office, kitchen, nursing home, classroom or whatever. But we, as radio amateurs, have a worldwide sphere of influence. We can't restrict our signals to a particular geographic area. So we *must* be aware of the constraints time places upon us, no matter where we are.

To get to our original point — keeping time in terms of UTC (the time it is at Greenwich, London, England). If I called you on the phone and said, "Meet me on 20 meters at 5:00 p.m.," the statement would be almost meaningless. 5:00 p.m. WHERE? Minneapolis? Honolulu? Zimbabwe? But if I said, "Meet me on 20 meters at 5:00 p.m. UTC" — aha! Then you'd know exactly what time I meant, and could convert that time to your own time zone.

Or . . . you're looking up the orbits of OSCAR 8 to see if you can copy anything. The orbital predictor says OSCAR 8 will transit the equator at 68.1 degrees West longitude at precisely 0024:43 (UTC) on 31 July. Bingo — you tune up your Fresh Paint 1000 receiver in the early evening on the last night of July and, BOTCHO! — you don't hear a thing. Of course not, dummy — 0024 UTC, 31 July is early evening on the *30th* where *you* are!

There are lots of reasons why you should be familiar — even fluent — with international times and dating. But perhaps the most important is that you can impress the heck out of visitors to your shack who point wondrously at your clock and exclaim, "Gosh, Franklin! Your clock's all wrong!" "Waahl . . . no, actually," you drawl, "ya see — the Earth here is divided into a whole bunch of Merrydials every 15 degrees or so, and, aahhh . . ."

Have a good time. See you later!

PS: By the way, UTC stands for "Universal Coordinated Time", GMT means, "Greenwich Mean Time" — same thing, for all practical purposes. □

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World Radio History

SSTV

Dave Ingram, K4TWJ

Dayton — The video potpourri

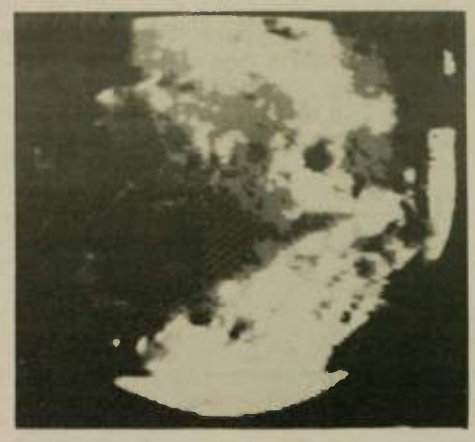
This year's Dayton Convention was again an absolute blowout of unique video ideas and concepts which will set trends for coming times. The Friday night gather permitted discussing Medium Scan and Color SSTV in a detailed manner. These systems were displayed at the SSTV booth on Saturday, with a formal discussion of each system conducted during that midday forum.

Dr. Don Miller, W9NTP's two-memory Robot 400 system produced very good pictures, which are fascinating to view — particularly as the incoming scene is being reconstructed. The first color raster received, for example, is red, creating an unusually shaded red and black picture. The next color raster adds green elements which also combine with the red to produce yellows and oranges. Finally, the blue raster takes its 8-second fold down the screen, again adding elements of blue plus combining to create magentas and cyans. Tremendous!

Dr. Miller had a relatively large supply of his boards/parts available to home construction enthusiasts at an absolute no-profit cost of $65.

Looking at Don's '400 with the two-memory modification indicates this isn't a lighthearted project for the overnight home constructor. A vast amount of parts and jumpers are installed on the two "modification boards" before they are ready to connect to the '400. Then another pile of inter-connecting wires are installed between the existing and new '400 circuitry. I would guess a very diligent "evening constructor" could complete the full job in three or four weeks, provided a substantial amount of weekend hours could also be added to the project. As for troubleshooting, I seriously recommend doing everything *right* the *first time* and double-checking yourself *every* step of the way. This color SSTV project/system is a classic example of true amateur spirit and ingenuity. It also demolishes any accusations about today's amateurs being appliance operators. I really don't see how W9NTP can provide these (semi) kits without losing some of his own money. They're great.

Amateurs desiring to break into color SSTV but lacking time or effort to devote to the W9NTP boards can contact Sam Mormino, WA7WOD. Sam and Howard, KD5HF, are setting up shop to produce "ready-to-go" color conversions for the Robot 400. The "WA7WOD system" employs W9NTP-designed boards which are wired and modified to permit easier interconnections. Additionally, this system replaces all memory chips with CMOS equivalents — 195K worth of total memory! Installation consists of mounting two switches and two jacks on the Robot 400, connecting approximately 12 wires to the Robot's circuitry, removing Robot memory chips and substituting



One of Jupiter's many cratered moons, as seen from Voyager I's window. Here's looking forward to more such spectacular views in the near future.

jumpers, and that's about all. I would guess an amateur could "WA7WOD convert" his Robot 400 for color in approximately five hours. The results are full color SSTV (65K times 3) which looks *great*. The cost is $450 — a very reasonable price, considering today's exorbitant inflation rate and the fact *time* is now more valuable than *money*.

Another very attractive approach to Color SSTV involves the use of Radio Shack's new color computer (TRS-80C) and Clay Abram, K6AEP's upcoming software/interface package. The color computer's new price varies from $310 to $399 (shop around!), and K6AEP's interface which should cost less than $30. Since this computer can be used for RTTY, ASCII, color or black and white SSTV, plus function as an efficient home computer, the investment is well justified. (Yes, there's a home computer destined for each of our futures. This is an optimum time to hop on the bandwagon.)

One of Clay's early developments for the TRS-80C appeared in May 1981 **73 Magazine**. Other developments are presently being documented. The "K6AEP Color SSTV System" (still under development) requires an unmodified '400 "in front" of the TRS-80C, and it doesn't produce high resolution color. The display is 64 pixels by 64 pixels, versus W9NTP's 128 by 128 pixels. I, personally, feel that's a great trade-off, considering my need for a home computer at this time. It's almost like getting Color SSTV capabilities free. Hmmm — I wonder if Clay may soon set up a spread-spectrum interface/program for the TRS-80C. Enjoy, enjoy!

Another Color SSTV setup was also shown at Dayton — this one belonging to Sid Horne, VE3EGO. Basically, Sid built his own three-memory system from scratch. No PC boards were available — just challenging hard work with resultant beautiful pictures. Our hearty congratulations and admirations to VE3EGO for outstanding efforts.

Warren Weldon, W5DFU, has been providing an outstanding service to his community by assisting the National Weather Service during adverse weather. Warren's slide presentation at Dayton showed how his remote-controlled Fast Scan setups provide views normally unavailable to other local systems. Warren also explained how relaying of radar scans, etc. complemented the arrangement. This presentation truly inspired thinking of what one man can accomplish when his thinking is right.

TVROs and MDS gear were hot items at Dayton, and 2300 MHz Fast Scan interest followed close on its heels. Watch for increased activity complete with FSTV repeaters to hit this band during the near future. Microwave pioneering is also rapidly coming into vogue.

Remember Dick Piety, K6SVP, the chief operator at W6VIO? Here's his home setup ... as of last year. Dick may have replaced the FT-101 by now. The SSTV camera (on tripod) can view either printed matter or the operating position. Notice the "human engineering" of this station layout. Clever!

Slow Scan to Fast Scan on UHF

I wonder if some of you would like to rally with us in pursuing a rather unusual project. I'm talking about requesting Special Temporary Authorization from the FCC to relay special event-SSTV pictures in regular FSTV format on Channels 81 through 83 of the UHF band. It seems this activity could prove a beneficial service to one's community particularly when handled in a sincere manner. Two or three very basic repeaters could be situated in various amateurs' homes when metropolitan coverage is desired. I rigged up a couple of such repeaters a few months ago (70 cm band) and they worked reasonably well. Directional antennas with mere 3-foot spacing worked great. In fact, the receiver and transmitter were purposely unshielded. The ideal way to "kick off" a project of this nature would be coverage of the Voyager flyby, space shuttle flight, etc. It's a pity this plan couldn't have been put into action a couple of years ago.

Drop me a letter or meet me on the Saturday SSTV Net (1800 GMC, 14,230 kHz) if you're interested in joining the project. Be sure to mention if you operate

(please turn to page 49)

again again

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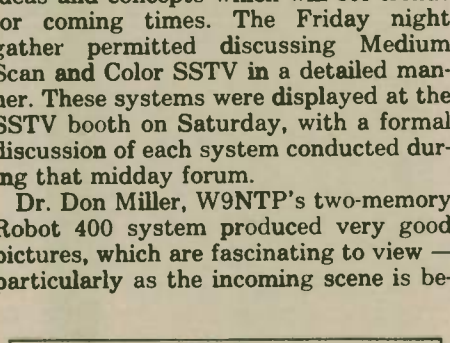

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World Radio History

Lil Paddle

If I wasn't such a genteel lady I'd emit a string of curses. What drives me to such a state of anger is a book which shows a total abdication of responsibility to its purchasers.

This travesty is titled *A Guide to Ham Radio* published by 73 at the price of $4.95. For example, on page seven we're told that a radio wave with a frequency of 660 kHz has a wavelength of 200 metres.

Obviously, no one knowing one whit about wireless proofread that page. I dread that this "book" should fall in the hands of any beginner.

In truth, a signal at 660 kHz has a wavelength of 454.54 metres. Here is the formula: If you divide Frequency in MHz into 300, you get metres. If you divide Metres into 300, you get Frequency in MHz.

On page nine the unfortunate reader is told "High frequency, small wavelength waves go through the ionosphere into space". Page eight relates, "High frequency, small wavelength signals are usually confined to line-of-sight communications." (This book should be recalled from the dealers' shelves.)

In actuality, it is the Very High Frequency (VHF) waves that are line-of-sight. The high frequency (HF) waves carom off the ionosphere and go around our planet.

It is obvious from the "See Spot run" writing of this disaster that the intended audience was every newcomer to Amateur Radio between the ages of 6 and 9. Yet, the diagram of a vertical shows one solitary wire running to the vertical element and nothing at all going to the radials. The inverted V diagram shows coax coming from the feedpoint to the ground where the shield goes to the earth and a single wire comes out of the coax to the transmitter.

Page 35 shows a little wire coming out a window and hanging down along the wall of the house. The caption says that this "works well." Works well compared to what, no antenna at all? My heart bleeds for the new Novice depending on this lash-up to make contacts. (And no mention is made of wrapping tape around the end.)

Then page 36 proclaims this: "A quarter-wave vertical used for 15-metre operation is under 4 metres long, or about 7-½ feet."

Sorry, a quarter-wave vertical for 15 metres is about 11 feet long. The formula is 234 divided by frequency in MHz.

What manner of publisher would inflict such rubbish on the unsuspecting?

References are made to Field Day being a "DXpedition", and identifying your station as being in "Maritime Mobile region 5" (?). One is told you must retune each time you change frequencies, and that tuning up takes "30-45 seconds."

Does the author have stock in the tube companies? The book is a skimpy 47 pages for $4.95. Possibly that is a blessing, because if it were twice as big it could have twice the misinformation. It's kind of like the saying, "Thank goodness we don't get all the government we're being charged for."

I wish that, after seeing this monstrous book being foisted off on the neophytes, Chairman Kurt would stop reminiscing about his steel pot days and making dumb jokes and come out with an antenna book that would do some people some good.

While this column is supposed to be about aerials and it was on that basis we were critical of *A Guide to Ham Radio,* there is another statement that must be cleared up. On page 42, it is stated: "100 watts of power is quite a bit for a car battery to handle.

Unfortunately, many amateurs think that a 100-watt transmitter draws 100 watts when transmitting. Not so. First of all, the actual speech time while your mike button is depressed is half or less. Then, the amount of power drawn is proportional to the volume of your voice. Unless every syllable you utter is at full maximum, the drain is much less than maximum. Since we are looking at speech as a sine wave, very little is at the peak and you have to think about average power.

What this all boils down to is that you can run a 100-watt transmitter all weekend on a decent size car battery. Then think about this — you could decrease your drain by half (giving twice the battery life) and lose but 3dB.

Which brings us to the topic of this month's column — dBs. They seem to be thrown around a lot with not much understanding as to what they really represent. Example: You are listening on headphones to a single frequency tone, and the conductor of the test tells you to indicate when you can detect it is louder. The volume is cranked up and you put up your hand. The level of increase that you finally detected it was louder, is, for most people 1dB.

This illustrates that under almost laboratory conditions, a 1dB increase represents but a fine sliver of perceived difference. Under normal wireless conditions, a 1dB increase would never be noticed. Would it be noticed on an "S" meter? No!

What magical powers many attribute to the "S" meter on their receiver! If such a condition were true, it would require an instrument more expensive than the transceiver. "S" meters have no standard. And if one were calibrated for one band, it would change drastically for other bands. At one time it was bandied about that one "S" unit was a difference of 6dB. Some manufacturers claimed but five. Six would have been a nice standard, since that would have made it a four time power increase from "S" unit to "S" unit.

For you see, a 3dB increase neccesitates a double in power. Then to raise another 3dB, you would have to double your power again. To illustrate (assuming all things are ideal), to raise one "S" unit on the other station's receiver you would have to go from 100 to 400 watts. Another example: If you were running 1,000 watts and decreased your power to 250 watts, you would drop 6dB or but one "S" unit. If you were running 500 watts and went down to 50 watts you'd drop 10dB or about an "S" unit and a half on our perfect "S" meter.

To prove that "S" meters are not what they are cracked up to be, here is the proof. How many times have you heard amateurs on the bands checking their amplifier versus transceiver alone? when going from 100 watts to 1,000 watts, the gain would be 10dB. Yet, you'll hear reports like, "You went from S-7 to 20 over 9." Or you may even hear, "You sound louder but there's no difference on the 'S' meter." And thus we demolish the myth of the "S" meter.

As far as microvolts per dollar goes, you'll do better putting the money into the antenna system before adding an amplifier. Not only does the antenna give you transmitted gain (without increasing the power bill), but it also increases the received signal the same amount. Plus, it gives great rejection off the back and even more off the ends, reducing the QRM on the frequency that you hear. And it helps others, as you are squirting the power in the given direction you wish rather than having it just spew all over.

As to the type of beam antenna to put up . . . if you are torn between a quad and a Yagi and someone tells you the Yagi is better, you know you are in the company of a buffoon.

There are certain mechanical superiorities of the Yagi under adverse weather conditions, but as far as just oomph per element or boom length, the quad is the winner.

To touch on something else. In order to make the received audio somewhat more pleasant, you may wish to obtain an external speaker of higher quality than comes in your rig. Try two of them separated a bit. it does make it much nicer than listening to a tinny speaker in a tinny box.

Now we go back to yesteryear for true creativity in antennas. I remember one cute lieutenant I used to see before he shipped out to the CBI theater. He wrote me from New Delhi, Bangkok, Singapore and then we just lost touch. He was from Fresno, California as I remember. He told me that once they couldn't get through on a circuit. So what he did was drag some of that metallic matting used on airstrips over next to a metal building. There was now a 90 degree angle of mat and building. By putting up a dipole at the right place, he had created an HF corner reflector which worked out just fine and a good communications path was created. Not only was he smart, but he was a handsome brute. I hope the years have treated him as kindly as they have me.

Then to the reprobates who have written in challenging what we've been saying in this column: You are full of soup!! After you read next month's column by my alternate, you will realise what twits you are.

To others: your queries, comments and praise are welcomed.

(Obviously, Lil Paddle is an alias. Due to her work situation, it is necessary. She would like to point out that she is an old-fashioned gal who likes the door to be opened for her, her cigarettes to be lit and her dinner paid for.) □

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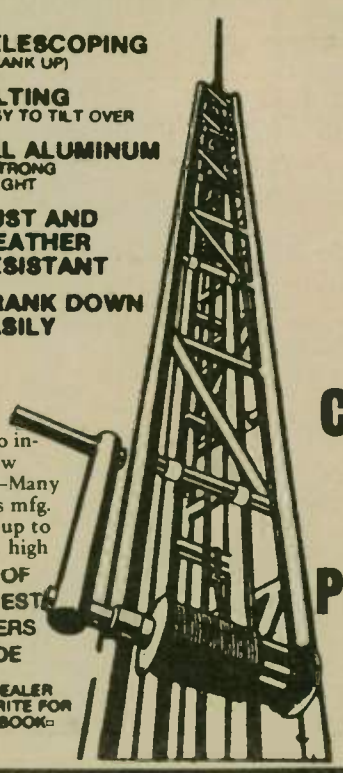

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World Radio History

CONSTRUCTION

Chuck Clark, K4ZN
Assistant Director, Roanoke Division, ARRL

The Command transmitters

Last month this column said something about the "Command" series of World War II aircraft radio equipment, and discussed the receivers in detail. This month it will be the transmitters. This equipment was made by the hundreds of thousands during the war, as it was expected that much of it would be lost and much would be needed for replacement. As a result, there is still a lot of it around 40 years later. The transmitters are still good for CW. They have been converted into sideband rigs, but it's a more elaborate project than is suited to this column. But for CW, it's one of the simplest and cheapest ways to get on the air.

The two transmitters most useful for amateur use are the BC-696 or T19 which covers 3 to 4 MHz, and the BC-459 or T22, covering 7 to 9.1 MHz. All the HF and MF transmitters are identical, except for the coils, so the modifications needed to adapt them for amateur use are the same for all. They use a 1626 tube as VFO driving a pair of 1625s as the final amplifier, and are capable of feeding 50 watts or more into an antenna. World War II aircraft used short antennas for HF work, or occasionally a trailing wire, so these transmitters are quite tolerant of loading. They will load just about anything from a short whip to a long wire, and the loading inductance is built into the transmitter.

There is also a crystal in the transmitter, but it does not control the frequency. Its sole purpose is to serve as a calibration check, in connection with a 1629 magic-eye tube. The eye "winks" as the oscillator frequency is in resonance with the crystal, and the dial should indicate the crystal frequency at that point.

Needed modifications

Figure 1 shows the schematic of the Command transmitters. To convert them to amateur use, you need a power supply, you have to change a few connections inside, and that's about all. *Figure 2* gives a view of the underside of the chassis, and shows where the parts of interest are located. Here is a step-by-step outline of the procedure:

1. Remove the top cover and the bottom plate. I usually put the screws back into the threaded holes to keep them together. Remove the tubes and crystal so you won't break them while working on the transmitter.

2. Remove relay K-54 (inside top of front panel) and relay K-53 (side of chassis near 1625 sockets) and all wires connected to them except red wire going to pin 4 of 1626 socket and bare wire going to pin 6 of one of the 1625 sockets. These two relays are part of the transmitter selector circuit and are not needed for amateur operation.

3. Reconnect the heaters for 12-volt operation. The transmitter is designed to operate from a 24-volt DC supply. Remove R-71 (rear wall of chassis) and the leads connected to it. Unsolder the other white wire connected to pin 7 of the 1629 socket and solder it to pin 2. Connect pin 7 to ground. Unsolder the other white wire connected to pin 1 of the 1625 socket nearest the capacitor drive shaft and connect it to pin 7. Connect pin 1 to ground.

4. Unless you have one of the Command set equipment racks, you will have to change the connector J-64. An octal plug will work nicely here. Use a male plug on the chassis and a female connector on the end of the cord. This is for safety reasons: male prongs on a plug should always be "cold" unless the plug is inserted in the socket; otherwise someone might receiv a shock from coming in contact with th prongs. If you prefer to use a cord co nected to the transmitter with the plug a the other end, you can use a 3/4-inc Romex clamp or service-entrance-cabl clamp in the hole to hold the cable. An electrical supply store will have thes clamps. The original connector can b pried out of the hole with a screwdriver

5. Install a keying relay in the spo where K-53 was originally located. Radi Shack's 275-003 or 275-004 are suitabl as is the small SPDT relay used radiosondes and available from surplu dealers. In many of these relays, the mo ing contact is grounded through th frame. If it is not, run a separate groun wire to pin 7 of the nearest 1625 socke Connect the bare wire from pin 6 of th 1625 socket to the normally open contac Run a wire from the normally closed co tact to pin 1 of the 1626 socket, and a 1 picofarad capacitor from pin 1 to C-59 a R-72 on the side of the chassis next to th 1626 socket, connecting to the lead th goes to the tuning capacitor C-63. Run wire from pin 2 of the 1629 socket to pin of the crystal socket, and a rectifier dio from pin 2 to pin 4 of the crystal socke Connect a 50-microfarad 25-volt ele trolytic capacitor between pin 4 and pin of the crystal socket, and a wire from p 4 of the crystal socket to one of the c terminals of the keying relay. The oth terminal is connected to the key, either installing a jack at the bottom of the l

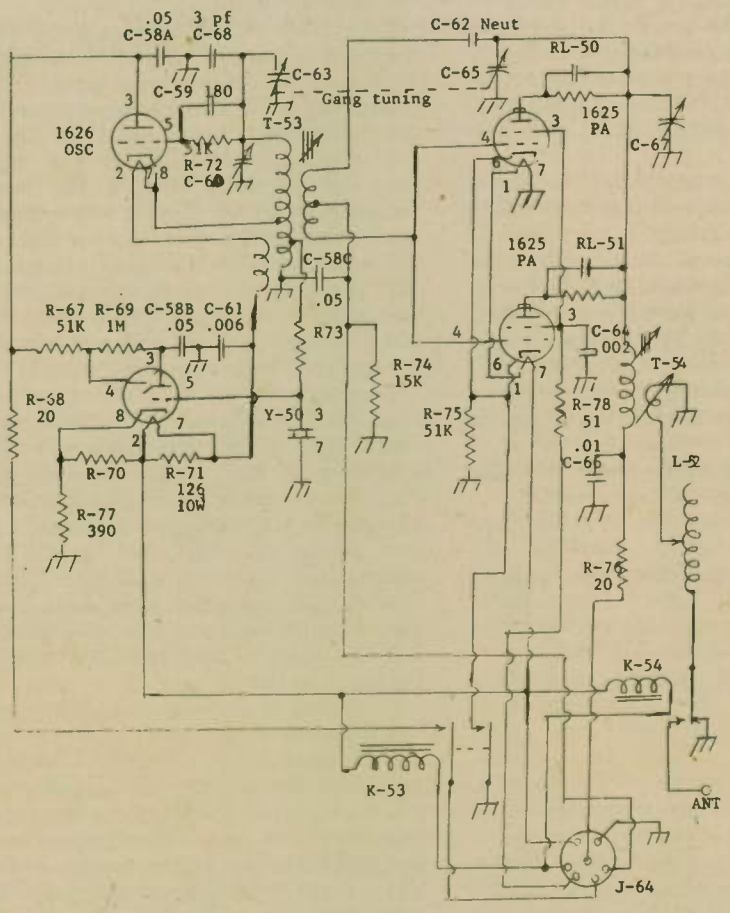

Figure 1

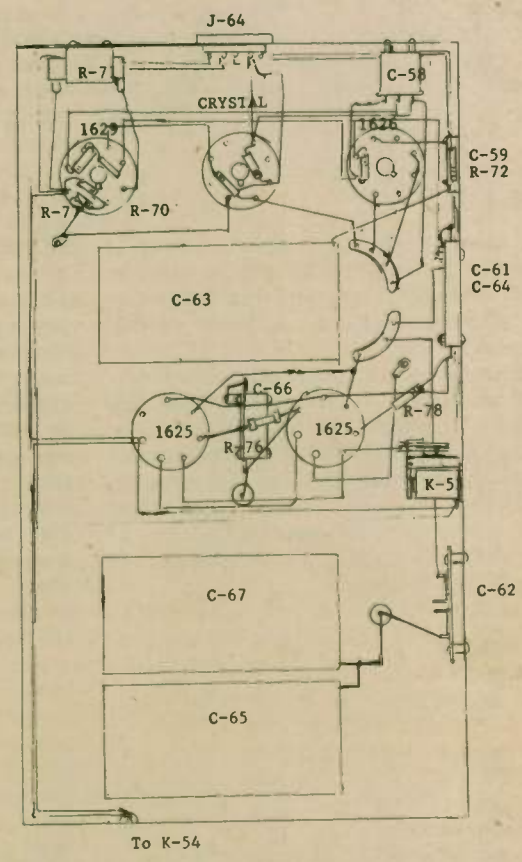

Figure 2

Solid State Tubes

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side of the front panel or by feeding the keying lead back through the power-supply cable and connecting the key to a jack in the power-supply chassis. Connect a rectifier diode across the coil terminals.

6. Disconnect R-70 from pin 2 on the 1629 socket and connect it to pin 4 of the crystal socket.

7. You can use the antenna terminal that is supplied, making connection with a battery or alligator clip, or you can remove the terminal and replace it with an SO-239 coaxial fitting. The latter fits in the hole nicely, and only needs four screw holes drilled in the panel for mounting. In either case, make a connection between the terminal or connector and the end of L-52.

See *Figure 3* for a schematic of the changes.

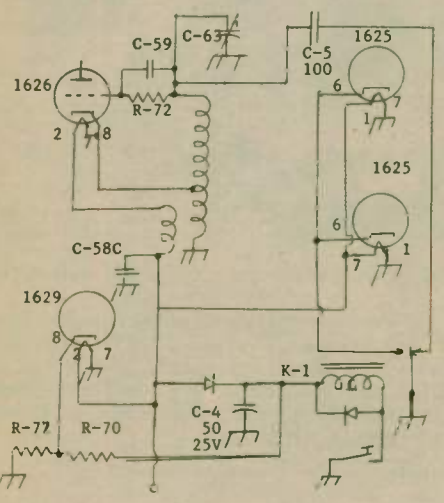


Figure 3

Power supply

If you don't have a suitable power supply, it's not difficult to make one. See *Figure 4.* Surplus dealers have suitable transformers. I used a transformer from a junked TV set. Older sets used power transformers of this type, and they are quite adequate for the purpose. The one I found had a tube socket on top for the rectifier tube. I removed the socket, installed a porcelain bushing in the hole, and fed the leads through this bushing and through one in the chassis to the rectifiers below. The usual transformer will have a 750 to 800 or so volt center-tapped winding, a 5 volt 3 ampere winding, and usually two 6.3 volt filament windings, usually center-tapped, of anywhere from 1 to 5 amperes. The two filament windings can be connected in series to give the 12.6 volts needed, or if there is only one 6.3 volt winding, connect it in series with the 5 volt winding. The voltage will be a bit low, but the transmitter will work.

Identifying the transformer leads can sometimes be a problem. Many transformers on the surplus market have clear terminal markings. With them you have no doubt which is which. But a transformer that you liberate from a junked TV may present a puzzle. There is a standard color code, but you may sometimes find a maverick, and quite often the leads on an old transformer are all a dirty gray — no matter what color they were when they came from the factory. Here is the standard color code, however:

Primary, black.
High voltage, red.
Center tap, red with yellow stripe.
Rectifier filament, yellow.
Filament 1, green.
Center tap, green with yellow stripe.
Filament 2, brown,
Center tap, brown with yellow stripe.

If you still aren't sure, use your meter. The highest-resistance winding is the high voltage, with the resistance across

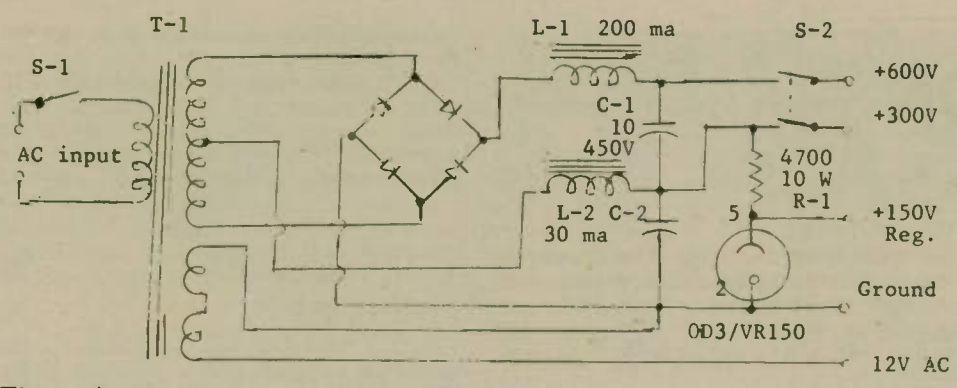


Figure 4

the ends of the winding twice that between either end and the center tap. It will be small wire.

The primary will also be small wire, but perhaps a bit larger than the high voltage leads. Its resistance is also high, but not as high as that of the high voltage winding.

The other windings will look like dead shorts on your ohmmeter. They will also have much heavier leads (the center taps may, however, be lighter wire).

If you want to connect the primary to the lighting circuit and measure the various voltages, you can make sure of what goes where. But do it safely. Make all your connections before putting the plug into the wall receptacle. Then read the voltage, and pull the plug before you change anything to check another winding. The high voltage winding packs a lethal wallop, and so does the primary.

When connecting filament windings in series, you may have to work by trial and error. Try one connection and measure the voltage. It it's 1 volt or less, your connections are incorrect. Reverse the connections to one of the windings, and the needle should swing up to 11 to 15 volts.

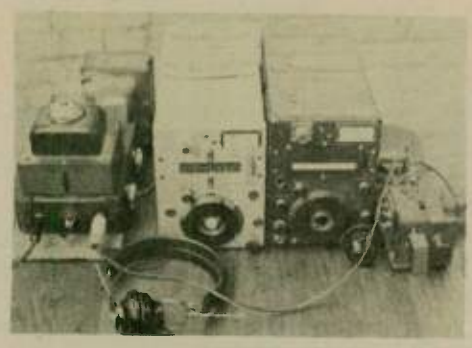
The power supply shown in *Figure 4* uses choke-input filters instead of the more common capacitor-input filter. The main reason chokes were used is that they were on hand, and capacitors were in short supply. If you can increase C-1 and C-2 to about 200 microfarads each, you can do without the chokes. A capacitor-input filter gives you higher voltage but poorer voltage regulation than a choke-input filter, because the input capacitor charges up to the peak on each AC half-cycle, whereas the input choke prevents the capacitor from doing so, and the output voltage remains about 63 percent of the peak.

This power supply also includes an OD3/VR150 voltage regulator for the oscillator. These tubes are also available on the surplus market. The one I used came from a BC-456 modulator unit.

Operation

As modified, the 1626 oscillator runs all the time, but is detuned by the capacitor C-5 except when the key is closed. When receiving, the oscillator will be running several hundred Hertz below the operating frequency, so should not interfere with reception. When the key is closed, relay K-1 breaks the ground connection of C-5, allowing the oscillator to return to the frequency for which it is set, before it grounds the cathodes of the 1625s and puts the signal on the air. S-2 is provided in the power supply to turn off the screen and plate voltage of the 1625s so that you can have a spotting signal without putting it on the air.

The Command series included the BC-442 and CBY-29125 antenna relay units, which switched the antenna between transmitter and receiver as the transmitter was keyed. It also included a thermocouple RF ammeter for tuning. The RF ammeter (available in surplus stores) is the best way to tune these transmitters; simply adjust the coupling and the inductance of L-52 for maximum output. Almost as good is a 150 milliampere pilot bulb. Connect two wires — each about a foot long — to the bulb, with clips on the other end. Clip these wires to the antenna lead about a foot apart, then tune up, adjusting for maximum brilliance. If the bulb burns too brightly, move the clips closer together, or spread them apart if you want it brighter. If you have an SWR bridge, it will also serve. Adjust for maximum output (and don't worry about SWR, this transmitter can handle any kind of load).



From left to right: power supply, T-18 (2.1 to 3 MHz), T-19 (3 to 4 MHz), and homebrew keyer.

Variations

The Command sets have been much written about in amateur literature, particularly in the 1950s and 1960s. What is said here contains little, if anything, that has not been said before. But it is repeated here because many newer amateurs may be unaware there still exists this simple and low-cost way to get on the air in this day and age when you only hear of rigs in the kilobuck range.

Amateur literature also contains other ways of modifying this gear for amateur use — some of which are about as simple as this, some of which involve quite a bit of additional work. As the crystal and tuning eye are of limited value for us, we might substitute an audio amplifier, and make the unit into a direct-coupled receiver in addition to its being a transmitter. In that case, C-5 would be very small — only a fraction of a picofarad, so that the frequency would shift only enough to give offset for receiving.

Or one might modify the T-18/ARC-5 2.1 to 3 MHz for 160-meter operation by adjusting C-60 and C-67, and the coil slugs if necessary, to lower the frequency to 1.8 MHz. One could replace the tuning eye with a crystal-controlled converter to enable one to use one's amateur-band receiver on another band for reception on 160. □

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SSTV

(*continued from page 46*)

432 and 2300 MHz Fast Scan, low band SSTV, have capability to construct 900 MHz transmitting gear, etc.

Digital TV is coming

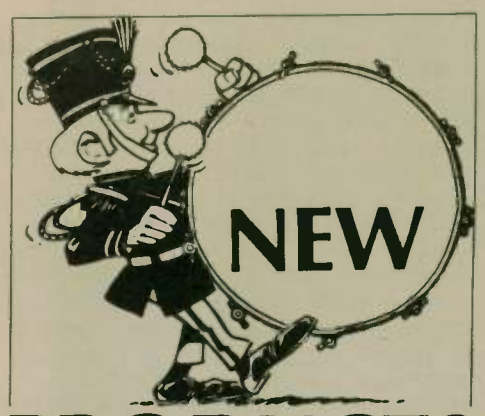
That off-the-wall statement might shake up the troops, but it's substantiated — and in a few months it may be documented. Don't jump to any premature conclusions, however, because our other video modes will not be directly threatened for many more moons.

The upcoming UOSAT satellite will help introduce digital TV to the amateur fraternity; its compatibility with other data systems are slated to open unlimited capabilities. Visualize, for example, a home computer with "mail-boxing" capabilities communicating and storing both ASCII messages and digital TV pictures, and you'll have an overview of coming attractions. Nice, eh?

That wraps up info for this time, gang. Remember to let us know what you've been doing, and include some photos. 'Til next month, 73, Dave Ingram, K4TWJ, Eastwood Village #1201 South, Rt. 11, Box 499, Birmingham, AL 35210. □

Howe's law — Every man has a schéme that will not work.

World Radio History



PRODUCTS

TERMINALL

Macrotronics, Inc. has announced the introduction of TERMINALL — an integrated hardware and software system which converts the TRS-80* microcomputer (Model I or III) into a state of the art communications terminal.

TERMINALL includes all the necessary computer interfacing, audio demodulating, AFSK tone generating and transmitter keying hardware integrated in one cabinet. This reduces equipment interconnection to a minimum and allows the operator to be on the air receiving and transmitting Morse or RTTY in minutes. Plug it into the receiver headphone jack and copy Morse code, Baudot or ASCII. Plug it into the CW key jack and send Morse code. Attach a microphone connector and send Baudot or ASCII using audio tones (AFSK).

The software may be loaded into the computer from cassette or disk. Enter your call sign and the time to initiate the program. You begin receiving immediately. No settings or adjustments are necessary to receive Morse code — it's fully automatic. Press BREAK-@ to transmit, or return back to receive. Text may be typed while receiving or transmitting.

Some of the features of TERMINALL are:

• Multi-Level Displays: Edit window on top to enter transmit text or program messages; Status window displays mode, operating parameters, prompts and error messages; Dialogue window displays received and transmitted text in chronological order; Transient Review window allows examining and editing historical text while receiving or transmitting.

• Excellent Morse reception: six-stage active filter demodulator; auto-adaptive Morse

algorithm; keyboard selectable noise threshold; received code speed displayed on status line.

• Highly accurate hardware clock. Maintains correct time during all operations, including cassette I/O. User programmable time/date format.

• Full ASCII capabilities: upper and lower case, control codes, select even/odd/or no parity, select 6, 7 or 8 data bits, select 75 or 110 baud.

• Multiple user-defined WRU: For each of four WRU functions, the operator can select any combination of 1) initiate sequence; 2) terminate sequence (including none or timeout); 3) what to transmit back (if anything — including ID in any mode, any message, any serial number, and time/date); and 4) whether to save on tape or not. WRU functions work in all modes (Morse, Baudot, ASCII).

• Buffered ASCII parallel printer output: select edited historic text, all text, or WRU activated ("AUTO START") text.

• Word mode editing, fast/slow/no diddle, ignore carriage returns on receive, word-wrapping (won't split words), user programmable end of line sequence, user programmable serial number insertion, adjustable carriage width, Transmit delay (fixed, none, or auto adaptive), Break mode. Selectable from the keyboard, in all modes, at all times: baud rate, shift, CW ID keying, unshift-on-space, signal invert, Morse/RTTY, Morse transmit speed.

• Flexible interfacing: built-in separate CW and RTTY active filter demodulators, crystal controlled AFSK, separate relays for keying CW and PTT, solid state FSK driver, scope outputs, 60 mil loop opto-isolated interconnect, Serial (RS232 compatible) IN and OUT, hand-key input, side-tone output, and jumper selectable 110/220 volt AC power supply.

• The TERMINALL system is expandable. Disk based (mailbox) RTTY software may be added at any time.

TERMINALL T1 requires Model I TRS-80, 16K RAM and level II BASIC. Latched and buffered port cable plugs into expansion port (near Reset switch) or the Screen Printer port on the expansion interface unit. Lower case ASCII capability requires Radio Shack lower case modification installed.

TERMINALL T3 requires Model III TRS-80, 16K RAM, and Model III BASIC. Latched and buffered port cable plugs into I/O Bus Jack.

TERMINALL comes complete with software on cassette and disk, assembled and tested hardware, and an extensive instruction manual. List price is $499. For complete ordering information or name of dealer closest to you, contact: Macrotronics, Inc., 1125 N. Golden State Blvd., Turlock, CA 95380. To order, call toll free (800) 344-7493. In California and for service, (209) 667-2888.

* TRS-80 is a recognized trademark of TANDY Corporation. □

Stainless steel antennas

Metz Communication Corporation announces a complete line of Amateur Radio VHF and UHF stainless steel antennas, hardware and low-loss RG-8/X coaxial cable. Stainless steel coils are designed for each group of Amateur Radio frequencies from the 10-meter band all the way through 450 MHz. This also includes the elusive 220 MHz band. Each stainless steel coil is pre-tested, identified with a serial number, and specially coded for the band of operation.

All antennas mate with any 5/8-by-24-inch threaded connector with SO-239 configuration. Magnetic mounts, through-vehicle mounts, and many other types of mounts are available from Metz.

All Metz coils are capable of handling 250 watts over extended periods of time. The distinctive stainless steel coil is not only impressive looking, but impressive performing.

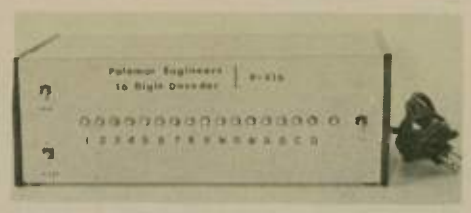
Well-known Amateur Radio VHF expert — Gordon West, WB6NOA — comments "The performance of the Metz half-wave 'groundless' antennas over other antennas featuring a plastic gray loading coil is remarkable. Range is increased, SWR is decreased, breakage is nil, and performance is terrific. The DC Shunt fed antenna system performs well and outperforms

any other similar sized antenna in its class."

For more information about the complete line of Metz stainless steel antennas for Amateur Radio use, land mobile radio use, aviation radio, and monitoring, contact Metz Communication Corporation, Corner Route 11 and 11C, Laconia, NH 03246. □

16-digit DTMF decoder

New Model P-416 decoder converts incoming Touch-Tone signals to DC outputs on 16 lines.



Indicator lamps show which digit is being received. Outputs will drive power relays directly and are either momentary or latched as selected by a panel switch.

Decoding is by digital logic with quartz crystal frequency control for long-term stability and operation over wide temperature variation. Operates on 115V AC power. Price is $385.

Write Palomar Engineers, 1520-G Industrial Ave., Escondido, CA 92025 for further information. □

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World Radio History

Two-meter quad

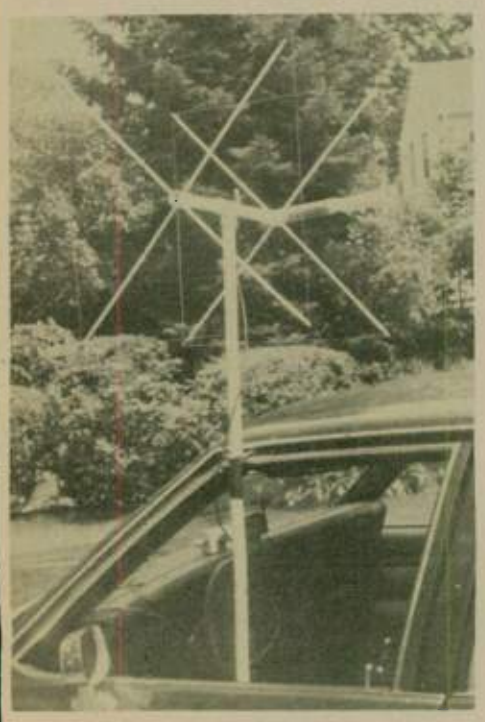
The "Orion" — a 2-meter quad — is quite versatile. A boom extension can be retrofitted on to give two additional directors. The spars can be cemented and the wires soldered to the copper spar tips; or if this is not done, the whole antenna can be disassembled and slipped into the mailing tube it is shipped in. If soldered and cemented, it is partially taken down so the elements lie flat, and can thus be packed in a suitcase.

Other specifications are:

SWR: Generally under 1.2:1; Weight: Approx. 15 oz.; Wind resistance when used mobile: No problems at 85 mph; Transmitting characteristics: Generally about ½ S-unit stronger than Hustler collinear.

(Note: Orion was primarily designed as a direction-finder to be used in conjunction with an attenuator.)

Match: Bifilar wound balun to hair-pin with adjustable clips; Boom and spar holders: PVC; Spars: Glastic pultruded FRP rods with copper tips; Mast: Not supplied. (We suggest a broomstick); Dimensions: Approx. 21″ × 21″ × 12″ (Close spaced).



Pattern and technique:

The Orion works quite well when used without an S-meter. The chief advantage of an S-meter, however, is that by plotting the signal peak, you are able to immediately eliminate any 180 degree ambiguity and go right to homing, using the side of the antenna showing the deepest null. It is very easy to hear the null, and by being familiar with your equipment plus some practice, the amount of attenuation can give a clue as to the range (distance) of the signal.

Mounted in the driver's window, as shown, with a pointer in the mast, signal tracking can be a one-man operation. You can even hold a QSO on the input, and while also listening on the input of a repeater, be tracking the source of the signal — all with one operator, one rig and no S-meter.

One additional improvement would be to install an RF-activated TR switch in the attenuator so the operator would not have to keep reaching up to switch the attenuator to the pass-through position every time he wants to transmit.

The Orion is supplied in almost ready to use semi-kit form (this includes a picture, instructions and some information on fox hunting) at $29.95 plus $2 handling and shipping from: H. F. Hochman, K2IQN, 5195 Spencer Road, Lyndhurst, OH 44124.

Please allow one to two weeks delivery. Dealer inquiries invited. □

Don't be bashful!

Write something for

Worldradio

Filter kit

More selectivity for TS-120S, TS-130S, TS-180S, and TS-820/S. Before you decide to sell your old radio due to its lack of selectivity or versatility, consider this new kit that will give your receiver new life. The purpose of this modification will allow the latest Trio/Kenwood 1.8 kHz (YK-88 SN) and the 270 Hz (YK-88 CN) crystal filters to be installed in either the TS-120S, TS-180S, or the TS-820/S. The kit would also provide the TS-130S with one more filter.

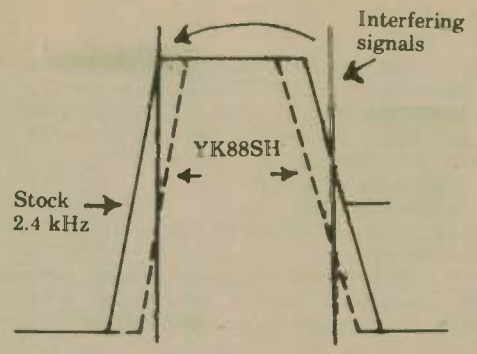
These filters will further improve selectivity and were introduced with the TS-130S. The following are specifications for the 1.8 MHz and 270 Hz filter:

YK88SN 1.8 kHz (SSB)	YK88CN 270 HZ (CW)
6dB — 1.8 kHz	6dB — 270 Hz
600dB — 3.6 kHz	60dB — 1.8 kHz

Compare these to your present specifications and you will find a marked improvement in performance characteristics. Simply put, if you were using a stock 2.4 kHz filter during an SSB QSO and an interfering signal entered from an adjacent frequency (1.1 kHz up from your center frequency), switching in a 1.8 kHz SSB filter would remove the interfering signal from your band pass. Additionally, the IF Shift will become more effective due to the narrower band pass.

Of course, if an interfering signal is directly on your frequency, nothing will help. In today's crowded Phone/CW bands, one of the main problems one is faced with is someone operating close to your frequency. The opportunity to switch in a narrow SSB/CW filter (at times) may turn an intolerable ccontact into a pleasant one.

Modifications to the TS-120, TS-130, TS-180 and TS-820/S have been planned so as to not deface the equipment in any way. Thus, if desired, the modification may be removed and the radio will be returned to original condition.



The modified radio would have a narrow-wide switch to select the appropriate crystals. Additionally, in the SSB mode, the 2.4 kHz filter is automatically selected on transmit to ensure good SSB fidelity. Last but not least, by adding an external switch the SSB filters can be switched in CW for Hi-Fi (wide) CW.

The single U.I.R.C.-10 crystal board is $18.95 prewired minus crystal, with instruction.

The dual U.I.R.C.-20 crystal board, minus crystal is $26.95. Instructions are custom designed for your radio. Crystal filters are available from Trio/Kenwood dealers.

For TS-120S, add one crystal to TS-120S, order U.I.R.C.-10 $18.95. Add two crystals to TS-120S, order U.I.R.C.-10 and U.I.R.C.-00 (both for) $29.95.

For TS-180S, add one crystal to TS-180S, order U.I.R.C.-10 at $18.95. Add two crystals to TS-180S, order U.I.R.C.-20 at $26.95.

For TS-820/S, add one crystal to TS-820/S, order U.I.R.C.-10 at $18.95. Add two crystals to TS-820/S, order U.I.R.C.-20 at $26.95.

For TS-130S, add one crystal to TS-130S, order U.I.R.C.-10 at $18.95.

Send your order to U.I.R.C., 364 Kilpatrick Ave., Port St. Lucie, FL 33452. C.O.D. orders accepted. Call 305-878-7296. □

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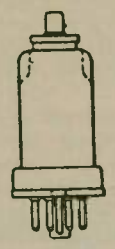

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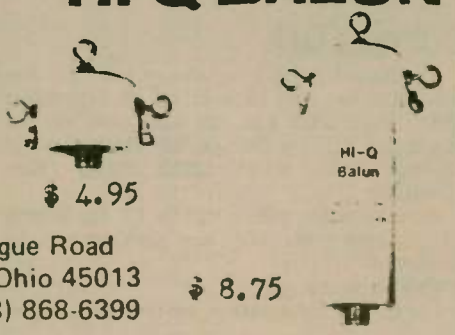

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Alabama

The Huntsville Hamfest (formerly the North Alabama Hamfest) will be held on Saturday and Sunday, 15-16 August 1981, at the Von Braun Civic Center in Huntsville, Alabama. There is no admission charge.

There will be prizes, exhibits, forums, an air-conditioned indoor flea market, and ladies activities. Tours of the Alabama Space and Rocket Center are available for the family. A limited number of camping sites with hookups are available at the VBCC on a first-come first served basis. Flea market tables are available for $3/day.

Talk-in on 3.965 and 34/94.

For more information write: Huntsville Hamfest, P.O. Box 4563, Huntsville, AL 35802. □

Alabama

The Central Alabama Amateur Radio Association will hold its 4th Annual Hamfest on Sunday, 13 September 1981, at the Civic Center in downtown Montgomery, Alabama. There will be free admission, free parking, and 22,000 square feet of air-conditioned activities including a flea market. Set-up will be at 0600; doors will be open from 0800 to 1500, and a prize drawing will be held at 1400 CDST.

Restaurants and motel accommodations are located within a short walk of the Civic Center. Refreshments will be available in the Civic Center.

Talk-in on 146.04/.64 or 146.52/S, ragchew on 146.31/.91, 147.78/.18 or 147.045/.645.

For further information or market reservations, write Hamfest Committee. P.O. Box 3141, Montgomery, AL 36109. □

California

The Valley of the Moon's second annual "ham" breakfast and swapmeet will be held Sunday, 9 August, at the Sonoma Community Center, 276 East Napa Street, Sonoma, California.

Breakfast will be served from 9:00 a.m. until 12:00 noon, with ham, eggs, 'taters, orange juice, coffee and table service to the swap tables for only $3.50 a head for adults and $1.75 for children under 12. Swap tables will be set up from 8:00 a.m. on with swap spaces renting for $4 each. There will be room for up to 100 tables, but only 30 tables available on a first come basis, so plan on bringing your own.

Admission is a paltry one buck ($1), with tykes, YLs and XYLs free. This is the perfect meet to bring the loved ones to because the Community Center is only a block from the Sonoma Plaza with its historic mission and barracks, and wonderful collection of shops.

There will be an open and club auction at 2:00 p.m., and a raffle for the admission ticket holders at 3:30.

Talk-in will be on 146.43 simplex, and the local 146.13/73 repeater will also be monitored. Any questions, call Darrel, WD6BOR, at 707-938-8086. □

CODE TEACHERS!

Reprints of N6WR's method for teaching Morse Code are available for $2.00.

Send to Code Course, c/o WORLDRADIO Box 160568 • Sacramento, CA 95816

World Radio History

California

The Second Annual WR6ACV Swapmeet and potluck picnic is scheduled for 22 August this year. The event will begin at 9:00 a.m., at Louis Park in Stockton, California.

For more information on this swapmeet, contact Fran Keenan, WD6BFJ, 92-24221 South Chrisman, Tracy, CA 95376. □

Illinois

The Shawnee Amateur Radio Association will hold its 25th Annual Hamfest on 30 August 1981, on the campus of John A. Logan College, just west of Carterville, Illinois on State Route 13 near Crab Orchard Lake. The hamfest will be held in the gymnasium in air-conditioned comfort. There will be plenty of tables and electricity available. The first three tables will be gratis to dealers and there is easy access to the gymnasium floor for loading and unloading.

Prizes, an auction, flea market, club photos, forums, computer activities and ladies activities are only some of the many features to be offered at the hamfest.

For more information, contact Bill May, KB9QY, 800 Hilldale Ave., Herrin, IL 62948. Phone: (eve) 618-988-8063; (day) 618-942-2511.

Illinois

Illiana Repeater Systems announces the 12th Annual Danville Area Hamfest, to be held 5-6 September 1981 at the Georgetown, Illinois Fairgrounds.

Flea market, free parking, forums, prizes and family entertainment are only some of the things amateurs attending this event can look forward to.

Gates open at 6:30 a.m. Tickets are $1.50 in advance, $2 at the gate.

Talk-in on 146.22/82 and 146.52.

For more information on tickets and/or tables, contact: Lowell Wells, WD9AFG, Hamfest Chairman, R.R. 3, Box 215, Danville, IL 61832; 217-759-7560. □

Illinois

The 11th Annual Radio Expo will be held 19-20 September 1981, at the northwest intersection of Illinois Rt. 45 and Rt. 120, Grayslake, Illinois. Sponsor is the Chicago FM Club.

An indoor/outdoor flea market, seminars and technical talks, ladies' programs and prizes will be featured, as will free parking and overnight camping.

Tickets are $4 at the gate, $3 in advance, and are good for both days. For advanced tickets, send a #10 SASE and $3 per ticket to Box 1532, Evanston, IL 60204; (312) 278-3976.

Talk-in on 146.16/76, 146.52 and 222.5/224.10. Call is WA9ORC/R. □

Illinois

Exposition Gardens on West Northmoor Road in Peoria, Illinois will be the site of Peoria Superfest '81, sponsored by the Peoria Area Amateur Radio Club. The Superfest will be held 19-20 September 1981. Gate opens at 6:00 a.m., the commercial building at 9:00 a.m. Advance admission price is $2; at the door $3.

Activities will include forums, the latest amateur and computer product displays, a huge free flea market, and ladies' programs — not to mention children's activities. A Saturday night informal get-together will be held at a local smorgasbord-style restaurant. Full camping facilities will be provided.

Talk-in on 146.16/76. Call will be W9UVI.

For information and reservations, write to: Superfest '81, 5808 North Andover Ct., Peoria, IL 61615. □

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Iowa

The 1981 Hawkeye Ham and Computerfest sponsored by the Des Moines Radio Amateur Association will be held at the Veterans Auditorium, Des Moines, Iowa, on 16 August 1981 from 9:00 a.m. to 5:00 p.m.

Talk-in on 34/94 and 22/82.

Exhibitors, flea market, ARRL forum, prizes, auction. Advanced tickets $3, at the door $3.50.

For tickets, booth or table information, motel reservations, or further information, write DMRAA, Box 88, Des Moines, IA 50301. □

Iowa

The Iowa 75-meter Net will hold a picnic and swapfest on Sunday, 23 August 1981, at Ewing Park in southeast Des Moines, Iowa. A potluck meal will start at noon, to be followed by a program and prizes.

Talk-in on 34-94. For further information, contact Lovelle Pedersen, WBØJFF, 2327 West Reinbeck Rd., Hudson, IA 50643. □

Missouri

The St. Charles Amateur Radio Club, Inc. invites your attendance at Hamfest '81 on 23 August at the Wentzville, Missouri Community Club. There will be prizes, contests, a flea market, food and fun for all. And now, an air-conditioned exhibition building. Admission $1 per car. Tickets in advance are $1 each/four for $3; at the door $1.50 each/four for $5.

For tickets, motel and camping information, prize lists, dealer reservations, etc., write: SCARC Hamfest '81, c/o Bill Graham, 512 Bermuda Dr., O'Fallon, MO 63366. □

New Jersey

The Gloucester County Amateur Radio Club will hold their upcoming hamfest on 30 August 1981 at Gloucester County College, Tanyard Road, Sewell, New Jersey.

The 'fest will last from 8:00 a.m. to 3:00 p.m. Gates open at 7:00 a.m. for tailgaters and dealers. Price of admission is $2 in advance; $2.50 at the door. Tickets for tailgaters and dealers are $6 (includes one free admission).

Speakers will be Dale Clift (ARRL) speaking on "What's happening now!," and Miles (Brownie) Brown, W2PAU — RCA antenna expert — speaking on "Amateur antennas."

Also, FCC exams will be given - Technical through Advanced. Please write or call for details (see below).

Talk-in on 146.52 and 147.78/18.

For info and reservations, send SASE to: GCARC Hamfest Committee, P.O. Box 370, Pitman, NJ 08071. Telephone: Day — 609-456-0500 or 609-338-4841; Evening — 609-629-2064. □

New Jersey

The Sussex County Amateur Radio Club is holding its third annual hamfest — SCARC 81 — on Saturday, 12 September, at the Sussex County Farm and Horse Show grounds on Plains Road off U.S. Highway 206 in Augusta, New Jersey. Acres of free parking and outdoor flea market. Sellers, $4 preregistered, $5 at gate. Huge building for indoor sellers: $5 preregistered, $6 at gate. Registration: $2.

For information or registration: Sussex County Amateur Radio Club, P.O. Box 11, Newton, NJ 07860 or Lloyd Buchholtz, WA2LHX, 10 Black Oak Drive, Vernon, NJ 07462.

Talk-in on 147.90/30 and 146.52. □

New York

The Hall of Science Amateur Club's 6th Annual Hamfest will be held on 13 September 1981, from 9:00 a.m. to 4:00 p.m. at the Municipal Parking Garage, one block north of Queens Blvd., 80-25 126th Street, Kew Gardens.

Admission for sellers will be $3; for buyers $1. Refreshments and free parking will be available.

Talk-in on .52.

For further information, contact Tom Doyle, KA2DTB at (212) 738-8887, or (212) 641-1700.

Ohio

Guest speakers will be among the attractions at the annual Warren Hamfest, to be held on 16 August 1981. Other features will include dealer displays and a flea market.

For more information, write to: Warren Hamfest, P.O. Box 809, Warren, OH 44482. □

Ohio

Sunday, 13 September 1981 is the date set for the 39th Annual Findlay Hamfest. The hamfest will be held at the Hancock Recreational Center, just east of I-75 Exit 161, on the north edge of Findlay.

Among the many prizes to be given away will be a deluxe low band rig, two ICOM IC-2A hand-helds, and a memory keyer.

Doors will open between 5:00 p.m. and 9:00 p.m. for setup, and will open at 6:00 a.m. on Sunday. Tables will be $2.50 per half-space. Tickets will sell for $2 in advance, $2.50 at the gate.

For tickets, info and reservations, send SASE to: P.O. Box 587, Findlay, OH 45840. □

VHF Mountaintop Party

Announcing: The First Annual VHF Mountaintop Party, to be held 1 August 1981 from 1000 to 1500 hours local time. This event is being informally organized on the West Coast. People interested in other areas of the country should organize local activities. We urge you to day-hike or backpack with radios, antennas, and portable power sources to the top of local mountains to QSO with other mountain-topping amateurs. Dave Bermann, WA6GUO and I — Gary Hendra, WA6SUW — will be climbing Mt. Shasta in Northern California.

Calling frequencies will be 146.55, 146.58, 147.54, and 147.57 MHz simplex. □

Alabama QSO Party

The Alabama QSO Party begins Saturday, 29 August at 0000Z, and ends Sunday, 30 August at 2400Z. It's sponsored by the Chattahoochee Valley Amateur Radio Club. The same station may be worked once on each band and mode and mobiles on each county change. Alabama-to-Alabama contacts permitted.

Exchange: RS(T) and QTH. County for Alabama stations. State, province or country for others.

Scoring: One point per QSO. Alabama stations multiply by total states, provinces and countries worked. All others multiply by number of Alabama counties worked.

Frequencies: CW — 3565, 7065, 14065, 21065, 28065; **Phone:** 3965, 7265, 14285, 21365, 28565; **Novices:** 3725, 7125, 21125, 28125.

Awards: Certificates to top score in each state, VE province and DX country. Also top Novice/Technician in Alabama and out-of-state. Plaques will be awarded to top Alabama score and top out-of-state score.

Mailing deadline is 31 October. Include large SASE for copy results. Mail to: Johnny Royster, WA4VEK, P.O. Box 494, Fairfax, AL 36854. □

Contact Worldradio for hamfest prizes.

Ohio

The Greater Cincinnati Amateur Radio Association announces its 44th Annual Cincinnati Hamfest, to be held Sunday, 20 September 1981 at Stricker's Grove, Venice (Ross), Ohio.

The flea market section will open at 6:00 a.m. for vendors and traders. Each seller will be allowed a maximum of three car spaces, at $3 per space. Only electronics and items pertaining to Amateur Radio are to be sold. Also, due to space limit, no large trucks or mobile homes will be allowed in the flea market area. A registration ticket will be required for each person in the flea market.

Additional features will include exhibits, a hidden transmitter hunt, an air show by the HAWKS, prizes, music and food. Admission is $4 — order in advance. Major raffle tickets can be purchased for $1 each, six for $5.

For more information, contact Elmer Schubert, W8ALW; John Haungs, WA8STX; or Lillian Abbott, K8CKI. □

Etorre's observation — The other line moves faster.

4/land QSO Party

The Brightleaf Amateur Radio Club, Inc. of Greenville, North Carolina is sponsoring the 11th Annual QSO Party. County hunters will be glad to know that any county in any of the eight fourth district states will be available to contesters.

Date and time: 1800 GMT Saturday, 5 September to 0600 GMT Sunday, 6 September; 1300 GMT Sunday, 6 September to 0100 GMT Monday, 7 September.

Exchange: RS(T) and QTH. County and state for fourth district stations; state, province or country for others.

Scoring: For fourth district, 1 point per QSO multiplied by number of states and provinces and countries worked. All others, count 2 points per QSO multiplied by number of states in the fourth district plus fourth district counties. *Count states and counties once only.*

Frequencies: CW — 3575, 7055, 14070, 21070 and 28090. **Phone** — 3940, 7260, 14340, 21360 and 28600. All frequencies ± 15 kHz. **Novices** — 3710, 7110, 21110 and 28110.

The same station may be worked on each band mode fixed, and again if operated portable or mobile. Fourth district stations may work other fourth district stations. The mobiles may be worked again when changing counties.

Awards: Certificates to top scorers in each state, province and country with second and third place awards, when warranted. Also, county awards to fourth district states and special awards to Novices.

Mailing deadline: Thirty days after the end of the contest and send to Contest Chairman Bob Knapp, W4OMW, 105 Dupont Circle, Greenville, NC 27834. Send SASE for results. □

Howdy Days

STARTS: Wednesday, 9 September 1981, at 1800 UTC.

ENDS: Friday, 11 September 1981, at 1800 UTC.

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

PROCEDURE: Call "CQ YL."

OPERATION: All bands and modes of emission may be used. No cross band operation. A station may be counted only once for credit.

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

SCORING: Score two (2) points for each YLRL member worked and one (1) point for each non-YLRL member worked. NO multipliers.

LOGS: All logs must show if operator is YLRL member or non-YLRL member to be eligible for awards. DO NOT send carbon copies of logs. Please print or type. *Logs must be signed by the operator.* No logs will be returned. Logs must show claimed score and be received by 12 October 1981. Send log to Kay

World Radio History

Eyman, WAØWOF, R. R. 2, Garnett, Kansas 66032.

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

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

New Mexico QSO Party

The Albuquerque DX Association will sponsor a New Mexico QSO Party 12-13 September 1981.

Suggested frequencies: CW — 63 kHz from the low end of each band. SSB — 3900, 7265, 14285, 21365, and 28650 kHz. Novice — 3705, 7105, 21105, 28105 kHz. Stations outside New Mexico please refrain from calling CQ NM near these frequencies.

Exchange: New Mexico stations — RS(T), QSO #, and county. All others — RS(T), QSO #, and state, province or DX country.

Scoring: Cross-band and repeater contacts may not be counted for score. Each QSO counts one point. New Mexico stations count QSO with any station worked once each band, each mode. All others count QSO with any NM station worked once each band, each mode. NM stations operating mobile may be counted once each band, each mode in each county worked.

Multipliers: NM stations multiply total QSO points by the total number of states, provinces and DX countries worked each band, each mode. All others multiply total QSO points by total number of NM counties worked each band, each mode.

Awards: Plaques will be presented to the top scorers from NM and from outside NM. Certificates will be awarded the top scorers from each state, province and DX country. A special award will be presented to any station working all 33 NM counties during the QSO Party.

Stations reporting 100 or more QSOs, please include dupe sheet. Entries must be postmarked no later than 15 October 1981. Send all entries to Albuquerque DX Association, P.O. Box 997, Corrales, NM 87048. Include SASE for complete results. □

Washington QSO Party

The 16th Annual Washington State QSO Party, sponsored by the Boeing Employees' Amateur Radio Society (BEARS) will be held 12-14 September 1981, and will be divided into three operating periods as follows:

0100 UTC 12 September to 0700 UTC 12 September
1300 UTC 12 September to 0700 UTC 13 September
1300 UTC 13 September to 0100 UTC 14 September

All amateurs are invited to participate.

All bands and modes may be used; no CW QSOs in phone bands. Stations may be worked once each band and each mode for contact points and more than once each band/mode if they are additional multipliers. Washington stations score two points for each phone contact and three points for each CW contact (including contacts with other Washington stations), multiplied by the total of different states, Canadian provinces and other foreign countries worked. All others score two points for each phone contact and three points for each CW contact with a Washington station multiplied by the total of different Washington counties worked (maximum of 39). There will be an extra multiplier of one for each group of eight contacts with the same Washington county for all non-Washington stations.

Washington stations send QSO number, RS(T) and county. All others send QSO number, RS(T) and state, Canadian province or foreign country.

Certificates will be awarded to the highest scoring station (both single and multi-operator) in each state, Canadian province, foreign country and Washington county. Additional certificates may be issued at the discretion of the Contest Committee. Worked Five BEARS Awards are also available to anyone working five club members before, during or after the QSO party (unless previously issued). All QSO Party entries will be screened by the Contest Committee for possible Worked Five BEARS Awards. Worked Three BEAR Cubs Award is also available for working three Novice club members.

Suggested frequencies: CW 1805, 3560, 7060, 14060, 21060, 28160; **Phone** 1815, 3925, 7260, 14280, 21380, 28580; **Novice** 3725, 7125, 21150, 28160.

Logs must show dates, times in UTC, stations worked, exchanges sent and received, bands and modes used and scores claimed. Include a dupe sheet for entries with more than 200 QSOs. Each entry must include a signed statement that the decision of the Contest Committee will be accepted as final. No logs can be returned. Results of the QSO Party will be mailed to all entrants. **SASE is NOT required.**

Log sheets and summary sheets must be postmarked no later than 15 October 1981 and sent to: Boeing Employees' Amateur Radio Society, c/o Contest Committee; Willis D. Propst, K7RS; 18415 38th Avenue South; Seattle, WA 98188. □

QRP 5W Gold Pan Award Contest

This second annual Gold Pan Award contest was launched by John P. Trent, KL7DG of Anchorage, Alaska. The contest lasts throughout the calendar year of 1981, ending 31 December 1981.

Points are made on the basis of no more than 1 QSO per day per GMT day, with KL7DG on 15-meter CW only. (21.065 kHz is best, but KL7DG QSYs up and down band with Argonaut 509 on dipole antenna.)

The contest is worldwide, but KL7DG says the "JARL boys have the edge by virtue of DX and openings." John's log is the only basis for the award — a gold pan hand-engraved with the winning call hand-engraved upon it.

QSOs are based on exchange of signal report, name, QTH plus amenities — no swift QRT; the exchanges are very friendly in nature. In case of a tie, the station farthest away receives the award.

As of 29 May 1981, the contest standings were: JR6LDE — 3 QSOs (from Fukuoka, Japan — farthest by 800 kilometers from other stations with 3 QSOs); JL1GUL — 3 QSOs; JA2EJA — 3; JA1WLX — 2; JA5KXP — 2; JF3NXN — 2; JR3VII — 2; JA9YXN — 2. □

(See KCJ CW contest, page 27.)

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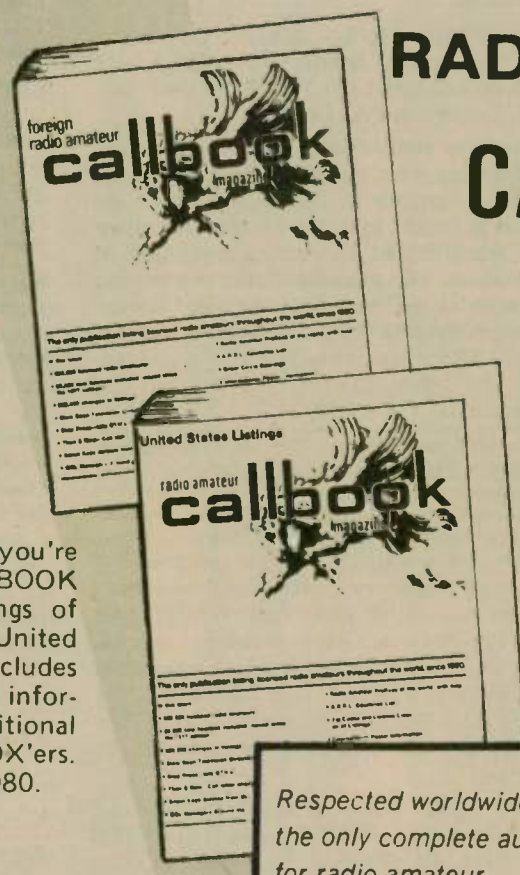

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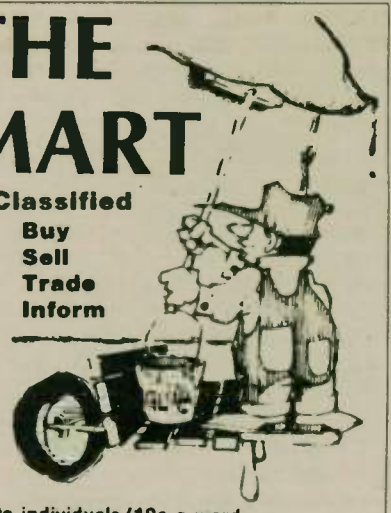

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WANTED, MILITARY SURPLUS ELECTRONICS, We need ARC-51BX, ARC-94, ARC-102, OR 618T, ARC-115, ARC-116, RT-823/ARC-131, or FM622, Wilcox RT-857/ARC-134, OR 807A, APX-72, APN-171 or Honeywell HG9050 radar altimeter, antenna couplers 490T, CU1658A or CU-1669A. Top dollar paid or trade for new amateur gear. Write or phone Bill Slep, (704) 524-7519, SLEP ELECTRONICS COMPANY, Highway 441, Otto, NC 28763.

ATTENTION ICOM, KENWOOD OWNERS! If you're not receiving our monthly NEWSLETTERS your equipment is not tuned into a wealth of information! Details S.A.S.E. USERS' INTERNATIONAL RADIO CLUB, 364 Kilpatrick Ave., Port St. Lucie, FL 33452.

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HOSS-TRADER, Ed "Says BIG SALE, Shop around for the best price then telephone the hoss last. New Drake AC-4 Supply, cash $98.00; New Drake DC-4, $109.00; New Drake Display TR-7 Transceiver, $1050.00, New TH6DXX Beam $239.00; Sale: Alpha 374-A Linear, Regular $2395.00, cash $1895.00; New Rohn 50FT. Foldover Tower Prepaid $659.00; SPECIAL Dentron New Clipperton-L Linear, 2000 Watts $539.00; New Dentron MLA-2500-B, $779.00; New Alliance HD-73 Rotor, $96.00; New Astro Swan 100MXA Transceiver, Regular $699.00, cash $479.00; New Icom 2A- Walkie Talkie, $209.00; New PCS-3000 Azden, $305.00; New Icom 720-A, $1149.00; Ham 4 Rotor $149.00; USED 530-S, $679.00; USED Icom 730-S, $695.00. MOORY ELECTRONICS COMPANY, P.O. Box 506, DeWitt, AR 72042, (501) 946-2820.

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CINCINNATI — THE ORIGINAL FORTY-FOURTH ANNUAL HAMFEST — Sunday September 20, 1981 at Stricker's Grove on State Route 128, one mile west of Venice (Ross) Ohio. Exhibits, prizes, food and refreshments available. Flea Market (radio related products only), music, talks, hidden transmitter hunt and sensational air show. Admission and registration $4.00. For information: Lillian Abbott, K8CKI, 317 Greenwell Road, Cincinnati, OH 45238.

FOR SALE — HEATH SB101; HP23APS, 500Hz CW filter — $250; Hallicrafters SX146 ham receiver, mint — $140; Heath HD1410 Keyer — $40. Mike, N2BBE, (212) 544-5753 after 7 P.M.

SELL: Hy-Gain 3806 2mtr handheld with charger, rubber ducky, 9 crystal pairs, carrying case, and extra battery pack, $110. TRAC memory keyer, $60. Heathkit electronic keyer, $45. Allied AX-190 amateur/SWL receiver, $90. Heathkit GR-84 shortwave receiver, $30. SST T-1 antenna tuner, $15. N0BG1, Wayne, 3883 Council St. NE, Cedar Rapids, IA 52402.

FOR SALE: MINT, AEGONAUT 509, 251 power supply, and 405 50 watt linear. Manuals and cables, no mods. $450.00 firm prepaid KD6BH, 629 Los Altos Dr., Redlands, CA 92373.

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C.C.C. — Former Civilian Conservation Corps enrollees write or call Joseph Schwartz, K2VGV, 43-34 Union Street, Flushing, NY 11355. (212) 461-5933.

NEW WINDSPEED INDICATOR complete $59.50; DXENG processor for COLLINS $55.00; Like new THRULINE type wattmeter 0-20 KW with RG-17 connectors $75.00; 40 channel DIGITAL mobile CB complete $65.00. WB6DXU, (213) 842-5983. Prices FOB. Nick Winter, WB6DXU, 1426 North Avon Street, Burbank, CA 91505. (213) 842-5983.

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COLLINS RECEIVER 75S4 with .8, 3.1, 6.0 KHZ filters. Good cond. $275 FOB. After 3 PM, MIKE W6QUV, (916) 486-1421.

FOR SALE — Argonaut 509, CW filter, calibrator, P.S. — $325. Tentec amplifier #405 and P.S. for above — $195 plus UPS. W6TZA, 4594 Los Lindos Way, Carmichael CA 95608, (916) 967-3588.

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