# QST

devoted entirely to

# amateur radio

May 1962

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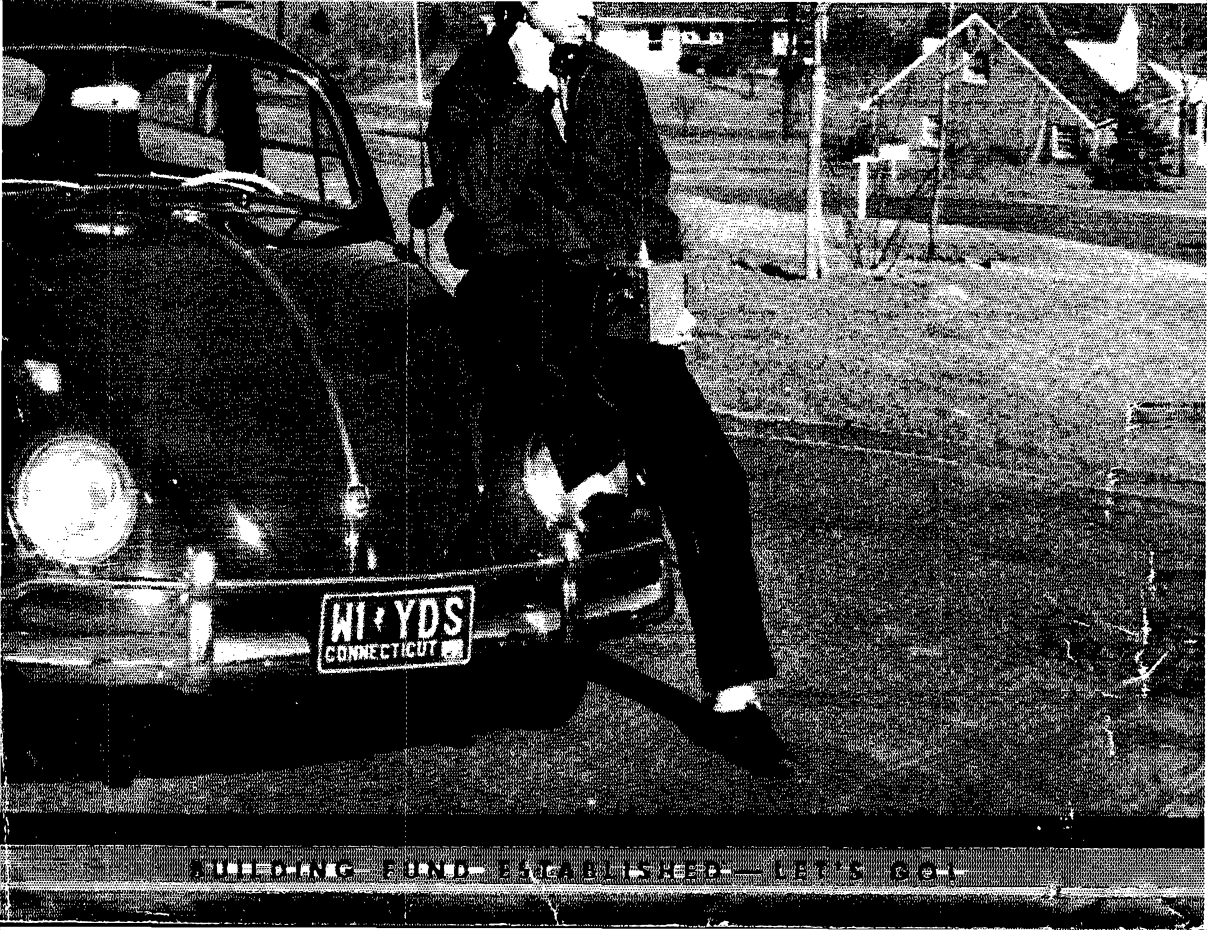


BUILDING FUND ESTABLISHED — LET'S GO!

# *A few* of these 3
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*A* few months ago, while moving to additional new facilities in Chicago, we assembled in one place all 37 models of the amateur and general coverage equipment currently manufactured by Hallicrafters.

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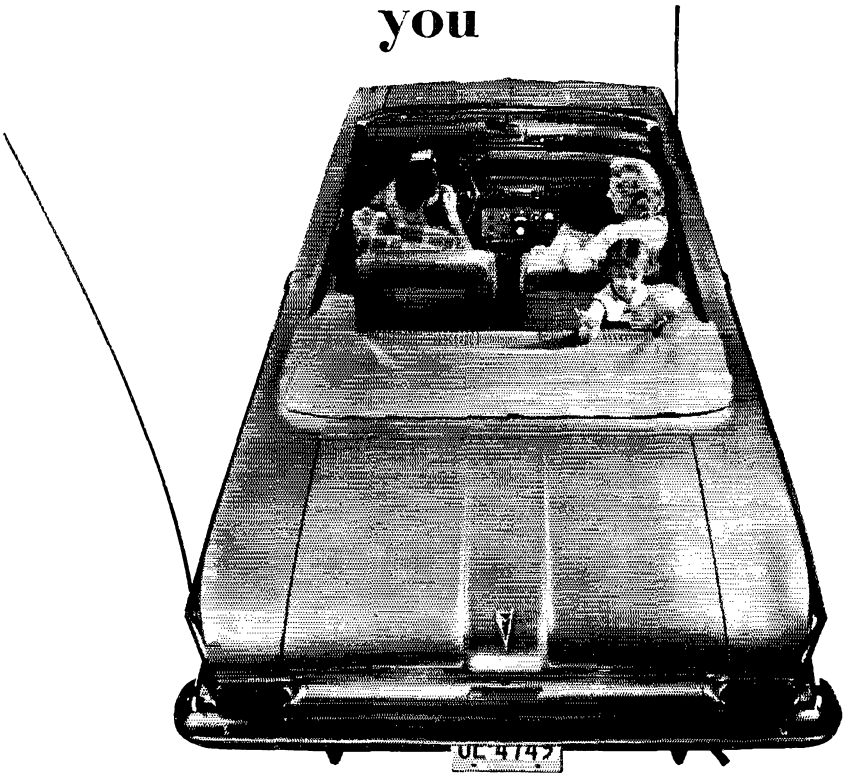
# current Hallicrafters products are not items. Here's why we make them, anyhow.

*new ideas in communications are born*

*Would you be interested in a list, with prices and brief description, of all the equipment Hallicrafters has ever made? We've just finished revising it, and would be glad to send you a copy.*

COLLINS

# Take it with you



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# QST

**MAY 1962**

*VOLUME XLVI • NUMBER 5*

PUBLISHED, MONTHLY, AS ITS OFFICIAL ORGAN, BY THE AMERICAN RADIO RELAY LEAGUE, INC., WEST HARTFORD, CONN., U. S. A.; OFFICIAL ORGAN OF THE INTERNATIONAL AMATEUR RADIO UNION





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Second-class postage paid at Hartford, Conn. and at additional mailing offices.



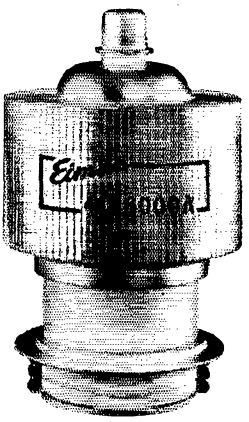


INDEXED BY
Applied Science and Technology Index
Library of Congress Catalog Card No.: 21-9421

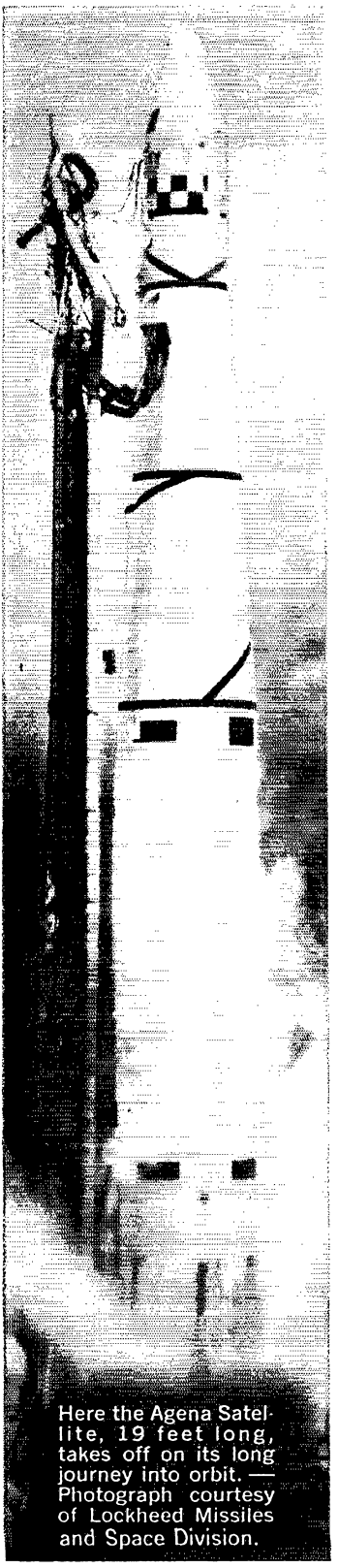

# —CONTENTS—

# Linearity beyond expectation

Newest choice among ceramic-metal tetrodes, at a power level in between familiar 1 KW and 5 KW tubes, is Eimac's new 3 kilowatt 4CX3000A. It will relieve many problems in SSB and other communications equipment design where low distortion is a prime aim. / In typical and conservative linear amplifier rf service, intermodulation distortion products of the 4CX3000A are easily 40 db below a Peak Envelope Power of 5 KW! / Aimed at a glove-fit to new and more stringent SSB requirements, the 4CX3000A performs well beyond the equipment industry's expectations, surpassing all other choices. / This is another example of the way Eimac research, engineering and manufacturing capability are able to meet tomorrow's tube needs today. Another reason to keep your eye on Eimac—for advanced high-powered klystrons, microwave devices and power grid tubes. For data write: Eitel-McCullough, Inc., San Carlos, California. Subsidiaries: Eitel-McCullough, S. A., Geneva, Switzerland and National Electronics, Geneva, Illinois.



**KEEP YOUR EYE ON EIMAC**

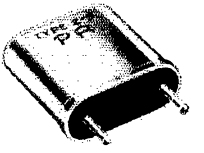


Here the Agena Satellite, 19 feet long, takes off on its long journey into orbit. — Photograph courtesy of Lockheed Missiles and Space Division.

# HIGH ADVENTURE FOR PR CRYSTALS

When Agena, the world's first polar orbit satellite, was launched from Vandenberg Air Force Base, California, in the Air Force Discoverer program, it was a great triumph for the Air Force Ballistic Missile Division and Lockheed Missiles and Space Division. Even greater triumph was the FIRST CAPSULE from space, recovered near Hawaii, after being ejected from the orbiting Agena satellite on its 17th trip around the earth.

The 300-pound capsule, separated from the satellite and de-orbited by retro-rockets, was tracked in its progress back to earth, by radio signals (telemetry) received on recovery planes and ships.



Petersen Radio Co., is proud that PR Crystals are making an important contribution to the Lockheed/Air Force Satellite Program. In this field where split-second timing, precision and dependability are vital to success, PRs are being used in circuits in the various tracking stations. These stations perform many functions during the orbital life of the satellite, including the recovery sequence of the re-entry body.

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**Reports Invited.** All amateurs, especially League members, are invited to report station activities on the first of each month (for preceding month) direct to the SCM, the administrative ARRL official elected by members in each Section. Radio club reports are also desired by SCMs for inclusion in *QST*. **ARRL Field Organization station appointments** are available in areas shown to qualified League members holding Canadian or FCC amateur license, General or Conditional Class or above. These include ORS, OES, OPS, OO and OBS. SCMs desire applications for SEC, EC, RM and PAM where vacancies exist. OES, v.h.f. bands appointment, is available to Technicians and Novice, as well as to full-privilege amateur licensees.

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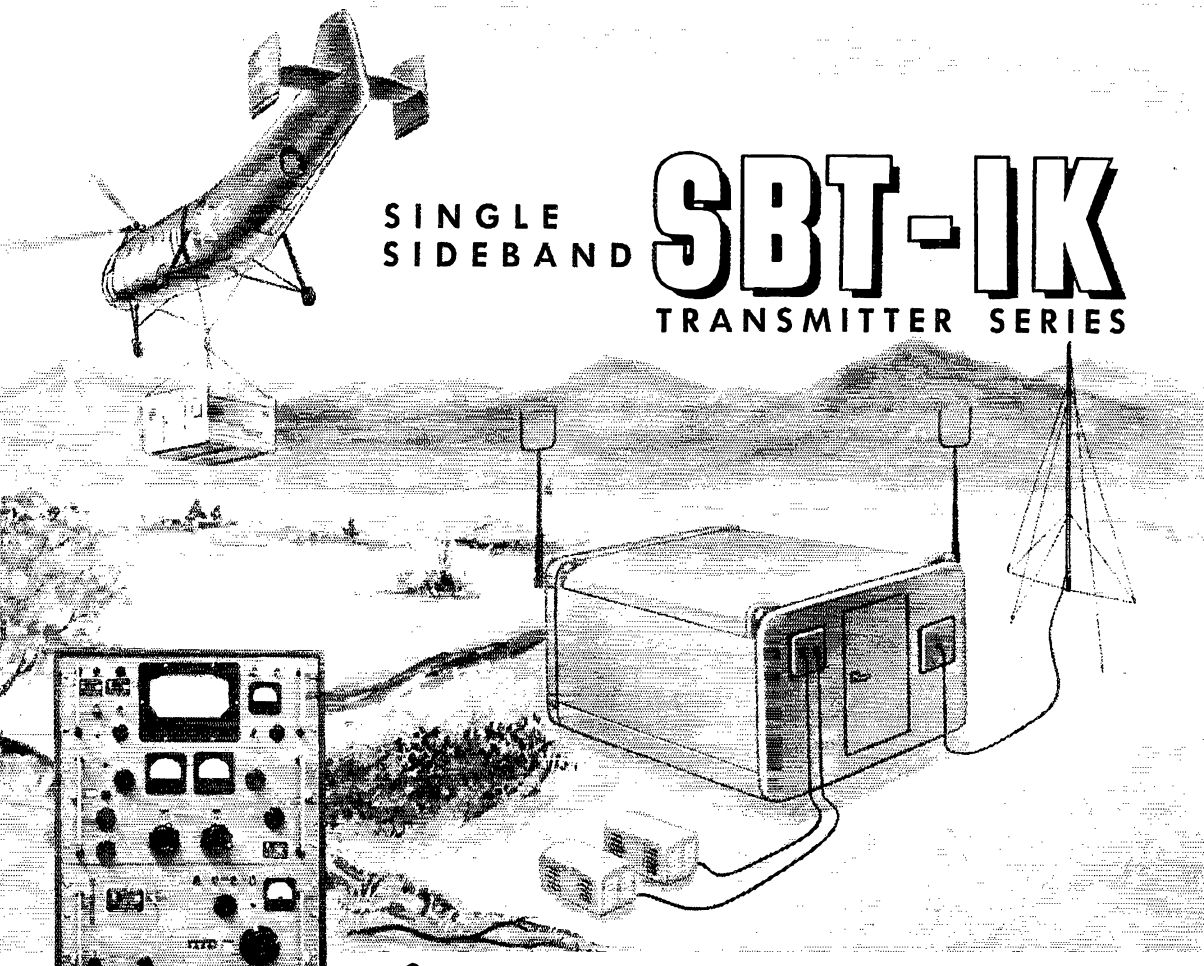

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is a noncommercial association of radio amateurs, bonded for the promotion of interest in amateur radio communication and experimentation, for the relaying of messages by radio, for the advancement of the radio art and of the public welfare, for the representation of the radio amateur in legislative matters, and for the maintenance of fraternalism and a high standard of conduct.

It is an incorporated association without capital stock, chartered under the laws of Connecticut. Its affairs are governed by a Board of Directors, elected every two years by the general membership. The officers are elected or appointed by the Directors. The League is noncommercial and no one commercially engaged in the manufacture, sale or rental of radio apparatus is eligible to membership on its board.

"Of, by and for the amateur," it numbers within its ranks practically every worth-while amateur in the nation and has a history of glorious achievement as the standard-bearer in amateur affairs.

Inquiries regarding membership are solicited. A bona fide interest in amateur radio is the only essential qualification; ownership of a transmitting station and knowledge of the code are not prerequisite, although full voting membership is granted only to licensed amateurs.

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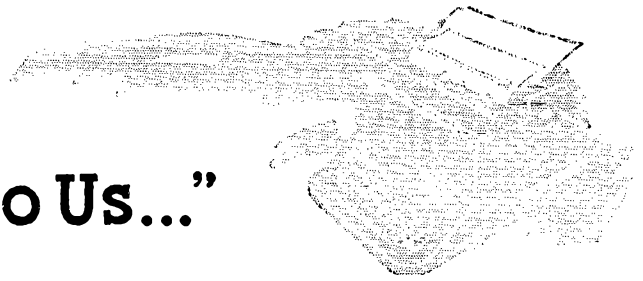


# "It Seems to Us..."

**WE'RE OFF!**

The ARRL Executive Committee has decided to proceed with a Building Fund drive and has set the goal as $250,000.

No small influence on the Committee's decision was the almost unanimously-favorable response to our inquiry in the March issue of *QST*. The Committee wishes to thank each amateur who registered support of the League by an endorsement of the proposal. It has been a very heartwarming experience to receive and read so many comments from members and clubs enthusiastically urging the League to proceed with a fund drive. It was a pleasant surprise to find that some 70 hams and 6 clubs didn't wait for an official announcement of a Building Fund but submitted their contributions immediately! Again, our sincere thanks, OMs and YLs. This resulted in some $1,500 in the kitty before the starting gun was fired.

In setting the Building Fund goal, the Committee has had to work with estimates. Bids are currently being solicited for the new structure. The total cost is expected to be of the order of $450,000. Some of the present equipment at Hq. can be simply transferred to the new location, but much of it is shabby and obsolete — such as 30-year-old office furniture which would hardly look presentable in a new building. There will be extra expense in equipping the laboratory, display cases for the museum, etc.

The League owns its present building. What it will sell for cannot be determined until it is actually put on the market, which will soon be accomplished. The property is probably worth more than its intrinsic value because of a highly-desirable retail sales location, but how much extra that is worth depends on the prospective purchasers. Should a suitable offer not be forthcoming, the Board may well decide to retain ownership and rent the quarters until an acceptable price is received.

The present building and furnishings are estimated as having a value of $200,000. It is the Committee's view, therefore, that a successful drive for a $250,000 Building Fund, added to what will eventually be forthcoming from the sale of the present quarters, will cover the cost of the new structure.

Should the fund be considerably oversubscribed, the extra monies would be used in whatever manner the Board directs — perhaps in improvements at W1AW (which is a project already under discussion) or in more extensive replacement of older furniture and equipment. Should the fund fall short, the League would find other sources, perhaps dipping into its reserves, issuing bonds, or whatever course the Board chooses.

Page 64A of this issue is a subscription form for the Building Fund. Please use this form rather than any letter or memorandum or postscript on other correspondence, to help us keep complete and accurate records. For the same objective, please use typewriter or print carefully. Another form will be sent on request if you wish to keep your *QST* intact. An option of multiple payments on a larger contribution has been included at the suggestion of a number of members.

A certificate of acknowledgment, suitable for framing, will be sent to each donor. In addition, a commemorative plaque or similar recognition will be set in an appropriate location in the new building. There will also be a bound volume in which will be inscribed the names (and calls) of individuals and clubs who participated in the fund drive.

We wish to stress that contributions to the fund are strictly voluntary. Of course, we hope that the subject will be brought up for discussions at conventions, hamfests and club meetings. We shall certainly remind members in *QST* regularly throughout the rest of the year, along with a report each month of the progress of the fund. But thereafter the result is strictly up to each individual member.

As our March editorial stated, an *average* of something less than $4 per Full Member will put the drive well over the top. Some members will not participate, of course, either through lack of interest, or inability to find even a few dollars of excess cash; this will have to be made up by larger contributions from others. We point out again that contributions are U.S. tax-deductible. Numerous suggestions were made in members' comments — 2¢ a watt of transmitter power; one year's dues; $1

(*Continued on page 64*)

**COMING A.R.R.L. CONVENTIONS**

**May 19-20 — Roanoke Division, Roanoke, Virginia.**
**June 1-3 — Southwestern Division, Anaheim, California.**
**July 7-8 — West Virginia State, Jackson's Mills (near Weston).**
**July 21-22 — Rocky Mountain Division, Denver, Colorado.**
**August 3-5 — West Gulf Division, Corpus Christi, Texas.**
**September 1-3 — ARRL National, Portland, Oregon.**
**September 1-3 — Delta Division, New Orleans, Louisiana.**
**October 13 — Hudson Division, New York, N. Y.**
**October 19-20 — Ontario Province, Toronto.**

## ARRL NATIONAL CONVENTION

### Portland, Oregon — September 1—3

Plans for the 12th ARRL National Convention, being held on Labor Day week end in Portland's new $9-million Memorial Coliseum, are nearly complete. The program will feature everything from mobile hunts to exhibits of the latest gear. Technical talks are scheduled on sideband, RTTY, antennas, high-voltage silicon rectifiers, etc. One of the Navy's newest radar picket ships will be on hand for special tours.

Special-interest breakfasts, forums, swap shop, banquet, dance, and city tours are all being planned, including activities for the members of hams' families. Rear Admiral B. F. Roeder, Director of Naval Communications, will be the principal speaker at the final banquet.

Advance registration (before July 15) is $4.75 for hams and $2.75 for non-hams. After July 15, $5.75 and $3.00. This includes admission to all convention sessions and events, but does not include meals or the banquet. Banquet tickets are available separately, and a cafeteria will be in operation in the Coliseum.

Oregon hams suggest that you combine a trip to the National Convention with a visit to the Seattle World's Fair. By air it is 30 minutes to Seattle from Portland, by road 3½ hours. Reservations for both should be made well in advance. The convention committee will arrange motel and hotel accommodations. For further info, write to the ARRL National Convention, P. O. Box 1335, Portland 7, Ore.

## ROANOKE DIVISION CONVENTION

### Roanoke, Virginia — May 19-20

The Roanoke Division Convention is to be held May 19-20 at the Hotel Roanoke in Roanoke and is sponsored by the Roanoke Valley Amateur Radio Club, Inc. The program topics are DX, s.s.b., v.h.f., f.m., RTTY and other sessions. Guest speakers will include Angus Murray-Stone, 5N2AMS, prominent DXer; Ed Tilton, W1HDQ, of the ARRL Hq. staff; P. Lanier "Andy" Anderson, W4MWH, Roanoke Division Director; Bob Follmer, W4QDY, Virginia SCM; and as banquet speaker, Bill Leonard, W2SKE.

A "certificate hunters" session is planned along with military group meetings and mobile judging. A Royal Order of the Wouff Hong initiation is scheduled. An FCC representative is also expected to be on hand.

Tickets are $6.50 per person in advance, which includes the banquet and dance Saturday night, and can be obtained from RVARC, Box 2002 (Attention Jim Evans, K4RDT or Jim Cole, K4VCY), Roanoke, Virginia.

**FLASH!** — FCC has granted the League's request to extend to May 16 the date for filing comments in the matter of proposed license application fees. See April *QST* for text of proposal and procedure for filing comments.

## SOUTHWESTERN DIVISION CONVENTION

### Anaheim, California — June 1-3

Billed as a convention for "hams and their family," the Southwestern Division Convention is to be held at Disneyland Hotel, Anaheim, Calif., on June 1-3, and is a joint effort of the Fullerton ARC, Orange County ARC and the Newport Amateur Radio Society.

The first presentation of the Dr. Lee De Forest Memorial Award Plaque will be made to the person selected who has made "the greatest contribution to amateur radio for the year." Award-recipient must live in the Southwestern Division. Nominations must be made in writing and sent to P.O. Box 1685, Newport Beach, Calif.

The program will include sessions, led by outstanding amateurs in each field, on sideband, DX, RTTY, V.H.F., MARS, traffic, TVI, RACES, YLs, etc. Hidden transmitter hunts, FCC exams, QSL card contests, DX movies, SWOOP, an ARRL forum, equipment displays, and an ROWH initiation, are also scheduled.

And, of course, there's Disneyland.

A general registration ticket of $1.50 entitles holder to all functions of the convention except the banquet and style-show luncheon. All tickets include the privilege to purchase special-priced Disneyland Park ticket-books. The banquet ticket at $10.00 covers everything — and if purchased by or for a YL — includes the style show luncheon. For registration form and convention information, write ARRL Southwestern Division Convention, Box 1685, Newport Beach, Calif.


**Alabama** — The Birmingham ARC will hold a hamfest on May 5 and 6. No further details at hand as of this writing, so contact Ralph E. Bice, K4PZH, Birmingham ARC, P.O. Box 603, Birmingham, Ala.

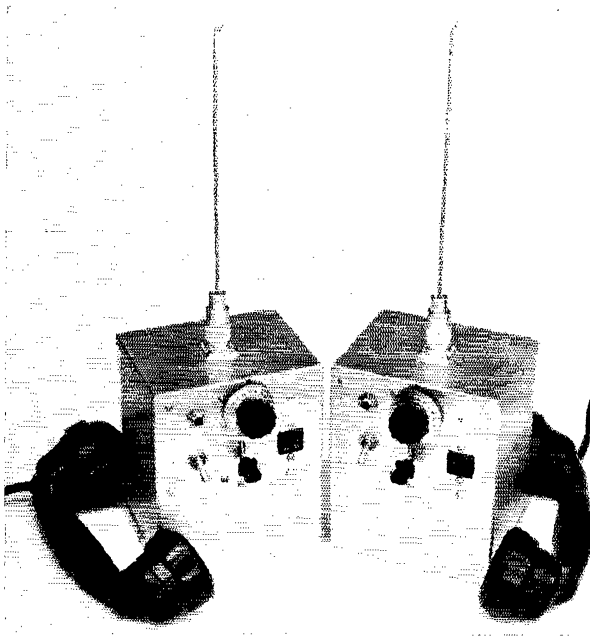
**California** — The Fresno Hamfest will be held on Saturday, May 12, at the Towne & Country Lodge in Fresno, with registration beginning at 0800 and activities at 0900. Technical talks and demonstrations, swap table, auction, mobile judging, hidden transmitter hunts, and ladies' luncheon and special entertainment. The banquet at 1900

*(Continued on page 152)*

# A Simple 420-Mc. Transceiver

BY WALTER LANGE,* W1YDS

*This pair of 420-Mc. transceivers will be all ready to go as soon as the handset connectors are plugged in the panel sockets. Each handful is a complete station, built around the 6CW4 Nuvistor and a pair of transistors.*



**Most of the 420-Mc. gear that has been described in the past decade has been an extension of lower-frequency operation, involving crystal-controlled oscillators and converters, long strings of frequency multipliers, and elaborate antennas. W1YDS takes the opposite approach in his description of a hand-held packaged transceiver that is just the ticket for getting started on the ¾-meter band.**

Back in the '30s (we're told) small self-contained 5- and 2½-meter (now 6 and 2) transceivers were quite popular among the v.h.f. gang interested in portable and mobile work. Few, if any, ventured as high as 400 Mc. because the available tubes turned up their toes before this frequency could be reached. However, with the advent of TV and the commercial production of suitable tubes, there is now no good reason why some of the fun of "the good old days" can't be had on 420 Mc. After working with the 6CW4 (Nuvistor triode) and admiring the ease with which it oscillated up to 700 Mc., there seemed no other logical choice for the "work horse" of the transceiver. Transistors were obvious for the audio end of things.

Many uses for these u.h.f. transceivers come to mind. Hidden transmitter hunts take on a new complexion when the tricks of u.h.f. reflection and refraction have to be considered. Our first use was, quite naturally, short DXpeditions to hill tops in Connecticut and nearby Massachusetts (more on this later). As a radio club project, the transceivers are attractive because they are simple to duplicate and not too expensive ($26, give or take a buck).

* Laboratory Assistant, *QST*,

### *The Circuit*

The 420-Mc. transceiver circuit, Fig. 1, is similar to the old stand-by of the '30s except for the transistors in the audio system. The 6CW4, $V_1$, is used as either a superregenerative detector or modulated oscillator. When transmitting, a 2N107 with a microphone in the emitter circuit serves as a speech amplifier, and a 2N270 is used as the modulator. During receiving, the transistors amplify the output of the superregenerative detector. The value of 470 ohms for $R_3$ may seem small, but worked out best in terms of smooth operation of the detector, and the two-stage transistor amplifier provides plenty of audio output.

An inexpensive power transformer, $T_1$, is used as a combination audio output and modulation transformer. The impedance ratio of the transformer is not optimum for the handset headphone, but the two transistor amplifiers provide enough gain for adequate audio. A 3.2-ohm loudspeaker is a better impedance match for the transistor through $T_1$, and will give ample volume for fixed-station operation when plugged into $J_2$.

Considerable time was spent in trying various r.f. chokes in the circuit, and maximum transmitter output was obtained when the values shown in Fig. 1 were used.

### *Construction*

Construction of the transceiver is started by cutting and drilling a piece of 3 × 3 × ⅛-inch Plexiglas or polystyrene to the dimensions shown in Fig. 2A. Seven one-inch tapped spacers are mounted on the Plexiglas sheet with 6-32 × ¼-inch screws. Using Fig. 3 and the inside-view photograph as a guide, mount terminal strips under three of these screws. Insert the 6CW4 in its socket. Push the Nuvistor through the 7/16-inch hole so that its socket rests on top of the Plexiglas

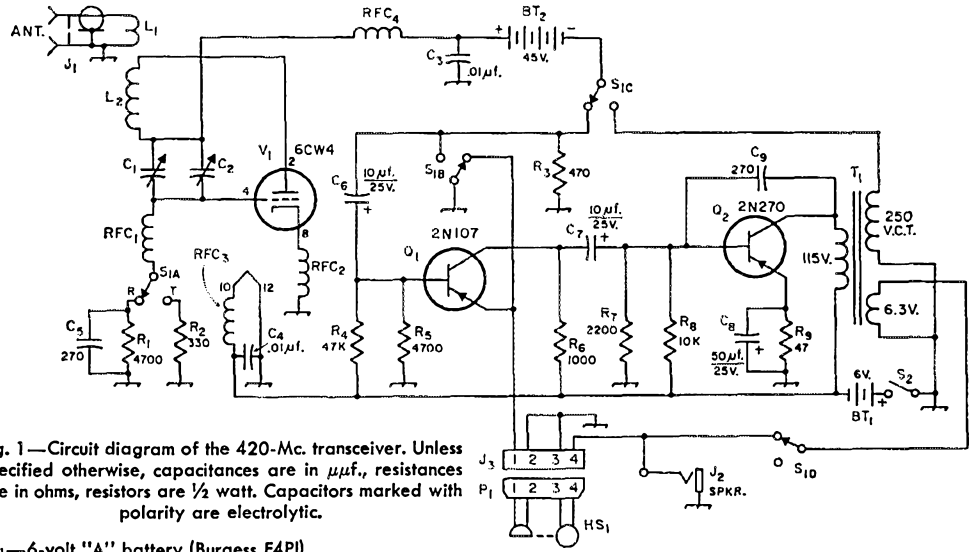



Fig. 1—Circuit diagram of the 420-Mc. transceiver. Unless specified otherwise, capacitances are in $\mu\mu$f., resistances are in ohms, resistors are ½ watt. Capacitors marked with polarity are electrolytic.

$BT_1$—6-volt "A" battery (Burgess F4PI).
$BT_2$—45-volt miniature "B" battery (Burgess XX30).
$C_1$—8.7-$\mu\mu$f. midget tuning capacitor (Hammarlund MAC-10 or Johnson 160-104).
$C_2$—7.3-$\mu\mu$f. subminiature variable (Johnson 189-3).
$HS_1$—Western Electric E1, available through many surplus outlets.
$J_1$—Coaxial connector, SO-239.
$J_2$—Open-circuit phone jack.
$J_3$—4-conductor connector (Cinch-Jones S-304-AB).
$L_1$, $L_2$—See text and Fig. 2.
$P_1$—4-conductor plug (Cinch-Jones P-304-CCT).
$RFC_1$—1.0-$\mu$h. r.f. choke (Stancor RTC-8515 or Miller 4602).
$RFC_2$, $RFC_4$—10-$\mu$h. r.f. choke (Stancor RTC-8522 or Miller 4612).
$RFC_3$—2.4-$\mu$h. r.f. choke (Stancor RTC-8517 or Miller 4606).
$S_1$—4-pole 2-position lever switch (Centralab 1458).
$S_2$—S.p.s.t. toggle switch.
$T_1$—Small power transformer, 115-v. primary, 250-v. c.t. and 6.3-v. secondary (Knight, Allied Radio 62 G 008).

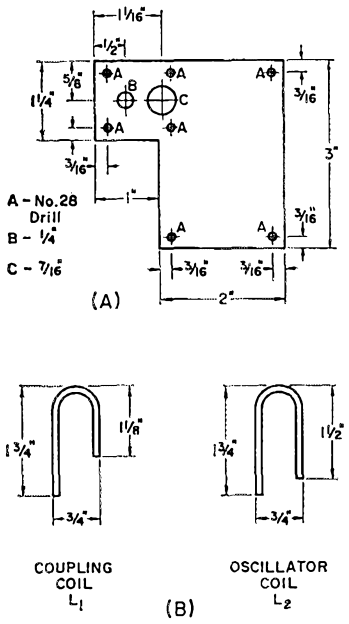



Fig. 2—(A) Details of the Plexiglas or polystyrene sheet that supports the components. (B) Dimensions of coils $L_1$ and $L_2$. The material is No. 12 tinned copper wire.

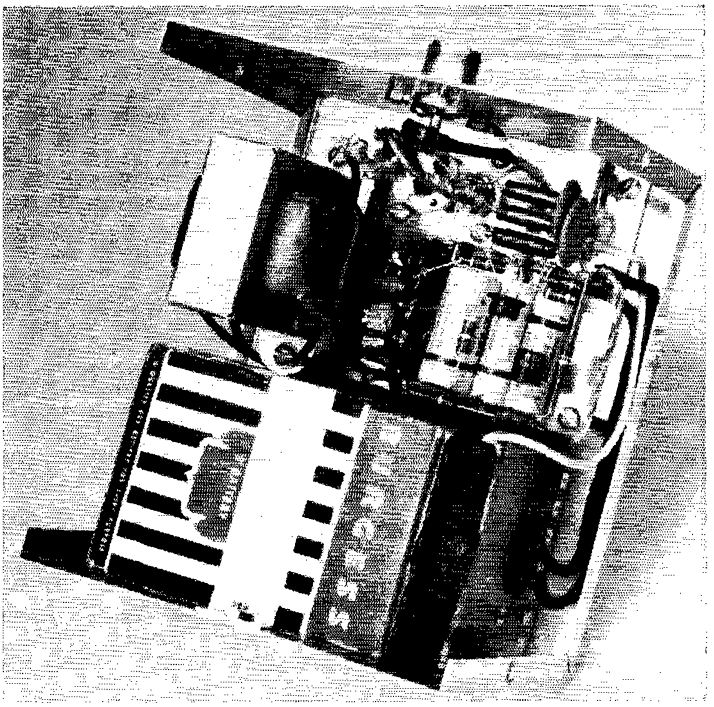
sheet. Make sure no part of the Nuvistor socket comes in contact with any other metal part near it. Position the socket so that Pin 4 is on the left, as shown in Fig. 3.

Solder the small trimmer capacitor, $C_2$, to the main tuning capacitor, $C_1$, and then mount $C_1$ in the ¼-inch hole next to the Nuvistor socket. Put two soldering lugs under the screw labeled A in Fig. 3. Connect a wire from Pin 12 of the Nuvistor socket to one of these lugs. Position this lug so that one end of the coupling loop, $L_1$, can later be soldered to it.

Next mount the three electrolytics, $C_6$, $C_7$, and $C_8$, on the Plexiglas board. On the middle terminal strip, solder a one-inch piece of bare wire to the ground lug and a two-inch piece of insulated wire to the next terminal. On the bottom terminal strip, solder a two-inch insulated wire to the center lug.

In sequence $R_5$, $R_9$, $R_7$, $R_6$, $R_4$, and $R_8$ can now be soldered in place. $Q_1$ is mounted on the middle terminal strip and $Q_2$ on the lower. Solder the oscillator coil (dimensions shown in Fig. 2) in place and then the three r.f. chokes, $RFC_2$, $RFC_3$, and $RFC_4$. Mount two 0.01-$\mu$f. disk-ceramic capacitors, $C_3$ and $C_4$, on the top terminal strip. Assembly of components on the Plexiglas board is now complete.

Drill the front panel of the Minibox, using Fig. 4 and the photographs as a guide. Make a strap



Inside view of a 420-Mc. transceiver. The plastic sheet that supports most of the components is at the upper right.

from a 7 × 3¼-inch piece of scrap aluminum to secure the batteries to the lower half of the Minibox. Mount the send-receive switch, $S_1$, just above the strap, bolting it to the chassis with the same screw that holds the end of the strap. The switch spring should be on the right side as indicated in Fig. 3. Solder $R_2$, $R_3$, $R_1$, and $C_5$ on the appropriate switch contacts.

Mount and wire the handset socket, the speaker jack, $J_2$, and the on-off switch, $S_2$. Mount the antenna connector, $J_1$, in the center of the top of the Minibox. After connecting an insulated shaft extender to the tuning capacitor, $C_1$, attach the Plexiglas board and its associated components to the Minibox with seven 6-32 × ¼-inch screws. One end of the free soldering lug (located at point A, Fig. 3) is bolted under the lower right mounting nut of $J_1$. Cover the coupling loop (dimensions shown in Fig. 2) with spaghetti and solder it in place. Solder $RFC_1$ between $C_1$ and $S_{1A}$. Solder all remaining leads with the exception of the transformer connections. Bolt the transformer to two one-inch spacers. Mount these spacers to the Minibox, keeping the black leads of the transformer toward the outside of the box. Finish the wiring by soldering the transformer leads.

Make a whip antenna for the transceiver from a 9½-inch piece of No. 12 tinned copper wire and a PL-259 coax connector. Bend the top half inch of the wire into a circle as a safety precaution.

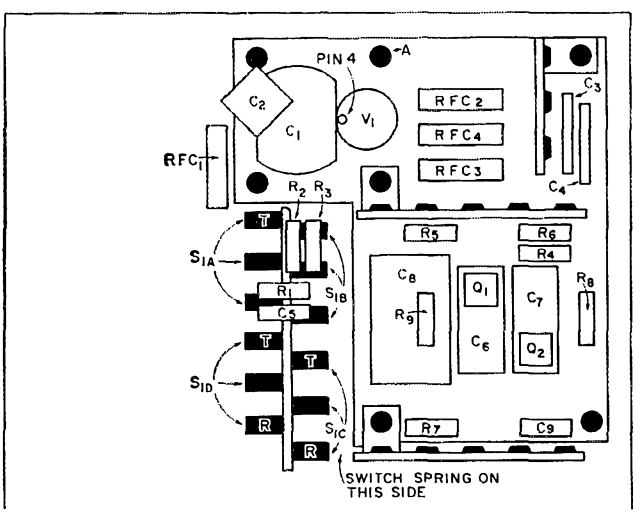



Fig. 3—Location of components on the clear plastic sheet. One 3-terminal and two 5-terminal tie-point strips are required.

### *Alignment*

Install the batteries, plug in the whip and handset, turn on $S_2$, and switch $S_1$ to the receive position. A hissing sound should be heard. Mesh the main tuning capacitor plates half way and set $C_2$ to minimum capacitance. Position a 0–100 knob on the insulated shaft extender so that the dial reads 50. Using a 432-Mc. signal source, adjust $C_2$ until 432 Mc. is heard at a dial setting of 50. Vary the coupling between the oscillator coil and output loop for maximum sensitivity, retuning $C_2$ to keep the dial at mid-scale. Units adjusted in such a manner should cover about 415 to 455 Mc. and be able to detect a modulated signal of 2 microvolts. An unmodulated carrier of 50 to 100 $\mu$v. or more should silence the receiver hiss.

A good signal source for calibrating the receiver is a 2-meter transmitter. Its 3rd harmonics should provide accurate calibration points from 432 to 444 Mc. Also useful, but normally not as accurate, are grid-dipper and signal-generator harmonics.

To see if the receiver is working at its best, it is advisable to try different values of $R_1$ and also to try smaller values for $C_9$. This experimentation is necessary because minor variations in wiring, the transistor and tube characteristics may cause differences in performance. Of the two units shown in the first photograph, the receiver of one required no capacitance at $C_9$ to give the same performance and sensitivity as the receiver requiring a $C_9$ of 270 $\mu\mu$f.

Due to different tube operating conditions, the transmitter operates at a slightly higher frequency than the receiver. This can be corrected with a compensating circuit; however, too much power is lost in the process to make it worth while. If only one of the transceiver operators will retune his dial to the same setting after each transmission, this deficiency should prove to be no great handicap. The plate power input to the transmitter should be about 0.2 to 0.25 watt.

### *Operation*

In field testing two of these units, it was found that at all times horizontal polarization was equal to or better than vertical polarization. Our greatest DX so far has been a 30-mile line-of-sight contact between Glastonbury, Conn., and West-

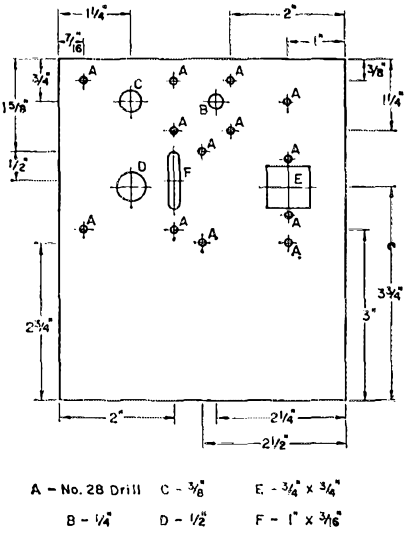



**Fig. 4—Location of holes on the panel. The panel is part of a 4 × 5 × 6-inch Minibox (Bud CU-3007A). The square hole, E, takes the 4-pin connector (Cinch-Jones S-304-AB) used to connect the handset to the transceiver.**

field, Mass. Since we used only the simple whips described in this article for both our antennas, much greater range should be possible with beams at both ends. Non-line-of-sight contacts will, of course, be over much shorter distances, the maximum range depending upon the size of the obstructions and the antennas in use.

Most of the fun we have had with these units has been on hill-top expeditions. One evening, while looking for a certain high point in Massachusetts, three of us were picked up by the local authorities and escorted to the town police station. We were accused of such crimes as building unauthorized radio equipment, modernizing the art of robbery through the use of a walkie-talkie warning system, and stealing radio gear (we didn't have a receipt with us for the parts used in building the transceivers). Justice did prevail, however, and within one hour we were politely released.


### *Acknowledgment*

My thanks go to W1FEA, Belden Morgan, who helped a great deal in getting these diabolical devices on the road. QST


## Strays

A rash of incidents concerning the urgent pleas via overseas hams for rare drugs leads W9DDX, himself an M.D., to offer a word of caution. In one specific incident, for example, it was reported afterwards by competent authority that there was no evidence to support the use of the requested drug for the purposes indicated. Thus, this word of advice from W9DDX — "Obtain expert medical opinion before expending great effort or expense in participating in medical aid." Your own physician will help you, or emergency information can be obtained from the American Medical Association, 535 N. Dearborn St., Chicago 10, Illinois, telephone Whitehall 4-1500. The Department of Drugs of the AMA has available experts and a complete library for such queries.

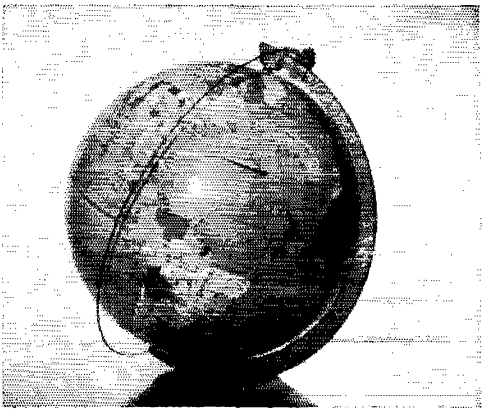
—···—

Frederick Sera, W3UMG, engineer-in-charge of WWV since 1951, has received the Silver Medal for Meritorious Service from the U.S. Department of Commerce for his outstanding achievements in the operation and improvement of the technical radio services from WWV.

# Project Oscar

# Keeping Track of Oscar

*If you want to know about what time to listen for a radio satellite after you get the news of a successful launch, here's how to do it with a minimum of equipment and calculation.*



A wire "orbit" affixed to the supporting structure of a rotatable globe makes it easy to predict the times of future passes.

## *Some Simple Methods of Predicting Satellite Observation Time*

BY RALPH W. BURHANS,* W8FKC AND ROY E. RANKINS,* W8CWL

OUR recent experience in supplying radio amateurs in the Northern Ohio area with prediction information on the Oscar I satellite suggests that most amateurs have very little know-how in orbital computation or celestial mechanics. It also appears that most of them are not interested in trying to learn all this complex technology in detail. However, many are apparently interested in listening to Oscar for a variety of reasons. The problem then becomes: How can the average amateur predict Oscar passage time for himself with a minimum of figuring and fuss?

Some simple methods have been devised by the Sohio Moonbeam Project. The methods are particularly easy to adapt to low-altitude polar-orbiting satellites like Oscar 1 with periods of 90 to 100 minutes or so. It is assumed the predominant type of observation is one where the satellite is traveling approximately north to south (or south to north) and is either to the east, overhead, or to the west of the observer. The first item necessary is a good imagination — or better yet, a small dollar-store globe with a homemade ring of wire to simulate the satellite orbit plane. The ring of wire is mounted from pole to pole around the globe so that the globe or earth turns freely underneath.

### *Estimating First Observations*

Rotate the globe until the orbit ring is directly over the launch site. In the case of Oscar I, and probably future Oscar satellites, this is over the southern edge of California at the Pacific Ocean. From the press and radio news services we can usually obtain the launch time (for Oscar I it was about 3:40 P.M. EST, December 12, 1961).

For simplification purposes we can assume the satellite was in orbit over the launch area at this launch time and that it was going southward toward the South Pole. We also obtain from the news services some rough idea of the orbit period, say 90 minutes. The earth turns toward the east with the satellite orbit ring more or less fixed in space, and the satellite orbit ring appears to advance to the westward as the earth turns beneath it. The satellite completes one orbit in 90 minutes (our assumption at the moment). We know the earth rotates 15 degrees of longitude (lines on globe from pole to pole) in one hour, so we rotate the globe 90 minutes to the east, putting the orbit ring out over the Pacific Ocean westward from California. If 60 minutes equal 15 degrees, then 90 minutes equal 22½ degrees. Thus the satellite will be roughly opposite the launch site 90 minutes later, but now 22½ degrees farther west over the Pacific Ocean. It is traveling north to south at this point. A few minutes earlier, say 80 minutes after launch, an observer in Sitka, Alaska, could have heard the first orbit as the satellite traveled west of this point down over the Pacific. Most other observers in the United States mainland would have been out of range.

We can keep rotating the globe in these one-period or 90-minute increments. The second complete orbit will place the satellite just west of the Hawaiian Islands. The third orbit (270 minutes from launch) puts the satellite opposite Wake Island. One third the way back along the orbit ring from Wake Island we find the satellite

*Research Dept., The Standard Oil Company (Ohio), Cleveland, Ohio.

roughly over England, traveling from south to north on the other side of the globe. Thus observers near England could listen for this satellite roughly 240 minutes from launch (or 2⅔ orbits times 90 minutes).

If we continue rotating the globe and counting orbits, we find the satellite just west of Chungking, China, on the sixth orbit. Halfway back from this point we find the satellite coming up the east coast of the United States. If we haven't missed a count this should be 5½ orbits after launch, and the satellite will be traveling from south to north since this is the opposite side from launch. Thus we can estimate that for observers in the eastern United States the time to start looking for this satellite is 5½ orbits (495 minutes), or 8 hours and 15 minutes after launch, assuming a 90-minute period. This time is surprisingly close to the actual first-observed times for Oscar I in the eastern United States.

Carrying this procedure of advancing each orbit 90 minutes or 22½ degrees westward, we find the 14th orbit coming down over Lake Huron and Cleveland at roughly 12:40 P.M. EST the next day (21 hours after launch). We actually observed the satellite (radio observations) at an estimated t.c.a. (time of closest approach) of 1:10 P.M. EST on December 13, 1961. If we had used the more accurate period of 92 minutes instead of 90 minutes, we would have estimated the 14th orbit at 21 hours and 28 minutes after launch, or 1:08 P.M. EST. This would be a good estimate considering the method. All this can be done very crudely with no corrections for actual orbit injection time or corrections for differences of latitude from the launch site. (In this case these would compensate for each other and still give us about 1:08 P.M. EST as an estimate.)

Anywhere within the United States mainland similar estimates for the 14th, 15th and 16th orbits could be made to within plus or minus 30 minutes of the actual time. All we need to know is the launch time and orbit period. Then after we have made at least one observation, keeping track for the future is a simple matter of making a control chart, or plot of the observed t.c.a. estimates *vs.* the day of the observation.

### *Prediction Chart*

Having observed the t.c.a. for orbit 14, and knowing that the earth will rotate back to the same time of day about 24 hours later, we are ready to estimate the next day's observations. This particular satellite makes approximately 16 orbits per day, so 16 × 92 minutes gives us 24 hours and 28 minutes later for the 30th orbit (14 plus 16). If the satellite was nearly overhead on the first day (orbit 14), then it will be 28 minutes farther west on the second day (30th orbit). (The actual observed time turned out to be some 29 minutes later the next day.) In fact, on this second day we can start observing the next earlier orbit, the 29th, for this particular satellite. This 29th orbit will be to the east of us at Cleveland, about 92 minutes earlier than the 30th orbit.

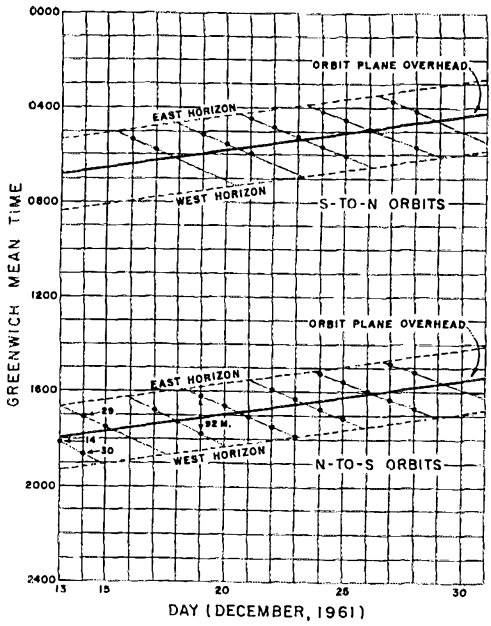



**Fig. 1—Prediction control chart for Oscar I. Dots indicate observed times of closest approach.**

We end up plotting each observation on a time *vs.* day chart as shown in Fig. 1. This is an actual plot of t.c.a.'s for Oscar I, and although we missed some observations the chart is complete enough to illustrate several facts about satellites in general and about polar orbiting satellites in particular. It is a simple matter to draw straight lines between successive points and to extrapolate the lines to the next day's prediction of when to observe. For this particular satellite it is convenient to connect points that differ by 16 orbits, since this is about one day later. To predict earlier observations we can construct lines parallel to a particular set, but about 92 minutes earlier in time. For Oscar I the trend of observations advanced earlier each day by about 8.9 minutes, taken over the whole of the observations.

A single straight line that fits all the points best through the center of each group of observations gives us a quite accurate estimate of when the orbit plane is overhead on a particular day. This is shown by the heavy lines in Fig. 1. Lines drawn through the very edges of the total of the observations represent an estimate of the observer's horizon on the east and west. It will be noted that the evening observations have a greater range of visibility than those around noon, because the satellite is near the apogee at these times and near perigee during the noon observations, for the duration of this particular set of data.

Any point on the chart is easily converted to orbit number by remembering where we started observations, in our case the 14th orbit. So the next day on this same orbit line would be 16 orbits later, or 14 plus 16 equals 30 orbits. The previous orbit of the second day would be 14 plus

15 equals 29 orbits. The evening passes would be figured from 5½ orbits if we had made the very first possible observation, plus 16 orbits per day less the number of orbits advanced to the westward since launch.

From the chart or from observed t.c.a. differences we can obtain a good estimate of the period by dividing the time by the number of orbits between the two times. If we do this each day we find the time of the orbit period decreases slightly each day as the satellite slowly loses energy.

Once an observer has started making observations of this sort, the chart itself becomes his source of predictions for the future observation times. Even if some of the days are missing, it is possible to construct lines for many days in advance, for rough predictions. Satellites with periods of 95 minutes or less have a habit of changing rapidly so it is better to predict on the early side of extrapolated times rather than on the late side.

This type of chart can also be used with other than polar-orbiting satellites. However, the polar satellite orbit works particularly well since the t.c.a. is approximately at the same latitude for each observation. At Sohio, we find that we can estimate the t.c.a. just by ear, or by taking the midpoint between time first heard and last heard on a particular pass. Such crude data are more than sufficient for plotting and predicting well in advance. In fact, we have found that such a chart will often do a better job of predicting than a celestial mechanic and computer facility, particularly if the computations are based on orbital elements more than five days old. For the data illustrated in Fig. 1, a 19-inch vertical antenna over a ground plane or a collinear vertical antenna with very little directivity were used.

The authors would like to acknowledge particularly the help and advice of various members of the Sohio Moonbeam Project, including Dr. A. L. Jones, Dr. P. S. Fay, Mr. T. W. Petrie and Mr. W. C. Niehaus.

QST

## Strays

The certificate Hunters' Club QSO Party for CHCers and HTHers will begin 2300 GMT June 1 and end 0600 GMT June 4. Frequencies: c.w. 3575, 7030, 14,075, 21,090, 28,090; A.M. 3810, 7235, 14,250, 21,330, 28,800; s.s.b. 3990, 7205, 14,350, 21,440, 28,690. CHCers give report, name, state, county and CHC number with each HTH QSO 2 points, CHC 1. HTHers give QSO Nr., name, state, and county with each CHC QSO 3 points. Multiply contact points by continents, different countries, and states worked. Sum of contact, continent, country, and state points is final score. Logs go to Clif Evans, K6BX, Box 395, Bonita, Calif.

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Here's the May schedule for the Air Force MARS Technical Forum, meeting Sundays at 1900 GMT on 3295, 7540, and 15,715 kc.

May 6 — Rectifiers for Amateur Radio Power Supplies.
May 13 — Presentation of the 1961 Edison Award.
May 20 — Novel Devices for the MARS and Amateur Station.
May 27 — Applications of Drift Transistors to Radio Receivers.

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### STOLEN EQUIPMENT

On Feb. 18 a Central Electronics Model 100-V, serial No 58, was stolen from the Milwaukee School of Engineering Amateur Radio Club, W9HHX, 1025 N. Milwaukee St., Milwaukee 1, Wisc. Any information on this equipment should be sent to the club.

—•••—

The Parma Radio Club is putting together another edition of the *Greater Cleveland Area Call Book*, the supply of the 1961 edition being nearly exhausted. Help the editors of this club project by furnishing them (if you live in the greater Cleveland area) with your name, call, QTH, and phone number. Send a postcard with the above info to Henry Bormann, W8CZM, 4345 West 50th St., Cleveland 9, Ohio.

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What may be a common expression to many of us can be quite misleading to someone who is familiar with its popular usage. Given a request to supply the name of the publisher of "The TV Antenna Designer's Book" referred to in the ARRL *Antenna Book*, one of our Technical Department men was stumped. He knew of no such book, and could not at first locate the reference the correspondent had in mind. Finally he came across it in the following phrase from the chapter on v.h.f. antennas: "Ideas can be taken from the TV antenna designer's book . . ." Note that the corrected quotation does not use caps!

This brings up a point that will help both the people writing to ARRL Headquarters and the staff man who answers. In referring to an ARRL publication, always refer to the edition, as well as the chapter, page and figure number, if any. Most of our books and booklets have gone through many editions, and so "that antenna on page 208" is sometimes hard to locate. Occasionally it turns out, after hours of searching, that the fellow is talking about a book he purchased many years ago!

—•••—

A ham and his wife in the Los Angeles area recently escaped death by the narrowest of margins when an antenna they were working on fell across a 12,000-volt power line. Please stop and think for a minute before *you* get *yourself* into a similar predicament. *Switch to safety!*

—•••—

Everyone wins in the Memberscription contest. See page 64A of April *QST* for details.

• *Beginner and Novice*

# Simple Wavemeters for V.H.F. Beginners

## *Get the Right Harmonic When Multiplying Frequency!*

BY LEWIS G. McCOY,* W1ICP

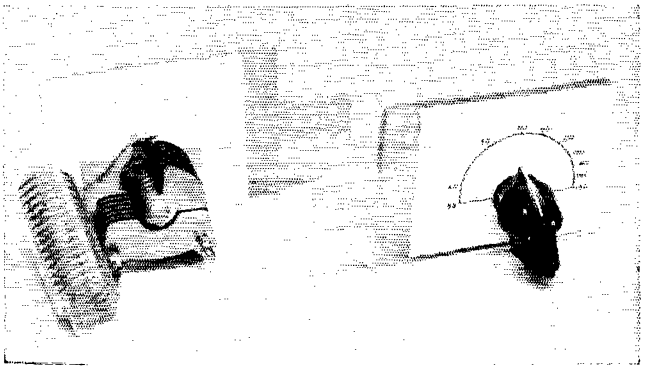
THIS article describes the construction and use of some simple test gear for those amateurs who like to build their own equipment and are interested primarily in v.h.f. work. If you have ever built a 2-meter transmitter, you probably realize how difficult it can be to know exactly what is happening with the tuned circuits in the rig. For example, on 2 meters, it is customary to start off with an 8-Mc. crystal oscillator, then triple to 24 Mc., and then either double or triple again to 48 or 72 Mc., and then up to 144 Mc. Even though you build the transmitter from a tried and tested circuit, it is quite possible, in fact easy, to make mistakes in tuning the various circuits, resulting in an amplifier working on some other band than the one you want. You may think the rig is working correctly, as indicated on the grid and plate meters, but all you wind up with is a log full of CQs without replies. Even more important, you are probably out of the band and in violation of FCC regulations.

Let's suppose you build a 2-meter rig from a *QST* article. As we said above, it is quite common to start off with an 8-Mc. crystal and triple to 24 Mc. in the plate circuit of the oscillator. Usually we have a variable capacitor and a coil as a part of this tank circuit. The problem is in making sure that the capacitor is set at the correct point in order for the circuit to resonate at 24 Mc. It can well be that there is enough range in the circuit to tune either to 16 Mc., twice the crystal frequency, or to 32 Mc., in which case you would be quadrupling. You cannot depend on the plate current meter "dip," because a dip will occur at each of the frequencies. To make the problem even more complicated, there are usually several stages in a transmitter, and each must be tuned correctly.

*Technical Assistant, *QST*.

There are a couple of methods of determining which is the correct setting of each circuit. If you happen to own a grid-dip meter, the simplest thing is to couple the grid-dip meter to the circuit and check and see where the circuit should be tuned. However, many beginners don't have or cannot afford a grid-dip meter. If you happen to have a receiver that will tune to 24 Mc., you can always check the oscillator plate circuit tuning with the receiver. You merely tune to the third harmonic of the crystal and then adjust the tank capacitor for the setting that gives you the loudest signal, and this will be the correct frequency. Be sure that the tank capacitor isn't at either one end or the other of its tuning range when you get the loudest signal. This would indicate the circuit isn't tuning to resonance. However, there is still the problem of getting the correct settings for the other frequencies, 48 Mc., 72 Mc., and so on. This leads us up to the purpose of this article, a simple device that will help you determine the answer.

The simplest device for getting an approximate idea of where a stage in a transmitter is tuned is an absorption-type wavemeter. In its barest form it consists of a coil and variable capacitor. The circuit is shown in Fig. 1. The wavemeter is *not* a frequency meter in the sense that you can check exact frequencies. However, it is accurate enough for checking frequency multiplier stages, and that is what we are interested in here. The only place you are liable to be off in reading the wavemeter would be at 144 Mc., where the error is much greater than in the lower part of the tuning range. At 144 Mc., you can be off as much as 10 Mc. It is an excellent device, however, at the lower frequencies, say 72 Mc., where you can easily tell if you are multiplying to the correct range. The coil and capacitor combination will



This photograph shows the method of mounting the coil on the capacitor. The unit at the right is the high-frequency wavemeter, and the low-frequency unit is at the left.

have a certain tuning range, the range depending on the inductance of the coil and the minimum-to-maximum capacitance ratio of the capacitor.

The procedure for using a wavemeter is quite simple. Let's suppose you have a circuit you want to check that should be tuning to 50 Mc. The only indication you have is the plate current "dip," which you assume is resonance of the circuit for the frequency you want. To check the circuit, the wavemeter coil is coupled to the coil in the circuit, either by having the two coils side by side or end to end. Next, the wavemeter capacitor is slowly tuned through its range and at one point the plate current reading will "kick." The setting of the wavemeter that produces the meter reading change is the point where the circuit being checked is tuned. If the wavemeter is calibrated, and we will show you how, you can easily tell where the circuit under test is tuned.

For 6- and 2-meter work, two wavemeters are needed. The range of the first is from 21 Mc. to 65 Mc. and from 55 Mc. to 180 Mc. for the second.

### *Making the Wavemeters*

If you are interested only in building 6-meter gear, only one wavemeter is required, the one having a range from 21 Mc. to 65 Mc. If you also want to cover 2 meters, the 60- to 180-Mc. unit is needed. The wavemeters each consist of a single coil and capacitor. If the coil specifications and the same capacitor as specified in Fig. 1 are used, then you can use the two tuning dial charts shown below. They can be cut out of *QST* and pasted on the capacitor mounting plate. Any insulating material, such as polystyrene or bakelite, can be used for these plates. The plates measure 2 by 2¾ inches with a handle ½ by 1 inch off one side (see photograph).

When making the coils for the wavemeters, leave some lead length, about 2 inches, at each end. Mount the coils as shown in the photographs. For the tuning charts given here to agree with your units, the leads connected to the capacitors must be ¾ inch long at one end of the coil and 1¼ inches long at the other. The longer lead is soldered to the rotor soldering lug, using ¼ inch of the lead for the connection. The other end of the coil is soldered to the stator bar at the rear of the capacitor, also using ¼ inch of lead for the connection. This is the same for both coils. Cement the tuning chart to the insulating board and mount the coil/capacitor combination on the board. Set the capacitor at maximum capacitance, plates fully meshed, and install the tuning knob with the knob pointer at the low-frequency end of the tuning chart. Also, use an insulated type knob, one that has no metal parts connected to the shaft. This is to avoid any accidental shocks when checking circuits and to reduce hand-capacity effect.

### *Using the Wavemeters*

You've already had some explanation of how to use the wavemeters, but some additional dope might help. In some transmitters the only meter-


Fig. 1—Circuit diagram of the wavemeter.

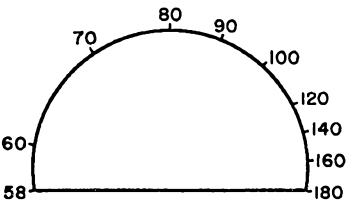
$C_1$—50-$\mu\mu$f. variable (Hammarlund type HFA-50-B).
$L_1$—For low-frequency wavemeter, 21 to 65 Mc., 14 turns No. 18, ½-inch diam., 8 turns per inch (B & W Miniductor type 3002).
For high-frequency wavemeter, 60 to 180 Mc., 4 turns No. 18, ½-inch diam., 4 turns per inch (B & W Miniductor type 3001).

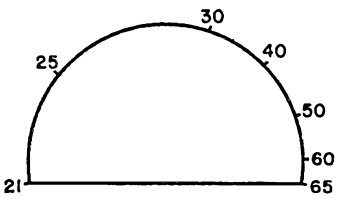
ing is in the grid and plate circuits of the final amplifier. In such a case, you can tune up to where you get grid current showing on the amplifier. Remember, even though you have grid current, it doesn't necessarily mean that it is on the right frequency. Starting at the tank coil of the oscillator, couple the wavemeter to each circuit in succession, tuning through the wavemeter range, and observing the grid current as you do so. At some setting of the wavemeter you'll get a change in the meter reading, and this point will be where the circuit being checked is tuned. Go through the various stages of the rig, checking to make sure each circuit is tuned to the correct frequency.

When using the wavemeter, keep the coupling as loose as possible between the wavemeter coil and the coil of the circuit being checked. You'll get the most accurate reading with the loosest coupling that will give you an indication. In other words, the tighter the coupling, the broader the reading of the wavemeter tends to be.

Another way to check is to use a visual tuning indicator on the circuit to be checked. Such an indicator consists of a No. 48 dial lamp (2 volts, 0.060 ma.) and a loop of insulated wire about ½ inch in diameter. Solder one end of the wire to the connection at the center of the bulb base and the other end to the shell. The loop of wire is held or hung over the end of the coil in the circuit to be checked. The circuit is then tuned slowly through its range. At one or more points the dial lamp will light up, indicating a resonance point. Set the circuit tuning at one of these points. If the wavemeter is then also coupled to the circuit and tuned through its range, you'll hit a spot where the dial

*(Continued on page 140)*




# 1961 Sweepstakes Results

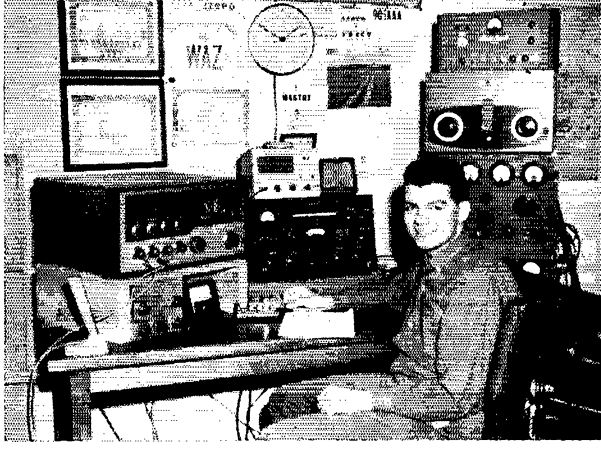
COMPILED BY ELLEN WHITE,* W1YYM AND JOHN LINDHOLM,** W1DGL

THE 28th ARRL Sweepstakes was a real gasser! Nearly 700,000 exchanges were reported swapped over the November 11–13 and 18–20 week ends, and it's probably more than a *million*, counting stations who didn't submit logs. Immediately following the second week end, logs started trickling into ARRL Headquarters, building up steam as the days ticked by until deadline day when we were swamped with reports. Pictured above, one of your Sweepstakes editors, W1DGL, struggles to dig his way out from the avalanche of logs to hit Headquarters. All told, the 2072 logs submitted represent all ARRL sections and the third time in the last four years the 2000-entry mark has been surpassed, with 1525 c.w. logs and 547 phones. The average c.w. entry logged 390 QSOs, the average phone log 115 contacts . . . amazing considering that very few SSers can spare time for the full forty. We're proud to present that overwhelming enthusiasm in *QST* with the c.w. and phone tabulations, the winners, soapbox, club results, pictures . . . the whole shebang!

### *C.W. Highlights*

New England always seems to come up with a scorching close race, and this year Connecticut's old pro W1BIH nipped newcomer and last year's certificate winner K1HTV by a mere 13 points; the clean sweep won this one. W1NJL captured E. Mass. with 157,604 points, while that N. H. multiplier was an easy one this year thanks to certificate winner W1IJB with 789 QSOs and a host of Nashua Mike and Keyers transmitting 1203 N. H. QSOs. Not unlike many other SS hopefuls, K1MVN, found Murphy's Law, the greatest SS killer to lurk within the shadows of a rig, the villain in his SS hopes. With apologies to the original author, the following verse is courtesy of K1MVN:


* Ass't. Communications Manager, Phone, ARRL.
** Ass't. Communications Manager, C.W., ARRL.



After 10 years of trying in vain to buck the tough N.Y.C.-L.I. c.w. SS competition as W2HQL, a switch to California's S.C.V. brought home the long-sought-after c.w. sheepskin for WA6TGY with 924 QSOs in 73 sections. That's a whole lot better than the 14K in 39 hours in your first SS, huh Joe? WA6TGY's first love is DX with140 confirmed and 273 from W2.

T'was the night before Sweepstakes
And all through the house,
One creature was stirring,
But he was no mouse.

The ham was rechecking
His set-up with care,
In hopes Mr. Murphy
Would not visit there.

T'was the week between Sweepstakes
And all through the house,
Our hero was screaming
At children and spouse.

The final was smoking
And perched on a chair.
It seems Mr. Murphy
Had gone to work there.

T'was the night after Sweepstakes,
And all through the house,
Not a creature was stirring
Not even our mouse.

Our hero was restless,
Deep down in his bed,
As nightmares of Murphy
Danced in his head.

The frayed, jangled nerves,
The rig he had burned,
Were vivid reminders
Of the low score he earned.

But give it all up?
You can let your fears rest
He'll do it again
In the DX Contest!

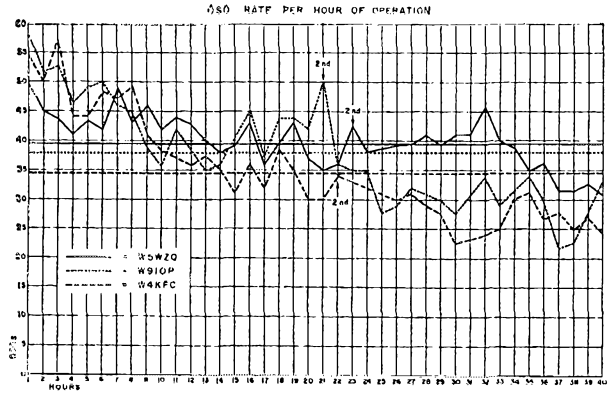
K2DGT continued his c.w. mastery of the second call area with 1327 QSOs to his credit and 238,801 points, fourth high contest score. Many of the West Coast gang found usually easy E.N.Y. no lead pipe cinch to land, and if it weren't for K2EIU and his 971 two-ways, many would have drawn a blank on this section. W2-DMJ triumphed again from N.N.J., as did W2HDW in S.N.J. In the midst of all the W2 activity, WA2NCE sighed: "What a job landing W7KEV for my Nevada multiplier, especially with a shaky AR-3, barking dog, and local key klicks 60 over 9. Whew!" And K2MXA offered this brief description of the SS: "What madness!"

With the Frankford *vs.* Potomac rivalry flaring up W3 activity, no less than 45 W3s topped 100K, yikes! W3MSR heads up the call area with 206,043 with W3ALB winning E. Pa. honors at 190K. How many got mixed up on the W. Pa. twins, K3DFV and K3DFU?

What can be said about four-land with astronomical scores like this being posted: W4KFC 250,938; W4DQS 225,570; K4GSU 200,933; K4TML 200,250; K4PUZ/4 192,060; W4JAT 180,219; K4BAI 174,470 etc.? Vic Clark's 1377 QSOs places him third high nationally. E. Fla. winner W4DQS observed: "This was probably the best turnout for SS from Florida for many years. DX took a back seat for a change."

Posting the contest's highest score doesn't happen by accident. It takes a deliberate plan of attack on the contest, with better than adequate equipment particularly antennas, a few breaks here and there, immaculate log keeping, and plenty of operating savvy. The one who formulated that recipe for the highest score this year was South Texas' W5WZQ with an all time SS record score of 1576/73 for 285,521 points! Diagnosing conditions, our new SS champ and winner of the *Ev "Pappy" Mayer, KP4KD, Memorial Award* commented: "The 7-Mc. rotary put up a month before the contest really livened up that band so that it became my best band both week ends. When the Northern boys were having their troubles with long skip at night, it was real nice for us. During the daytime I spent most of my time hopping between 20 and 15 meters, trying to stay right under the m.u.f." Congratulations, Dave! It looks like that four-minute mile type effort of 300K is right around the corner. Also cashing in on that north-south path was W5CWX, who narrowly eked out an Oklahoma victory over K5OCX, while neat and accurate log-keeping paid off for La.'s W5BUK. KZ5s TD and DF caused 728 contestants to sigh with relief.

"Must have been the toughest competition in L.A. in several years with W6SBB and W6IXK constantly breathing down my neck. They were still knocking 'em off when I finished my 40 hours before noon Sunday." But K6CTV held on to top all W6s with 197,820. Meanwhile in S.C.V., WA6TGY trampled some tried and true talent in W6UTV and W6MVQ. In the islands KH6IJ dealt out 1000 exchanges to happy recipients, as KH6DVD mused: "Am hopefully aspiring toward second place. What else is there to shoot for in KH6IJ's section?" East Bay's W6PQW scored a nifty 7 Mc. one-band effort of 109,550. And many an entry bemoaned missing Sac. V., one of the toughest to get this year. Said *QST* author W6ISQ: "Many people asked me during SS, 'how was the show?', referring to 'The Two-




This graph reveals how the top three c.w. SS entrants, W5WZQ, W9IOP and W4KFC, stacked up against each other in relation to operating hour. At the beginning of the contest and most of the first week end, W9IOP and W4KFC were better able to cope with the high-activity hours. However, particularly the second week end, W5WZQ sustained a steady high QSO average, taking full advantage of the long-skip night conditions that hampered the Northern stations. The horizontal lines indicate the over-all QSO average for each station.

Headed Teenage Monster Meets Snow White' (in 'Sweepstakes Comes First,' Nov. *QST*). Therefore, I thought you might be interested in a quick appraisal of the show."

**Movie Review. "Two-Headed Teenage Monster Meets Snow White."**

The part of Snow White was played most sympathetically by Miss Bridget Bardot. B. B. was completely unsuited for the part and acted well also. However, the two-headed teenage monster was a complete fraud. He was supposed to have only two heads, but the mirror work was quite poor, and his third head showed through quite plainly. From a practical point of view, the monster's three heads would have been rather valuable for SS work — one head for phone, one head for c.w., and the third head for Monday morning after the contest!

— *W6ISQ*

In 7-land Nevada's W7KEV continued his domination again breaking the 200K mark. Always welcome sections to snag were these section winners: Arizona W7ZMD 161,010; Wyoming K7QYG 117,250; Montana K7CTI 114,975; Idaho W7BSP 104,913; Utah W7BAJ 87,630. And happy indeed were many SSers to log KL7BJW. . . . And if you think you got problems, here's one that K7JHA and W7JHA got that won't go away: "W7JHA and I estimate 20 to 30 stations told us, 'Sorry, OM, but we QSOd before,' and we have no idea how many didn't answer our CQs because their operating aid showed a JHA under the 7th area, even though the underscore or circle is supposed to keep it clear." — *K7JHA*.

"Dear contest staff: If perchance I win the W. Va. award, you better include my XYL's name on the certificate or she threatens to sue you for alienation of affection. If perchance I did not win, she will not allow me to enter next year, and I will hold you responsible. Did you ever read 'The Lady and the Tiger?'" — *K8HID*.

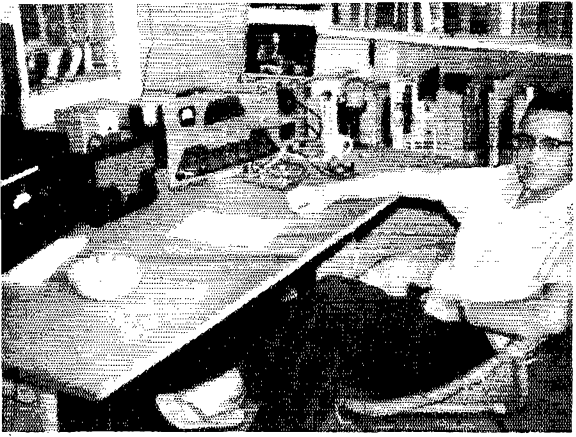
Check the W. Va. tabulation and you'll find K8HID out front with 145,550 points. Your certificate is on the way, Mrs. K8HID! Tops in the 8th call area though was W8NBK with 194,895 who topped 121 (!) other Ohio hopefuls. This call area also produced the nation's highest Novice score with W. Virginia's KN8YBU 30,525 points, FB!

W9IOP and W9RQM sewed up Indiana and Wisconsin honors in usual fashion with 258K and 203K respectively, with Larry's score earning him 2nd high laurels nationally. In Illinois W9ZAB, K9KDI, W9RCJ, and W9IPT battled it out for the certificate with ZAB snatching it in a real close one with 176,453.

Dispensing 1072 Colorado contacts in all 73, yielded high-Ø rank to WØCDP with 195,640. Last year's Novice Roundup winner KØBPO explained his SS exploits thusly: "Didn't get much operating time, because OM WØYCR was on almost every available minute. Did get to operate during mealtimes though. Pop says next year's SS the rig is all mine." OM WØYCR produced an even 1000 two-ways to win another Minnesota award, while K6SXA, still portable at college, walked off with the Iowa prize. And understandably enough, KNØFNW asks: "How about a crystal multiplier?"

It takes the top notchers to snag those tough VE sections, but this year they were definitely in there with full force. Three Yukon-N.W.T. logs from VE8s DM BC and CW must be some kind of a record and check those big scores from Quebec, Ontario, Manitoba, and Alberta. "It was my 'magnus opus' to crack 1000 QSOs. Think I am the first Canadian to do it. Worked a VE8 on phone who listened for my c.w., but he had no key!" — *WØAIH/VE3*. Crack it he did for a record Canadian score of 184,590. Others in close pursuit included VE2NI 131,040, VE4JB 105,743, VE5LX 97,380.

VE6LX put Alberta on the SS map this year in a big way with just a shade under 100K c.w. points. Antennas at VE6LX include a full-sized 4-element 20-meter rotary, 3-element 15-meter beam interlaced on the 26-foot boom of the 20-meter job. Earl is formerly VE8JW. XYL is VE6ADA.



Snagging that West Indies multiplier is a good leg on the way to the clean sweep, and thanks to KP4BDS (left) with 73,868 c.w. points and KP4AWH (right) with 35,577 phone points, who dished out a combined total of 703 contacts earning section certificates in the process. Seems that the KP4s' biggest problem in the SS contest was DX stations calling even louder than the stateside boys!

### *Phone Highlights*

Phonewise the first call area brought forth logs from all seven sections. Tops among them was W1HKK with K1KTH at the mike, bettering his 1960 vocal victory with 500 QSOs in all 73. He credits the 40 meter beam, but it takes operating savvy as well to score over 100K points. New Hampshire shows a surprising seven entries, representing 1092 contacts!

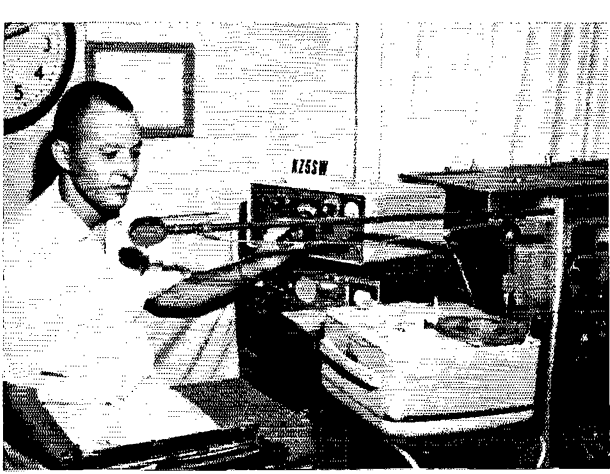
The Atlantic and Hudson Division twos were out in force with a repeat call-area lead by Western New York's K2GXI with 129,824 via 613/71. K2TAP again led N.Y.C.-L.I. and bested 48 other contestants with 460/65. The long familiar W2 *John King Henry* appeared on the N.N.J. scene to add another section phone award to his collection.

Topping 47 Eastern Pennsylvania vocalists is K3DVS with 116,903 and section, Division, and call-area honors. Repeat honors too by W3ZKH of Md.-Del.-D.C. and W. Pa. was easy to find with at least 19 participants on the A3 frequencies.

Another winning phone performance by K4LPW of Oak Ridge, who led Tennessee and the 4s with 130,782. Said versatile Mel: "The phone contest is just too hungry, and just had to pound brass for a little while. Sure felt good . . . if I could only keep up that 45/hour pace, hi." Over in E. Fla., K4WIS edged out W4USQ in a tight one while KZ5SW turned on the heat in the Canal Zone for a sizzling 544/65 — a real bonus for section hunters. W4BVV reappeared to top Va. and pick up the PVRC phone award too.

Popular are the fives and a surprise too seeing South Texas take top phone honors in the fifth call area with K5MVK's 702/67. Said our young 5th call-area leader: "I wouldn't have been able to run up my high phone score without the pre-contest advice of old pro K5JCC. Tips he gave me regarding operating procedure proved invaluable. He is 19 and I am 18, so I guess we both have a lot of contesting to do." Not far behind was Louisiana's W5KC with 625/72. All section leaders in the Delta Division topped 100K by healthy margins, nice going!

Oral doings were quieter on the coast with K6VGW of the Santa Clara Valley topping the sixes with 84,576. Both W5BJZ/KH6 and KH6DKI were on hand to dispense 674 Hawaiian-type two-ways, with the latter promising: "Lost more in the pile-ups than in any other way. Wait till next year when I go multiband." Look out! Back in Southern California W6UGA led the Los Angeles verbalists with 512/68 and 69,632 points, but victory was not easily come by: ". . . And two minutes after sign-off, the rig blew up for the third time. This time the p.a. plate choke was in shreds and I gave up in utter disgust. It seemed as if the entire family of Murphy's Demons had invaded W6UGA, and what can mortal man do against the occult forces of the supernatural? So with a heavy heart after 30 hours and 10 hours operating time left, I had to quit. It was with a glass of consolation and




Ted Wilds, KZ5SW, set out to determine if it's possible to be in the top SS brackets on phone from the Canal Zone on the high bands. Prove it he did with 544 QSOs for 104,910 points, a Canal Zone SS record! All QSLs answered via bureaus so contact your bureau if you didn't get yours yet. (*USAF Photo*).

Claimed as a new section multiplier probably more so than any other SS station was K7QYG with 700 c.w. QSOs, and little wonder why, being in rare Wyoming. Loren is an old c.w. traffic hound holding several BPLs under his ex-call W0RDN, and former manager of TEN.

wistful speculation of what might have been, I contemplated the cruel adversity of fate and resigned. I think that if I had attempted to continue, there is no telling what dire calamity would have occurred."

The biggest of the big scores in the phone portion of the Sweepstakes was Washington's W7ESK with 160,218 via 782/69, though you'd never know if from the way Rush tells it: "Phone conditions were only fair in the Northwest Division with no openings on 10 to the East. Disappointed too with the lack of sideband activity. Goofed on VE5 and VE8 and never did hear W. Mass. or Maritime." Further east Utah's K7BLR proved a popular multiplier as were three Wyoming stalwarts, K7IAY W7LKQ and K7DUT. Montana, always good to confirm, was supplied by W7CBY and K7KME.

As W8AJW rested on laurels, umpteen past awards and second slot in Ohio phones, K8NPD topped the 8th call area with 77,610. As usual Ohio led the section turn-out with 52 participants. Michigan saw a tie for 2nd place with W8FWG and W8YFE arriving at 24,180 as W8AEI trotted off with the award.

In nine-land, another repeat performance with phone honors to W9NZM, heading Illinois and the Central Division with 407/72. K9PNV paced Indiana with 61,560 and K9HOL led Wisconsin with 460 two-ways. School club stations W9HHX and W9YT multi-ops dispensed 730 contacts.

Returning to the phone SS wars after a long absence is W0MLY with 156,366, leading Iowa and the Midwest in a big way while posting the second-highest phone score nationally. Dick reminisced: "One of the best phone SS I've been in since 1935 when I won for E. Fla. as W4DVL. I was national high in 1947 as W6MLY." Hard pressed was that Iowa race with W0AXE with a really fine phone score over 100K. W0PRZ came up with all sections and continues to make South Dakota news. A surprise for your SS editors to note no log submissions from you Kansas phone men. C'mon!

Ontario phone fanciers proved most active to the North, with four entries tabulated. However, VE3RM/2 operated from Quebec to tally the top Canadian score with 170 QSOs. A pleasure indeed to note an entry from VE8BY to round out the phone Sweepstakes.

## THE CLEAN SWEEP

| | | | | |
|---|---|---|---|---|
| W1BIH | W3EIV | W3TMZ | W6BVM | K8QJH |
| W1HKK* | W3EQA | W3WJD | W6IXK | W8YCP |
| W1MHF | W3GHM | W3WV | WA6NNJ | W9GRF |
| W2AYJ | W3GQF | K4BAI | WA6QEH | K9KDI |
| K2CPR | W3GRF | K4BVD | K6SXA/0 | W9LVR |
| K2DGT | W3KFQ | W4CVI | WA6TGY | W9PZT |
| W2DMJ | W3HHK | W4DQS | W6ULS | W9RCJ |
| W2ESO | W3IYE | K4GSU | K6VVA | W9RQM |
| W2FXN | W3JTC | W4JAT | W6YK | W9WIO |
| W2HMJ | W3KT | W4KFC | K7CTI | W9ZAB |
| WA2IZS | W3MCG | W4LYV | W7GHB | W0CDP |
| W3ALB | W3MFJ | W4YHD | W7HAH | W0MLY* |
| W3BES | W3MSR | W5CWX | K7JHA | W0NCS |
| W3CGS | K3NZV | K5MDX* | W7KEV | W0PRZ* |
| K3CYA | W3ORU | K5TYW | W7PQE | VE1ZZ |
| W3DBX | W3PZW | W5WZQ | W8FGX | VE4IM |

* Phone

### *The Clubs*

Determined to make amends of recent contest setbacks at the hands of the Frankford Radio Club, the Potomac Valley Radio Club turned on the blow-torch heat this year as never before. W4KFC tells how they did it: "The PVRC paired off into two teams for an intra-club competition, the winners to be treated to a free outing at the expense of the losers. Team captains were W3GRF and W4KFC. A toss of the coin gave W3GRF first pick and then we chose one man at a time, as per small boys choosing sides for a ball game. Naturally we went for the heavy hitters first. It made for an exciting club meeting! At the halfway mark the total calculated potential scores were within 1 per cent of each other! You might want to suggest this stunt for other clubs. Our club score will tell how effective it was." Those results show PVRC breaking all existing club records with 6,448,741 combined points . . . that's averaging better than 93,000 points per member, zounds! It takes a powerful lot more than just lots of members to rack up a score like that. . . . It takes plenty of good operating. No soft touch, to say the least, was the Frankford Radio Club with 5-million plus, nothing to pooh-pooh at. Coming from nowhere, the Florida DX Club with but seven entries placed third just under a million; that's nearly 140K per man! Other clubs on the way up the list are the Milwaukee Radio Amateurs, Rubber City SS Hotshots, and the Miami Valley Contest Soc. of Ohio. In all, 96 clubs qualified, with 119 stations earning special club certificates.

### *Disqualification*

In accordance with Sweepstakes Rule #7, the c.w. entry of W9WNV has been disqualified.

## Soapbox

"Got in the habit of marking VA after each W4/K4 that answered my CQ and only had to erase it once, hi." — *K6BHM*. . . . "VE1ZZ, who three weeks before the test said, 'Naw, no SS for me this year,' was handing out number 425 when I gave out 236. Nuts!" — *VE1ADH*. . . . "This was my first phone SS contest and it was great fun. Hope to get in more time next year if I have a little less homework. Everybody was nice but in a hurry." — *K0FZT*. . . . "This was my first c.w. SS contest and I sure had loads of fun. Boy, the QRM was tremendous, and quite a few called me that I couldn't copy through it. I plan to try even harder next year, and look forward to other contests. Oh yes, I am a 17-year-old YL." — *K4BWQ*. . . . "Enjoyed contest immensely. Unfortunately conditions very poor up here both week ends. If you gave a half point for every station called, I would have really cleaned up" — *VE8BC*. . . .

## CLUB SCORES

| *Club* | *Score* | *Valid Entries* | *C. W. Winner* | *Phone Winner* |
|---|---|---|---|---|
| Potomac Valley Radio Club | 6,448,741 | 69 | W4KFC | W4BVV |
| Frankford Radio Club | 5,490,655 | 69 | W3ALB | K3JWV |
| Florida DX Club | 964,879 | 7 | W4DQS | ..... |
| Milwaukee Radio Amateurs' Club | 772,058 | 15 | W9LVR | K9CLZ |
| Rubber City Sweepstakes Hot Shots (Ohio) | 768,230 | 18 | W8OYI | W8ODJ/8[3] |
| Miami Valley Amateur Radio Contest Society (Ohio) | 752,505 | 12 | W8CJN | ..... |
| South Jersey Radio Assn. | 749,397 | 40 | WA2HSP | WA2NEO |
| Suffolk County Radio Club (N. Y.) | 693,885 | 23 | K2ZYR | K2MSY |
| Ohio Valley Amateur Radio Assn. | 678,492 | 14 | W4CVI | ..... |
| Sioux City Amateur Radio Assn. (Iowa) | 675,490 | 23 | W9FZO | W9AXE |
| Connecticut Wireless Assn. | 632,488 | 9 | W1EOB | ..... |
| Bronx High School of Science Radio Club | 599,966 | 18 | K2IAD | WA2ITR |
| Order of Boiled Owls of New York | 596,930 | 10 | W2AYJ | ..... |
| Order of Boiled Owls of New Mexico | 525,151 | 7 | W5FJF | ..... |
| Wisconsin Valley Radio Assn. | 523,631 | 11 | W9RQM | ..... |
| Lake Success Radio Club (N. Y.) | 521,357 | 12 | K2DGT | ..... |
| Tusco Radio Club (Ohio) | 469,370 | 10 | W8NBK | W8BVE |
| Northern California DX Club | 441,300 | 5 | WA6TGY | ..... |
| Order of Boiled Owls of Ohio | 424,314 | 4 | W8IBX | ..... |
| Southeastern DX Club (Fla.) | 412,750 | 4 | K4BAI | ..... |
| Indian Hills Radio Club (Ohio) | 370,306 | 9 | W8AEB | W8IJZ |
| Waltham Amateur Radio Assn. (Mass.) | 366,810 | 4 | W1NJL | ..... |
| Sioux Falls Amateur Radio Club (S. Dak.) | 359,869 | 9 | W0SMV | ..... |
| Laurel Canyon DX Club | 349,193 | 3 | W6IXK | ..... |
| San Diego DX Club | 335,436 | 3 | WA6BUX | ..... |
| Germantown Radio Club (Pa.) | 319,140 | 15 | K3MNJ | K3MYL |
| Roanoke Valley Amateur Radio Club (Va.) | 313,020 | 22 | K4IKF | K4JQO |
| Garden State Amateur Radio Assn. (N. J.) | 301,641 | 6 | W2OIB | ..... |
| North Penn Amateur Radio Club | 301,236 | 20 | W3JSA | W3BPM |
| Westpark Radiops (Ohio) | 296,482 | 10 | W8IDM | W8AJW |
| Canton Amateur Radio Club (Ohio) | 295,825 | 18 | K8VLU | K8MZT |
| Westside Amateur Radio Club (La.) | 266,170 | 5 | W5BUK | ..... |
| Badger Amateur Radio Society (Wisc.) | 259,482 | 9 | K9ELT | W4VRD/9 |
| Inglewood Amateur Radio Club | 255,266 | 8 | K6JBV | WA6GDS |
| Massillon Amateur Radio Club (Ohio) | 245,125 | 4 | K8HTM | ..... |
| Niagara Radio Club | 243,940 | 4 | W2WOE | ..... |
| Atlanta Society of Teenage Radio Ops | 243,458 | 8 | K4UJS | K4BEM |
| Kanawha Radio Club (W. Va.) | 242,597 | 6 | K8HID | ..... |
| Chippewa Amateur Radio Club (Ohio) | 228,640 | 8 | W8YPT | K8CFH |
| Nashua Mike and Key Club (N. H.) | 215,139 | 8 | K1CXP | ..... |
| Radio Amateurs of Greater Syracuse | 214,889 | 12 | W2EMW | W2AMY |
| Chicago Suburban Radio Assn. | 200,379 | 4 | K9KDI | ..... |
| Hamfesters Radio Club (Ill.) | 200,235 | 6 | W9ZYD | ..... |
| Parma Radio Club (Ohio) | 199,310 | 12 | W8DUP | K8NPE/8 |
| Central Michigan Amateur Radio Club | 199,054 | 3 | W8PXA | ..... |
| West Suburban YMCA Amateur Radio Council (Ill.) | 195,837 | 6 | K9DWG | ..... |
| Nittany Amateur Radio Club (Pa.) | 195,034 | 26 | W3NEM | K3AHY |
| Oxford Circle Radio Club (Pa.) | 195,013 | 11 | K3HTE | K3HYT |
| Forx Amateur Radio Club (N. Dak.) | 193,172 | 4 | K0IVQ | ..... |
| Amateur Transmitters Assn. of W. Pa. | 190,835 | 4 | W3YDK | ..... |
| Denver Radio Club | 186,349 | 5 | K0VFN/0 | ..... |
| Richmond Amateur Radio Club (Va.) | 175,666 | 3 | W4BZE | ..... |
| Radio Club of Tacoma (Wash.) | 173,560 | 11 | K7GPG | W7IKG |
| West Philadelphia Radio Assn. | 163,435 | 5 | ..... | W3UQV |
| Starved Rock Radio Club (Ill.) | 160,287 | 10 | W9NIU | W9RHV |
| West Seattle Amateur Radio Club | 144,147 | 13 | K7HSB | K7HYC |
| Detroit Amateur Radio Assn. | 136,737 | 4 | W8IXJ | ..... |
| Kalamazoo Amateur Radio Club (Mich.) | 132,430 | 3 | K8NHC | ..... |
| Arrowhead Amateur Radio Club (Minn.) | 130,564 | 3 | ..... | ..... |
| Mohawk Radio Club (N. Y.) | 127,126 | 8 | WA2BNK | W2MGV |
| Columbus Amateur Radio Assn. (Ohio) | 119,918 | 5 | W8DWP | ..... |
| St. Louis University Amateur Radio Club (Mo.) | 117,958 | 5 | W0FLN[1] | ..... |
| Motor City Radio Club (Mich.) | 117,708 | 11 | W8MPD | W8BNF |
| Metuchen YMCA Radio Club (N. J.) | 113,711 | 4 | WA2MYS | ..... |
| Short Skip Radio Club (Pa.) | 113,162 | 6 | K3ANU | ..... |
| Union County Amateur Radio Assn. (N. J.) | 109,743 | 4 | W2GBY | ..... |
| Kankakee Area Radio Society (Ill.) | 107,892 | 3 | ..... | ..... |
| Upper Arlington Radio Club (Ohio) | 106,265 | 3 | K8EDQ | ..... |
| Ivy Ridge Amateur Radio Club (Pa.) | 104,858 | 3 | K3JIJ | ..... |
| Waupaca Amateur Radio Club (Wisc.) | 103,489 | 11 | K9YBC | K9VYM |
| Watchung Valley Radio Club (N. J.) | 101,861 | 6 | WA2FVQ | ..... |
| Providence Radio Assn. (R. I.) | 101,822 | 4 | ..... | ..... |
| Chicago Radio Traffic Assn. | 100,092 | 3 | W9REC | ..... |
| Haverford Township Emergency Radio Net (Pa.) | 96,630 | 6 | K3EGE | ..... |
| Tri-County Radio Assn. (N. J.) | 94,179 | 4 | W2LRO | ..... |
| Pikes Peak Radio Amateur Assn. (Colo.) | 89,547 | 3 | ..... | K0VCK |
| West Allis Radio Amateur Club (Wisc.) | 82,301 | 4 | K9ZMF | ..... |
| Delmont Radio Club (Pa.) | 81,100 | 3 | W3EFY | ..... |
| Oak Park and River Forest High School Radio Club (Ill.) | 78,721 | 5 | ..... | K9LRK |
| Horseshoe Radio Club (Pa.) | 74,836 | 6 | W3KQD | ..... |
| Milwaukee School of Engineering Amateur Radio Club | 62,271 | 3 | ..... | ..... |
| North Augusta-Belvedere Radio Club (S. C.) | 53,406 | 6 | W4PED | W4HNW |
| Mid-Island Radio Club (N. Y.) | 45,973 | 3 | ..... | ..... |
| Lyons Township High School Radio Club (Ill.) | 29,549 | 4 | K9CSV | ..... |
| Xavier University ROTC Amateur Radio Club (Ohio) | 28,589 | 4 | ..... | ..... |
| Philadelphia Wireless Assn. | 26,594 | 3 | ..... | ..... |
| Bell Labs Amateur Radio Club (N. Y.) | 24,196 | 5 | WA2RGZ | ..... |
| Gonset Radio Club | 24,002 | 7 | WA6KGA[2] | W6KZL |
| Nutley Amateur Radio Society (N. J.) | 20,096 | 5 | WA2MYB | ..... |
| Moses Lake High School Amateur Radio Club (Wash.) | 15,667 | 3 | ..... | ..... |
| 5 Towns Radio Club (N. Y.) | 9,246 | 12 | K2CTK | W2FEI |
| Forest City Radio Club (Ohio) | 7,959 | 6 | ..... | W8KCD |
| Clay Dickenson AREC (Iowa) | 5,731 | 6 | K0KNY | K0EXN/0 |
| Brother Rice High School Amateur Radio Club (Ill.) | 4,627 | 3 | ..... | ..... |
| New Ulm Radio Club (Minn.) | 1,272 | 3 | ..... | ..... |
| Syracuse VHF Club | 579 | 6 | ..... | WA2FYH |

[1] K0GJD, opr. [2] K6EEZ, opr. [3] W8GKB, opr.

## C. W. WINNERS, 28TH A.R.R.L. SWEEPSTAKES

| *Section* | *Call* | *Score* | *Transmitting Equipment* | *Receiving Equipment* | *Bands Used* |
|---|---|---|---|---|---|
| E. Penna. | W3ALB | 190,165 | Valiant | 75A4 | 80, 10, 20, 15 |
| Md.-Del.-D. C. | W3MSR | 206,043 | 32V3 | 75A3 | 80, 10, 20, 15 |
| S. N. J. | W2HDW | 173,250 | DX100 | 2B | 80, 40, 20, 15 |
| W. N. Y. | W2WOE | 96,250 | BC221; 6AH6-6C4s-2E26-807s | HRO50T | 80, 40, 20 |
| W. Penna. | K3IWC | 112,003 | Valiant | SX100 | 80, 40, 20, 15 |
| Illinois | W9ZAB | 176,453 | HT32A | 75A2A | 80, 40, 20, 15 |
| Indiana | W9IOP | 258,030 | HT32 | RME6900 | 80, 40, 20 |
| Wisconsin | W9RQM | 203,616 | VFO-807-813 | HRO50T | 80, 40, 20, 15 |
| No. Dakota | KØIVQ | 123,025 | HT18-813 | SX71; RME45 | 80, 40, 20, 15 |
| So. Dakota | WØSMV | 105,293 | Ranger-Courier | HRO50T | 80, 40, 20, 15 |
| Minnesota | WØYCR | 180,000 | 6AC7-6AK6-6C4s-807s | Super Pro | 80, 40, 20, 15 |
| Arkansas | K5UBE | 136,706 | HT37 | HQ180 | 80, 40, 20, 15 |
| Louisiana | W5BUK | 179,640 | 100V | SX101 | 80, 40, 20, 15 |
| Mississippi | K5RUO | 104,193 | CSB100 | R15 (war surplus) | 80, 40, 20 |
| Tennessee | K4PUZ/4 | 192,060 | Ranger | SX101 | 80, 40, 20, 15 |
| Kentucky | K4GSU | 200,933 | Ranger-811A | 75A4 | 80, 10, 20 |
| Michigan | K8QJH | 160,418 | 32S1 | 75S3 | 80, 10, 20, 15 |
| Ohio | W8NBK | 194,895 | 32V1 | HRO60 | 80, 40, 20, 15 |
| E. N. Y. | K2EIU | 171,998 | Apache | SX101 | 80, 10, 20, 15 |
| N. Y. C.-L. I. | K2DGT | 238,801 | Ranger-4-65A | 75A4s | 80, 10, 20, 15 |
| N. N. J. | W2DMJ | 176,204 | DX100 | HRO | 80, 10, 20, 15 |
| Iowa | K6SXA/Ø | 156,950 | Ranger II | NC303; NC300 | 80, 40, 20, 15 |
| Kansas | KØYRQ | 120,836 | HT37 | SX101A | 80, 10, 20, 15 |
| Missouri | WØARO | 124,718 | Ranger | HQ160 | 80, 10, 20, 15 |
| Nebraska | WØNYU | 86,179 | Valiant | 75A4 | 80, 40, 20, 15 |
| Connecticut | W1BIH | 159,231 | 5100B | NC303 | 80, 10, 20, 15 |
| Maine | W1GKJ | 98,260 | Viking II | HRO60 | 80, 40, 20, 15 |
| E. Mass. | W1NJL | 157,604 | Globe Scout 680-VFO 755-813 | HQ140X, QF1 | 80, 10, 20, 15 |
| W. Mass. | W1EOB | 178,033 | VFO-4-65A | Homebuilt (16 tube) | 80, 10, 20, 15 |
| N. H. | W1IJB | 142,020 | 6146s | 1A | 80, 40, 20, 15 |
| R. I. | K1LPL | 101,003 | TBS50C-807s | S108 | 80, 10, 20, 15 |
| Vermont | W1QMM | 95,112 | 6AH6-6CL6s-807-4E27As | Homebrew | 80, 10, 20, 15 |
| Idaho | W7BSP | 104,913 | Ranger | SX100 | 40, 20, 15 |
| Montana | K7CTI | 114,975 | VFO-HT20 | HQ129X | 80, 40, 20, 15 |
| Oregon | W7TML | 125,528 | VFO-AT1-813s | SX71 | 80, 40, 20, 15 |
| Washington | W7AJS | 110,486 | Apache | NC200; HF10-20; Q Mult. | 80, 40, 20, 15 |
| Hawaii | KH6IJ | 144,000 | 200V-4-1000A | 75A4 | 80, 40, 20, 15 |
| Nevada | W7KEV | 204,674 | ECO-807-4-65A | HQ129X | 40, 20, 15, 10 |
| Santa Clara V. | WA6TGY | 168,630 | HT32 | 75A4 | 80, 40, 20, 15 |
| East Bay | WA6BBJ | 128,243 | DX100 | S40B, QF1, conv. | 80, 10, 20, 15, 10 |
| San Francisco | WA6QFH | 123,589 | DX35-Courier | SX101A | 40, 20, 15 |
| Sacramento V. | WA6GIS | 70,639 | Viking II | Super Pro | 80, 40, 20, 15 |
| San Joaquin V. | W6BVM | 102,930 | Homebrew 200-600 watts | 75A2 | 80, 40, 20, 15 |
| No. Carolina | K4YEP | 126,788 | Viking II | SX101A | 80, 40, 20, 15 |
| So. Carolina | WØYFT/4 | 138,086 | Ranger | 51J-3 | 80, 40, 20, 15 |
| Virginia | W4KFC | 250,938 | VFO-807-4E27 | 75A2, DB23 | 80, 10, 20, 15, 10 |
| West Virginia | K8HID | 145,550 | Navigator-814 | HQ110 | 80, 10, 20, 15 |
| Colorado | WØCDP | 195,640 | Valiant | NC300 | 80, 40, 20, 15 |
| Utah | W7BAJ | 87,630 | 100V; DX100 | 75A4 | 80, 40, 20, 15 |
| New Mexico | W5FJE | 130,410 | 32V3 | 75A2 | 80, 40, 20, 15 |
| Wyoming | K7QYG | 117,250 | Apache | SX101A | 80, 10, 20, 15 |
| Alabama | K4LNA | 109,288 | Valiant | 75A4 | 80, 40, 20 |
| E. Florida | W4DQS | 225,570 | Invader | 75A4 | 80, 40, 20, 15 |
| W. Florida | W4WKQ | 138,863 | Lysco 600-813 | NC183D | 80, 10, 20 |
| Georgia | K4BAI | 174,470 | HT37 | SP400X, P2A preselector | 80, 40, 20, 15 |
| West Indies | KP4BDS | 73,868 | DX100 | 75A4 | 80, 40, 20, 15 |
| Canal Zone | KZ5TD | 89,619 | DX100B | HQ129X, HQ170 | 80, 10, 20 |
| Los Angeles | K6CTV | 197,820 | 100Vs | 75A4s | 80, 40, 20, 15 |
| Arizona | W7ZMD | 161,010 | DX100B | HQ170 | 80, 40, 20, 15 |
| San Diego | WA6BUX | 162,180 | Apache | 75A2 | 40, 20, 15 |
| Santa Barbara | W6ULS | 176,876 | 200V | 75A1 | 80, 10, 20, 15 |
| No. Texas | W5DWO | 95,992 | Valiant | HQ170 | 40, 20, 15 |
| Oklahoma | W5CWX | 164,250 | Apache | Mohawk | 80, 40, 20, 15 |
| So. Texas | W5WZQ | 285,521 | Valiant | HQ170 | 80, 40, 20, 15, 10 |
| Maritime | VE1ZZ | 58,984 | VFO-6146-4-400A | HQ170 | 80, 40, 20 |
| Quebec | VE2NI | 131,040 | Ranger-813 | 75A3, Q Mult. | 80, 40, 20, 15 |
| Ontario | WØAIH/VE3 | 184,590 | 100V | 75A3 | 80, 40, 20, 15 |
| Manitoba | VE4JB | 105,743 | 32V3 | 75A4 | 80, 40, 20 |
| Saskatchewan | VE5HV | 13,812 | Homebrew 50 watts | —— | 160, 80, 40 |
| Alberta | VE6LX | 97,380 | DX100 | HQ170 | 80, 10, 20, 15 |
| B. C. | VE7AGN | 23,328 | 6AG7s-2E26-807s | Homebuilt | 80, 10, 20, 15 |
| Yukon-N. W. T. | VE8DM | 7200 | VFO-6146 | HQ129X | 20 |

"It was worth the whole phone contest just to work KH6GF on 75!" — *KP4AWH*. . . . "Wonder how much n.f.m. activity there was in the SS?" — *KØVIG/Ø*. . . . "Murphy's Law played havoc with the station again. Last year the v.f.o. rendered itself useless. This year the antenna came down and the power switch broke. What's OM Murphy got in store for me next year? I can't wait to find out." — *K3ANU*. . . . "This contest separates the men from the boys. It's great to be young again!" — *W3EAN*. . . . "Completed my W.A.S. with Hawaii, Washington, and Idaho." — *K8LJZ*. . . . "Why must the band open when the kids wake up, and drop dead as soon as they are in bed?

## PHONE WINNERS, 28TH A.R.R.L. SWEEPSTAKES

| *Section* | *Call* | *Score* | *Transmitting Equipment* | *Receiving Equipment* | *Bands Used* |
|---|---|---|---|---|---|
| E. Penna. | K3DVS | 116,903 | Apache | HQ110 | 75, 40, 20, 15, 10 |
| Md.-Del.-D. C. | W3ZKH | 87,435 | Viking II, GSB100 | NC300, DB23 | 75, 40, 20, 15, 10, 6 |
| S. N. J. | WA2NEO | 27,989 | 5100 | HQ170 | 75, 40, 20, 15, 10 |
| W. N. Y. | K2GXI | 129,824 | 5100-100V | 75A4 | 75, 40, 20, 15, 10 |
| W. Penna. | K3AHY | 28,440 | Ranger-813 | SX28 | 75, 40, 15, 10, 6 |
| Illinois | W9NZM | 87,480 | 32V1s; HT32 | 75A4; 75A2 | 75, 40, 20, 15, 10 |
| Indiana | K9PNV | 61,560 | Apache; SB10; 2E26s | 75S1 | 75, 40, 20, 15, 2 |
| Wisconsin | K9HOL | 66,240 | KWS1 | 75A3 | 75, 40, 20, 15, 10 |
| No. Dakota | KØVWG | 18,450 | Phasemaster-LA1 | 2A | 75, 40, 20, 15 |
| So. Dakota | WØPRZ | 87,162 | 32S1-Viking KW | 75S2; 75A4 | 75, 40, 20, 15 |
| Minnesota | KØVIC/Ø | 864 | Signal Shifter-Eico 720 | SX99 | 40, 15 |
| Arkansas | K5ALU | 109,935 | Valiant | HQ120X | 75, 40, 20, 15 |
| Louisiana | W5KC | 134,784 | HT37 | HRO7-GSB1 | 75, 40, 20, 15, 10 |
| Mississippi | K5MDX | 131,958 | 6C4-5763-6146-4-400A; 5763-SB-10-4-400A | HQ110-HC10 | 75, 40, 20, 15 |
| Tennessee | K4LPW | 130,782 | HT32 | SX101A | 75, 40, 20, 15 |
| Kentucky | W4SFN | 34,161 | HT37 | 2A | 75, 40, 20, 15 |
| Michigan | W8AEI | 32,928 | TX1 | 75A2 | 75, 40, 20, 15 |
| Ohio | K8NPD | 77,610 | 32V3; SB10 | SX96 | 75, 40, 20, 15 |
| E. N. Y. | WA2OCW | 3,744 | DX100B | HQ110 | 75, 40, 20, 15 |
| N. Y. C.-L. I. | K2TAP | 87,750 | Viking II; Globe King | NC300 | 75, 40, 20, 15 |
| N. N. J. | W2JKH | 56,916 | 812H, 24Gs Mod | 14-tube Super | 75, 40, 20 |
| Iowa | WØMLY | 156,366 | 32V2; 32S1 | 75A4 | 75, 40, 20, 15 |
| Missouri | KØLTK | 64,019 | DX100 | Super Pro | 75, 40, 20, 15, 10 |
| Nebraska | W9JDJ/Ø | 31,992 | HT37-813s | HQ129X | 75, 40, 20, 15 |
| Connecticut | K1PNS | 16,610 | AF67-813 | 75A4 | 75, 40, 20, 15, 10 |
| Maine | W1DIS | 11,638 | Viking KW | 75A4 | 75, 40, 20, 15 |
| E. Mass. | W1HKK | 108,953 | Valiant; 32S1 | 75S3 | 75, 40, 20, 15 |
| W. Mass. | W1DXS | 5,436 | Valiant | GPR90 | 75 |
| N. H. | K1RTB | 40,256 | Pacemaker | HRO50 | 75, 40, 20, 15, 10 |
| R. I. | K1TXK | 578 | Ranger | HQ145 | 75, 40 |
| Vermont | K1MVV | 2,936 | DX100 | SX110 | 40, 20, 15 |
| Alaska | KL7WAF | 13,046 | 100V | HQ180 | 75, 40, 20, 15 |
| Idaho | W7SGS | 28,143 | Viking II | HQ100 | 40, 20, 15 |
| Montana | W7CBY | 38,592 | 32V3 | RC342, conv. | 75, 40, 20, 15 |
| Oregon | W7UGQ | 41,085 | 6146s | 75A2 | 75, 40, 20, 15, 10 |
| Washington | W7ESK | 160,218 | 100F; 32V3; 4X250Bs | 75A4 | 75, 40, 20, 15, 10, 2 |
| Hawaii | KH6DKI | 63,000 | DX100B | HQ170 | 20, 15 |
| Nevada | W7YKC | 12,996 | DX100 | NC183D | 75, 40, 20, 15 |
| Santa Clara V. | K6VGW | 84,576 | Apache | HQ140XA | 75, 40, 20, 15, 10, 2 |
| East Bay | W6VNH | 48,870 | Apache | Mohawk | 40, 20, 15 |
| San Francisco | WA6AUD | 19,951 | Apache | SX99 | 75, 20, 15, 10 |
| Sacramento V. | WA6PVT | 18,093 | Cheyenne | SX42 | 75, 40, 15 |
| San Joaquin V. | W6TZN | 28,500 | Viking I | NC300 | 75, 40, 20, 15, 10 |
| No. Carolina | W4HEI | 18,370 | Globe King 500 | HQ129X | 75, 40, 20, 15, 10 |
| So. Carolina | K4MSK | 55,269 | HT37 | SX111 | 75, 40, 20 |
| Virginia | W4BVV | 82,398 | DX100; 32S1 | Mohawk; 75S1 | 75, 40, 20, 15, 10 |
| West Virginia | K8PRC/8 | 7,344 | DX100 | HQ129X | 75, 15 |
| Colorado | KØVGN | 68,310 | Eico | HQ110 | 40, 20, 15 |
| Utah | K7BLR | 13,365 | KWS2 | 75A4 | 40, 20, 2 |
| New Mexico | W5MYM | 101,184 | 813 | HQ129X | 75, 20, 15 |
| Wyoming | K7IAY | 65,892 | HT32B | SX101 | 75, 40, 20, 15 |
| Alabama | W4DS | 15,860 | HT32-LPA1 | 75A4 | 75, 40, 20, 15 |
| E. Florida | K4WIS | 81,710 | Valiant | HQ100C | 20, 15, 10 |
| W. Florida | K4ZAC | 15,312 | Apache | 75A3 | 40, 20, 15 |
| Georgia | K4MYC/4 | 57,702 | Apache | HQ170 | 75, 40, 20, 15, 10 |
| West Indies | KP4AWH | 35,577 | HT32 | 2A | 75, 40, 20, 15, 10 |
| Canal Zone | KZ5SW | 104,910 | KWM2 | KWM2 | 40, 20, 15, 10 |
| Los Angeles | W6UGA | 69,632 | KWS1 | 2B | 75, 40, 20, 15 |
| Arizona | K7PXI | 70,036 | DX100 | RME45, conv. | 75, 40, 20, 15, 10 |
| San Diego | W6KBJ | 22,216 | Valiant; DX35 | HQ110 | 40, 20, 15 |
| No. Texas | K5ZA1 | 1,311 | DX100B | NC240C | 75, 40, 15 |
| Oklahoma | W5IWL | 71,154 | 5763-5763-5763-6146-813 | NC300 | 75, 40, 20, 15, 2 |
| So. Texas | K5MVK | 135,474 | Ranger | 75A4 | 75, 40, 20, 15, 10 |
| Quebec | VE3RM/2 | 26,010 | KWM2 | KWM2 | 75, 40, 20, 15 |
| Ontario | VE3ES | 14,364 | KWM1 | KWM1 | 20, 15 |
| Saskatchewan | VE5NX | 960 | DX40 | Trio 9R4 | 20, 15 |
| B. C. | VE7VT | 11,544 | Ranger | HRO50T1 | 75, 40, 20, 15, 6 |
| Yukon-N. W. T. | VE8BY | 3,219 | DX40-813 | Mohawk | 20, 15 |

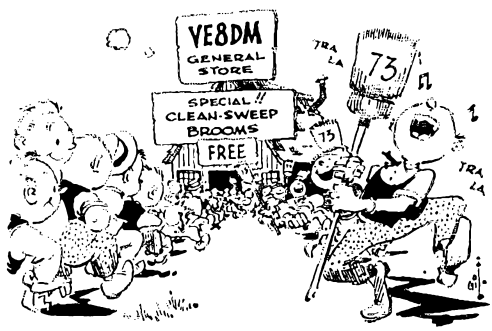
Don't know which madhouse was worse." — *W3NNL.* . . . "Sometimes I wonder why I enter the SS, but I'll be in it next year and try to obtain an accurate signal report." — *K3JHF.* . . . "Had given up on Vermont when W1QMM finally showed up. I got so shook I almost didn't send him a preamble. 400% improvement over last year, but where was Sac. V?" — *K8QLL.* . . . "Isn't it about time for some of the SS contestants to register a formal complaint against the growing number of operators who are taking shortcuts in transmitting their message preambles? I refer to those, especially, who include only the last letters of their call and omit the prefix and number. This wasn't

Stashing away Michigan c.w. section honors for the second consecutive year, K8QJH swapped 883 exchanges in all 73 in the process. Bob moved back to W8-land in 1959 after holding calls W8OMT (1933), K2ALS, and W3VDV where he was president of the York (Pa.) Radio Club. Member of DXCC, OTC, and QCWA.

## NOVICE CERTIFICATE WINNERS

| | | | |
|---|---|---|---|
| KN1QQE | KN3PSU | WN5ADB | KN9DRJ |
| KN1SGY | WN4AAL | WV6PQD | KN9GZE |
| WV2QZL | WN4BEG | WV6RIN | KN0GLQ |
| WV2TMW | WN4BGD | KN8BEG | KN0IJU |
| KN3PJX | WN4BYR | KN8YBU | KN0JWN |
| | WN4CBF | KN9CKA | |

much of a problem in the early days when this contest was invented (hooray for the inventor!) and the only prefix was a W or a VE, but now with Ws, Ks, WAs, KNs, WVs etc etc., it isn't fair to us who can't *write* more than 30 w.p.m. (though we still copy 40) to have some of these boys hand us only the last half of their call and then sail through the rest of their message while we're still trying to remember what his whole call is." — *W8DM*. . . . "Who has time to operate SS with a second operator like K8QEI? (check *Callbook*)." — *K8EPZ*. . . . "Glad to get 71 sections but mad to miss Wyoming, our next-door neighbor." — *W0ETT*. . . . "W0ETT and W0ETU were both in the SS this year and last year, last year as K7MFF and KL7CIB respectively. We worked each other both years." — *W0ETU*. . . . "Did not plan to enter the contest, but entered it as always, as it is nice to hear how happy some stations are to work little old Utah." — *W7BAJ*. . . . "Hope I helped make Wyoming a little less scarce. Working with pile-ups was kinda like being rare DX." — *K7QYG*. . . . "More s.s.b. this year, mainly on 20. To make a big score you must be able to operate both a.m. and sideband." — *K5MDX*. . . . "The usual question: where were the VE8s? Never even heard anyone working a VE8 let alone hearing one myself; but neighbor and SS competitor W9IPT said he worked one when I was only a few kc. down the band from him. So close yet so far. Think I worked all the Frankford and Potomac boys. They sure were thick." — *W9CLH*. . . . "Woe is me! I've got the 72-section blues. Missed VE5." — *W9IPT*. . . . "Tried to land VE8DM for 73, but couldn't get him." — *W9LNQ*. . . . "I guess all the VE8s were out hiding in the woods both week ends." — *W9YYG/9*. . . . "This year the operating time was spent in an attempt to work all sections and luck was with us. This is the first time it's been down here after many years of SS operating." — *W9WIO*. . . . "Ten phone was dead. Last year it was the northern lights. The surprising thing, however, was that I heard more Canadians this year. For the first time in 7 years of SS contesting, I worked VE4." — *W5IWL*. . . . "My first SS phone contest and the use of GMT was FB!" — *W4CSQ*. . . . "A baby wanting attention for 5 to 30 minutes nearly every 5 to 30 minutes made continuous operation impossible." — *W5AHC*. . . . "First time on the air since 1955 as former KL7EVR. Ironically after years of annual participation in Alaska, I did not hear a single KL7 or VE8." — *W5GJE*. . . . "I had had my general for three months upon hearing of the contest. I was really impressed by the enthusiasm shown and also the courtesy of many of the amateurs during the contest. So many of them complied with my plea to QRS." — *K5FQJ*. . . . "It was a curious paradox to observe at this distance the pronounced tendency to over-concentrate in the most active portions of the bands, and the relative avoidance of spreading out. This generally results in such severe QRM that few stations can be singled out long enough for successful SS exchanges. It was fantastic to note, the few times stations could be discerned in these pileups, that 90% were calling CQ SS simultaneously; those that weren't were struggling to get repeats and fills or regain contact lost due to QRM. Note to newcomers: Mere frantic CQing won't do the trick. One has to *communicate*, not *broadcast*. If it's imitation of the big scorers you'd try, watch more closely; they *listen* too! The fact that they can succeed with CQs hinges on operational ability and really outstanding signals." — *KH6DVD*. . . . "Noticed lots of two-letter-call QTs operating this SS." — *W2KKT*. . . . "The physics department here was conducting a low temperature experiment with helium-3, which was resonant around 7 Mc. Everytime they would get it down within one degree Absolute, we would go on the air and heat it up again." — *W2CXM*. . . . "Lots of fellows said they were glad to get Arkansas multiplier." — *W5RIT*. . . . "Thanks for FB phone contest." — *K3MNT*. . . . "Once after a quick CQ SS I got a weak call from what I hoped was a KZ5 (I copied a Z and a 5 anyway). After a few repeats it turned out to be a ZS5 who must have thought I was calling CQ ZS!" — *WA6AYU*. . . . "Tried to work all sections on 40-meters, but worked only 71. Had to go to 20-meters for a couple of seconds to get the other two." — *WA6NNJ*. . . . "It was a real struggle to keep my XYL K3BLG away from the rig long enough to get in my time." — *K3AHY*. . . . "I must say I was real pleased with the results I got with only two crystals, one for 80 and 40." — *K1KSH*. . . . "Some operators sure had some weird characters coming from their automatic keyers bought just the week before." — *W8OYI*. . . . "Phone band conditions sure are worse in Michigan than in Connecticut." — *W8AEI/W1YWV*. . . . "This is my last SS from the South Carolina section. It's been a pleasure to operate from a hard to come by section, and will look forward next year to working all the same stations from my home in Kansas." — *W0YFT/4*. . . . "Score is not enough to win, by far, but plenty to make lots of operating fun." — *W4FZG*. . . . "I did what I could to make Idaho heard in the SS. I'll have one more year here before the Navy sends me some place else; it's bound to be one of the larger sections like Va., E. Mass, or E. Pa." — *W7BSP*. . . . "Worked W1IJB for my 50th state." — *K7JRE*. . . . "Everything was going great until Sunday morning of the second week end. 130K looked inevitable and a handsome score it would be for 40 watts. Then bang, the receiver b.f.o. burned out, and making solid QSOs suddenly became like dragging elephants to market." — *WA2EBR*.



## C. W. SCORES

### *Twenty-Eighth Sweepstakes Contest*

Scores are grouped by Divisions and Sections. . . . The operator of the station first-listed in each Section is award winner for that Section unless otherwise indicated. . . . Likewise the "power factor" used in computing points in each score is indicated by the letter A or B. . . . A indicates power up to and including 150 watts (multiplier of 1.25, c.w.), B over 150 watts (multiplier of 1). . . . The total operating time to the nearest hour, when given for each station, is the last figure following the score. . . . Example of listings: W8ALB 190,165-1042-73-A-40, or final score 190,165, number of stations 1042, number of sections 73, power factor of 1.25, total operating time 40 hours. . . . An asterisk denotes Novice certificate winners. A double asterisk denotes Technician certificate winners. Multi-operator stations are grouped in order of score following single-operator station listings in each section tabulation.

### ATLANTIC DIVISION

*Eastern Pennsylvania*

W3ALB 190,165-1042-73-A-40
W3HHK 184,873-1013-73-A-39
W3BES 177,481- 973-73-A-35
W3WJD 170,090- 935-73-A-40
W3KFQ 166,075- 910-73-A-40
W3JNQ 164,150- 938-70-A- –
W3GHM 152,844- 841-73-A-33
W3MWC 149,310- 836-72-A-40
W3CGS[1] 148,190- 812-73-A-40
W3DQG 134,750- 770-70-A 40
W3KT 131,400- 720-73-A-31
W3JSA 121,233- 683-71-A-40
W3EQA 112,329- 625-73-A-30
W3CTJ 111,600- 620-72-A-25
W3MFW 111,600- 620-72-A-24
W4DVT/3 108,330- 629-69-A-36
K3JCT 105,060- 618-68-A-35
W3SQX 101,563- 625-65-A-18
W3KDF 100,050- 580-69-A-30
W3DAO 91,800- 510-72-A- –
K3ALD 87,809- 510-69-A-25
K3JGJ 86,700- 578-60-A-33
K3ANU 86,180- 556-62-A-24
K3IPK 84,504- 505-67-A-20
W3OCU 82,431- 582-71-B-35
W3EER 82,215- 522-63-A-38
K3ALU 78,050- 446-70-A- –
W3YVJ 77,000- 560-55-A-32
W3EAN 76,555- 502-61-A-20
W3GSD 74,880- 468-64-A-31
W3DBX 74,278- 407-73-A- –
K3JNP 72,865- 419-69-A-39
K3HTZ 72,480- 453-64-A-33
W3ORU 72,197- 500-73-B-24
K3NFA 69,900- 466-60-A-35
W3EFY 69,680- 418-67-A-31
K3KPV 67,995- 475-59-A-33
K3JJI 67,980- 411-66-A-38
K3DKC 67,275- 417-65-A-27
W3ISE 67,113- 413-65-A-26
K3MNJ 64,196- 484-53-A-38
K3DFK 63,070- 476-53-A-30
W3EVW 61,999- 349-71-A- –
W3MQC 61,048- 395-62-A-31
W3ADE 59,590- 404-59-A-31
K3EGF 57,926- 415-57-A-31
W3GRS/3 55,443- 331-67-A-23
W5HDT/3 55,253- 419-54-A- –
K3NUM 50,453- 329-62-A-29
W3QMZ 50,344- 406-62-B-24
K3JJJ 47,231- 350-55-A-20
W3SOH 46,315- 314-59-A- –
W3AEM 44,160- 368-60-B-25
W3ARK 43,920- 367-60-B-15
W3MDO 43,283- 299-58-A-27
W3WPG 41,040- 304-54-A-17
W3QOR 40,690- 313-52-A-15
K3IIE 40,328- 283-57-A-29
K3JIV 39,750- 300-53-A-27
K3JZU 38,485- 364-53-A-28
K3MBS 38,351- 244-63-A-33
W3CNS 37,320- 313-48-A-26
K3LJZ 36,450- 270-54-A-31
W3FPW 34,583- 261-53-B-18
W3BUR 34,230- 245-56-A-16
K3DLX 34,155- 253-54-A- –
K3KRF 33,410- 257-52-A-33
K3LSC 31,125- 256-50-A-32
W3JKX 28,950- 290-40-A-29
K3MNT 28,909- 300-39-A-15
W3NNL 28,080- 235-48-A-14
K3LOW 26,400- 241-44-A-26
W3NHX 26,000- 208-50-A-29
W3NCW 25,793- 181-57-A-25
W3BB 24,265- 211-46-A-12
K3OWE 23,273- 219-43-A-21
K3IIA 22,838- 315-29-A-15
K3NBU 21,255- 222-39-A-29
W3DFJ 20,680- 176-47-A-23
W3FHR 20,540- 158-52-A-26
W3GYP 19,710- 146-54-A- 9
K3HLN 18,000- 200-36-A-21
W3QKV 17,820- 216-33-A-16
K3JHF 16,283- 172-39-A-20
W3NOH 16,200- 162-40-A- 5
W3KVQ 15,695- 146-43-A- –
W3BYX 14,728- 137-43-A-13
K3EVB 14,306- 164-35-A-17
W3EML 13,578- 220-31-B-14
K3MCO 13,223- 129-41-A-13
K3JHT 12,065- 127-38-A-23
K3GJQ 11,550- 140-33-A-18
K3RFB 11,248- 152-37-B-21
K3ITH 11,025- 128-35-A-12
K3BPQ 11,020- 152-29-A-13
K3JSZ 10,500- 150-28-A-19
W3MGF[2] 9990- 148-27-A-10
W3INH 9000- 100-36-A- 4
K3GIQ 8880- 111-32-A-15
K3MTE 6630- 112-24-A-20
K3ALL 6565- 101-26-A-10
K3LWQ 4565- 83-22-A-25
K3NGH 4500- 76-24-A-17
K3OUI[3] 4464- 94-24-B- 6
K3JSJ 4140- 92-18-A-15
W3NTD 3875- 62-25-A- 6
KN3PSU * 2610- 48-24-A-30
W3FOX 2540- 64-20-B- 3
K3NTD 2415- 43-23-A- 9
W3EMH 2205- 42-21-A-10
W3QKU 1615- 36-19-A- 4
K3LWO 1495- 46-13-A- 4
W3ADZ 1485- 33-18-A- 3
K3DPQ 1290- 43-12-A- 3
KN3NVJ 1190- 36-14-A-21
K3MVO 1155- 33-14-A- 3
K3NDW 980- 30-14-A- 3
W3JLI 960- 32-12-A- 3
W3CBH 863- 24-15-A- 7
K3JHS 683- 27-13-A-11
W3IMN 633- 23-11-A- 2
W3NF 620- 31-10-B- 1
W3FXK 450- 30- 6-A- 4
W3DBF 285- 19- 6-A- 1
K3AGU 150- 20- 3-A- –
K3NCC 50- 10- 2-A- –
KN3OIN 30- 4- 3-A- 2
W3LEZ 2- 1- 1-A- –
W3MKA (4 oprs.)
110,000- 800-55-A- –
W3AHX (W3s AHX GOQ)
101,175- 579-71-A-40
K3LYI (K3LYI, W3WHK)
101,170- 604-67-A-37
W3ABT (5 oprs.)
71,570- 423-68-A-31
K3HUA (K3s HUA IAM)
15,679- 170-37-A-26
KN3OAR (KN3s OAR OQM)
428- 22- 9-A-16

*Md.-Del.-D. C.*

W3MSR 206,043-1130-73-A-40
W3GRF 187,884-1033-73-A-40
W3TMZ 171,733- 942-73-A-34
W3EIV 168,813- 925-73-A-39
W3JTC 146,000- 800-73-A-39
K3NZV 141,164- 774-73-A-37
W1KGH/3
140,846- 801-71-A-36
W3MFJ 139,156- 763-73-A-39
W3IYE 134,320- 736-73-A-37
W3MCG 131,400- 720-73-A-40
W3RNY 127,663- 730-70-A-37
K3EST 123,025- 704-70-A-38
W3AEL 122,500- 700-70-A-30
W3PZW 121,728- 667-73-A-22
W3GAU 118,980- 676-72-A-20
K3AF[4] 113,400- 648-70-A-32
W4JNE/3
110,160- 612-72-A-39
W3VAN 104,913- 600-70-A-22
W3IPO 103,759- 604-69-A-35
W3AFM 100,998- 589-71-A-37
K3JET 97,325- 583-68-A-38
W3KDP 91,790- 549-67-A-26
W3DRD 88,550- 506-70-A-27
K3JYZ 86,975- 490-71-A-34
W3OQJ 83,490- 484-69-A-29
W3KZQ 74,538- 445-67-A-35
K3MZY 73,308- 413-71-A-34
W3BKE 71,115- 431-66-A-31
W3HVM 65,875- 427-62-A-26
W3WG 63,000- 360-70-A-30
K3JQU 61,238- 358-69-A-14
K3CYA 51,830- 355-73-B-20
W3WV 51,684- 355-73-B-20
W3FRZ/3 45,458- 316-58-A-32
W3DVO 42,375- 339-50-A-36
W3NNM 32,034- 280-57-B-21
K3GVE 30,000- 250-48-A-24
W3ZQ 21,420- 153-56-A-11
W3TN 20,813- 185-45-A-23
W3WU 18,813- 175-43-A-18
K3GZK 17,760- 150-48-A-16
K3JJA 16,340- 157-43-A-28
K3OSX 12,730- 142-38-A-21
W3PRC 12,150- 108-45-A-15
K3COO 10,750- 100-43-A-11
K3JOZ 10,128- 107-48-B-15
K3HDO[5] 7758- 107-29-A-12
W3UE 7400- 74-40-A-14
K3NTL 6316- 82-31-A-17
W3QC 4550- 70-26-A-10
WN3BQ/3 1917- 37-21-A- 8
K3JPV 1444- 39-15-A-14
W3GQF (8 oprs.)
184,508-1011-73-A-40
W3FYS (W3FYS, W6HOH)
160,815- 906-71-A-37
W3YSH (K3INM, W3YSH)
17,468- 139-53-A-20
K3MTC (K3s MEX MTC)
1948- 43-19-A-15

*Southern New Jersey*

W2HDW 173,250- 996-70-A-40
W2QDY 115,740- 643-72-A-38
W3DVF/2
104,190- 604-69-A- –
W2FXN 103,295- 570-73-A-20
K2CPR 100,193- 549-73-A-33
WA2HSP 88,200- 560-63-A-27
WA2MEQ 72,640- 454-64-A-30
W2HBE 71,988- 446-65-A-39
W2FYS 70,950- 430-66-A-31
W2DAJ 70,932- 514-69-B-32
WA2RLV 60,032- 448-67-B-22
WA2IZS 46,210- 308-73-A-30
W2EBW 43,493- 358-61-B-35
K2JXX 43,400- 310-56-A-15
K2UWC 39,323- 377-42-A-25
W2BUL 38,190- 268-57-A-21
W2REB 36,960- 308-48-A-30
W2SDB 36,250- 250-58-A-22
WA2KWS 33,810- 276-49-A-35
K2OEA 29,430- 218-54-A-15
WA2IEK 27,313- 242-46-A-23
K2BG 19,796- 202-48-B-15
W2ILN 18,156- 209-35-A-10
W2APD 13,383- 129-42-A-19
W2TBD/2
12,538- 149-34-A-15
WA2HJE 12,000- 120-40-A-16
WA2KOK 10,990- 160-28-A-24
WA2MES 9230- 148-26-A-11
K2IPW 6720- 112-24-A-19
W2QBH 2240- 56-16-A- 8
K2EJW 975- 30-13-A- 8
K2HBY 563- 27- 9-A- 6
WV2UOF 360- 23- 8-A-11
W2PAU (W2s ESX PAU)
127,391- 742-69-A-37
WA2KVP (WA2s KVP NGS)
19,600- 197-40-A-30
WA2KBI (K2ODL, WA2KBI)
13,817- 170-41-B-18

*Western New York*

W2WOE 96,250- 550-70-A-32
K2KWZ 74,538- 446-67-A-33
K2INP 68,816- 509-68-B-28
WA2LDC 58,026- 526-58-B-35
WA2PCW 55,931- 410-57-A- –
W2QHQ 53,756- 355-61-A-38
WA2IBJ 53,625- 300-65-A-30
W2EKT 48,750- 325-60-A-25
W2KAT 46,578- 301-62-A-25
K2DJD 45,315- 321-57-A-20
W2EMW 40,718- 267-61-A-22
WA2JZM 35,063- 275-51-A-40
W2TFL 34,125- 325-42-A-28
K2KKH 31,735- 289-44-A-20
K2HVR 21,675- 170-51-A-12
WA2FVT 21,180- 180-48-A-20
WA2KLD 14,963- 155-42-A-24
WA2KJU 10,850- 128-35-A-26
W2QZK 10,750- 100-43-A-17
W2PDT 10,400- 104-40-A-21
WA2MUX 9538- 112-35-A-13
W2IYB 8750- 100-35-A- 9
WA2QKT 6229- 76-33-A-16
W2ZCZ 5909- 82-29-A- 7
K2YMM 4750- 77-25-A-16
WA2KKP 3640- 58-26-A- 8
WV2RBQ 756- 38-11-A- 7
K2EQH 70- 7- 4-A- 1
WV2UKC 13- 3- 2-A-15
K2KGQ (K2s KGQ 88X, WA2KQK)
128,333- 727-71-A-40
W2CXM (K1AWR, W2AZO, WA6EPQ)
88,673- 563-63-A-33
W2TAB (K2BFF, W3TXL)
38,080- 273-56-A-21
WA2CUZ (W2TOP, WA2CUZ)
22,885- 200-46-A-28
K2MXA (K2MNA, WV2SNC)
15,015- 139-44-A-31

*Western Pennsylvania*

K3IWC 112,003- 634-71-A-40
W3YDK 83,835- 490-69-A-29
W3NRE 78,538- 515-61-A-28
K3HTJ 63,315- 403-61-A-31
W3KQD 58,305- 338-69-A-36
W3GJV 56,800- 320-71-A-24
K3KMO 45,390- 357-61-A-22
W3NEM 45,265- 412-44-A-32
W3UGV 45,000- 300-60-A-19
W3SMV 35,000- 350-40-A-25
K3NLC 34,375- 251-55-A-21
K3DFU 31,605- 259-49-A-30
K3HKK 27,435- 186-59-A-19
K3OLG 26,340- 224-48-A-28
K3NHZ 8301- 115-29-A-13
K3MYA 8200- 106-32-A-19
KN3PJX* 6888- 101-29-A-37
K3NXO 6235- 89-29-A-14
W3NUG 5200- 80-26-A- 6
W3OEO 5060- 88-23-A- 8
K3KBC 4080- 60-34-B-15
K3ELL 3438- 55-25-A-10
K3DFV 3375- 50-27-A-18
K3PCE 2969- 52-25-A-12
K3CLX 2565- 54-19-A- 7
W3NAT 1725- 30-23-A- –
W3EJA 1560- 39-20-B- 9
W3JHG 1550- 41-20-A-11
K3LUX 1425- 30-19-A- 5
K3OXT 688- 25-11-A- 2
KN3PLX 488- 15-13-A-10
KN3PML 303- 12-11-A- –
KN3PYS/3 113- 8- 6-A- 1
W3RNH 90- 6- 6-A- 1
K3ILC (K3s ILC MNP)
74,003- 462-66-A-40
K3CBF (2 oprs.)
44,688- 303-59-A-38
K3DEJ (K3DEJ, W3RBH)
37,076- 302-62-B-35

DXer W6ULS with 270 countries confirmed led Santa Barbara in a big way with 176,876 c.w. points. If you think this is a lot of gear, you should see the other picture Merle sent in showing the maze of wires connecting it together in back!

## CENTRAL DIVISION

*Illinois*

| | | | |
|---|---|---|---|
| W9ZAB | 176,453- | 967-73-A-35 | |
| K9KDI | 173,283- | 950-73-A-37 | |
| W9RCJ | 165,893- | 910-73-A-38 | |
| W9IPT | 162,180- | 901-72-A-39 | |
| W9CLH | 139,950- | 780-72-A-40 | |
| K9SIO | 138,000- | 800-69-A-39 | |
| W9PZT | 127,203- | 697-73-A-38 | |
| W9LNQ | 126,720- | 704-72-A-35 | |
| W9QQG | 107,975- | 627-70-A-32 | |
| W9YYG/9 | 95,400- | 530-72-A-33 | |
| W9MPN | 92,055- | 550-68-A-26 | |
| W9EXP | 80,010- | 508-63-A-34 | |
| K9UGY | 73,825- | 424-68-A-20 | |
| W9KLD | 69,000- | 506-69-B-25 | |
| W9ZYD | 65,000- | 400-65-A-16 | |
| K9DWG | 62,948- | 383-66-A-33 | |
| K9VBS | 60,375- | 352-69-A-29 | |
| K9UFO | 59,965- | 358-67-A-33 | |
| W9BUD | 58,305- | 423-69-B-26 | |
| W9ZSQ | 53,630- | 349-62-A-30 | |
| K9UCR | 46,620- | 333-56-A-39 | |
| K9YOE | 45,504- | 309-59-A-24 | |
| K9YON | 42,831- | 312-55-A-30 | |
| K9ZXG | 41,820- | 370-60-B-36 | |
| W9REC | 39,000- | 240-65-A-36 | |
| W9HPG | 37,950- | 253-60-A-23 | |
| W9MAK | 36,064- | 245-59-A-10 | |
| K9SLK | 35,625- | 250-57-A-20 | |
| K9UIY | 33,120- | 282-48-A-32 | |
| W9WIO | 30,660- | 211-73-B-15 | |
| W9YDQ | 28,541- | 194-59-A-17 | |
| W9AGM | 27,000- | 200-54-A-13 | |
| W9NIU | 26,180- | 189-56-A-33 | |
| W9ZEN | 23,345- | 162-58-A-21 | |
| W9UKY | 23,142- | 200-58-B-20 | |
| K9OCU | 23,114- | 230-41-A-21 | |
| W9FKH | 21,700- | 140-62-A-11 | |
| K9UQN | 21,576- | 215-41-A-24 | |
| K9RVF | 21,038- | 191-45-A-29 | |
| K9EEC | 20,160- | 210-48-B-26 | |
| K9TNA | 19,500- | 158-50-A-23 | |
| K9LSN | 18,910- | 153-62-B-12 | |
| W9VOX | 18,200- | 130-56-A-16 | |
| W9IEU | 16,605- | 162-41-A-13 | |
| K9CSV | 16,300- | 163-40-A-15 | |
| K9WQE | 15,750- | 150-45-A-29 | |
| W9FNX | 15,200- | 154-50-B-11 | |
| W9VCZ | 14,728- | 137-43-A-12 | |
| K9KUN | 14,345- | 154-38-A-19 | |
| W9JJN | 12,075- | 140-35-A- 6 | |
| W9VBV | 11,970- | 114-42-A- 8 | |
| KN9DRJ* | 11,890- | 122-41-A-17 | |
| K9KZW | 11,463- | 132-35-A-12 | |
| WN9ANN | 11,135- | 135-34-A-37 | |
| W9BIN | 11,115- | 115-39-A-15 | |
| K9IFO | 10,920- | 104-42-A-12 | |
| K9ZRA | 10,530- | 118-36-A-14 | |
| K9IWS | 10,458- | 126-42-B-16 | |
| K9UCG | 9920- | 124-32-A-15 | |
| K9ICF | 9393- | 112-34-A-19 | |
| K9TWK | 8883- | 108-34-A-13 | |
| W9OIJ | 8740- | 115-38-B- 6 | |
| K9QCK | 7755- | 95-33-A-20 | |
| K9ISP | 7750- | 100-31-A- 8 | |
| KN9EZP | 7725- | 132-30-A-40 | |
| K9ZVE | 7000- | 114-25-A-18 | |
| K9RKU | 6570- | 73-36-A-11 | |
| K9PQI | 5140- | 81-26-A- – | |
| K9PYB | 4725- | 70-27-A- 5 | |
| W9UIK/9 | 2861- | 55-21-A- 4 | |
| W9ACS | 2818- | 49-23-A- 4 | |
| W9FDY | 2625- | 42-25-A- 9 | |
| K9ORC | 1950- | 30-26-A- 2 | |
| K9WRZ | 1568- | 34-19-A- 5 | |
| K9SCP | 1300- | 40-13-A- 6 | |
| K9DCV | 1020- | 35-12-A-12 | |
| K9ZSY | 688- | 29-10-A- 5 | |
| KN9GSD | 304- | 14- 9-A-20 | |
| K9WXA | 280- | 14- 8-A- 2 | |
| KN9DVK/9 | 75- | 6- 5-A- 5 | |
| K9YAX (K9s UTI, YAX YAZ) | 25,645- | 223-46-A-30 | |
| K9BSF (K9s BSF WVD) | 7290- | 81-36-A-15 | |
| K9IDS (K9IDS, WN9ADA) | 2209- | 48-19-A-22 | |
| W9EJX (K9UIT, WN9AUX) | 180- | 18- 5-B- 2 | |

*Indiana*

| | | | |
|---|---|---|---|
| W9IOP | 258,030- | 1441-72-A-40 | |
| W9DMU | 114,750- | 675-68-A-39 | |
| K9LVK | 59,830- | 398-62-A-39 | |
| K9RGM | 50,915- | 301-68-A-23 | |
| K9ATV/9 | 26,265- | 212-51-A-25 | |
| W9CNG | 21,518- | 151-57-A-16 | |
| KN9GZE* | 6570- | 77-36-A-17 | |
| K9SOP | 3833- | 73-21-A- 7 | |
| W9YDP | 860- | 22-16-A- 6 | |
| KN9INF | 753- | 23-14-A-28 | |
| K9UAN (K9s HTZ WZL) | 101,250- | 563-72-A-38 | |
| W9YB (3 oprs.) | 83,248- | 469-71-A-29 | |
| K9DHN (K9s DHN WWT) | 43,088- | 392-45-A-38 | |

*Wisconsin*

| | | | |
|---|---|---|---|
| W9RQM | 203,616- | 1117-73-A-40 | |
| W9LVR | 118,625- | 650-73-A-23 | |
| K9KGA | 100,165- | 598-67-A-39 | |
| K9DAF | 72,675- | 491-60-A-40 | |
| K9JXW | 71,060- | 420-68-A-26 | |
| W9DYG | 70,811- | 411-69-A-24 | |
| W9FBC | 63,555- | 446-57-A-36 | |
| K9ZMF | 62,388- | 416-62-A- – | |
| W9KQD | 52,080- | 331-64-A-18 | |
| W9IA8V | 51,870- | 364-57-A-32 | |
| K9UGE | 51,548- | 361-58-A-38 | |
| K9ELT | 51,068- | 376-68-B-14 | |
| K9YBC | 46,500- | 300-62-A-26 | |
| K9OPF | 40,563- | 275-59-A-18 | |
| W9ZB | 37,275- | 213-70-A-16 | |
| K9UUT | 32,993- | 249-53-A-27 | |
| K9KBI | 32,254- | 280-47-A-17 | |
| K9HFR | 29,680- | 212-56-A-29 | |
| W9IHN | 26,360- | 166-64-A-12 | |
| K9WDM | 20,670- | 160-53-A-25 | |
| K9ANJ | 16,675- | 145-46-A-15 | |
| K9WIG | 16,605- | 165-41-A-17 | |
| W9KXK | 14,094- | 122-58-B-24 | |
| W9QGR | 12,825- | 90-57-A-14 | |
| K9RZB | 11,875- | 126-38-A-21 | |
| W9BLQ | 10,962- | 131-42-B-13 | |
| W9SIE | 10,395- | 100-42-A-26 | |
| W9GQO | 9540- | 109-36-A-13 | |
| K9JPS | 8968- | 107-33-A-31 | |
| K9CAN | 5250- | 70-30-A- – | |
| K8WFH | 5040- | 85-24-A-20 | |
| W9DPN | 4995- | 75-27-A-18 | |
| K9CHT | 4883- | 63-31-A- 6 | |
| K9GDF | 4456- | 58-31-A- 5 | |
| W9WUQ | 3120- | 58-24-A-20 | |
| K9LQP | 2473- | 45-23-A-10 | |
| W9DGB | 2130- | 36-24-A- – | |
| KN9CKA * | 1845- | 42-18-A-16 | |

Winning three SS section awards from S.C. in the past two years (phone *and* c.w. in 1960) plus the Kansas award in 1957 rates the SS popular for WØYFT/4 as well as those who appreciate getting the S.C. multiplier. Carl, who is with the Air Force, expects to be back in Kansas for the '62 contest, where we'll be looking for him.

| | | | |
|---|---|---|---|
| KN9GTH | 1734- | 40-19-A-20 | |
| W9LTD | 1700- | 34-20-A-10 | |
| K9BCB | 1488- | 35-17-A- 4 | |
| WN9AVZ | 1056- | 44-13-A-15 | |
| K9QDB | 871- | 21-17-A- 4 | |
| KN9FWM | 214- | 10- 9-A- 6 | |
| K9VER | 175- | 10- 7-A- 1 | |
| WN9AUY | 49- | 7- 3-A- 2 | |
| W4VRD/9 | 3- | 1- 1-A 1 | |
| W9YT (6 oprs.) | 99,720- | 694-72-B-33 | |
| K9WIE (K9s SNO WIE) | 20,948- | 175-49-A-16 | |

## DAKOTA DIVISION

*North Dakota*

| | | | |
|---|---|---|---|
| KØIVQ | 123,025- | 704-70-A-36 | |
| KØOSV | 62,238- | 386-65-A-30 | |
| KØQWY | 58,960- | 353-67-A-20 | |
| KØOSW | 58,080- | 364-64-A-31 | |
| KØRHF | 56,343- | 368-62-A-38 | |
| KØMPH | 40,013- | 298-55-A-15 | |
| WØCAQ | 13,160- | 112-47-A-14 | |
| KØRSA | 11,121- | 114-41-A-11 | |
| KØEIA | 7415- | 87-36-A-14 | |
| WØHSC (6 oprs.) | 61,803- | 488-63-B-34 | |

*South Dakota*

| | | | |
|---|---|---|---|
| WØSMV | 105,293- | 751-71-B-38 | |
| WØPHR | 84,825- | 654-65-B-21 | |
| WØBLZ | 83,070- | 639-65-B-26 | |
| WØCUC/Ø | 50,249- | 332-61-A- – | |
| KØTDW | 18,960- | 160-48-A-13 | |
| KØYCB | 12,103- | 109-47-A-17 | |
| KØZTV | 6151- | 67-37-A-24 | |
| WNØAGD | 715- | 22-13-A- 4 | |
| WØRRN | 182- | 13- 7-B- 1 | |
| WØRWE | 50- | 5- 5-B- 1 | |

*Minnesota*

| | | | |
|---|---|---|---|
| WØYCR | 180,000- | 1000-72-A-39 | |
| KØIDV | 140,156- | 825-69-A-29 | |
| KØIJL | 114,310- | 650-71-A-31 | |
| KØVTG | 42,075- | 309-55-A-21 | |
| KØDKZ | 40,093- | 288-58-A-24 | |
| KØWWW | 37,096- | 253-59-A-32 | |
| KØBPO | 35,990- | 244-59-A- 7 | |
| KØRGF | 16,995- | 157-44-A-15 | |
| KØZXE | 15,390- | 147-54-B-17 | |
| KØVLD | 10,250- | 103-40-A-15 | |
| WØMBT | 10,250- | 100-41-A-11 | |
| KNØIJU* | 7585- | 76-1-A-36 | |
| KØIHG | 6123- | 83-31-A-17 | |
| WØDAK | 5984- | 70-33-A- 4 | |
| WØKU1 | 5160- | 65-32-A-22 | |
| KØUZE | 3570- | 52-28-A-13 | |
| WNØABU | 1550- | 34-20-A-14 | |
| KØWNV | 1160- | 29-16-A- 4 | |
| KNØIUZ | 840- | 24-16-A-10 | |
| KNØJFJ | 280- | 15- 8-A-18 | |
| KØAYU | 100- | 8- 5-A- 2 | |
| WØYC (6 oprs.) | 94,680- | 533-72-A-34 | |
| WØOEZ (4 oprs.) | 31,710- | 233-56-A-33 | |

## DELTA DIVISION

*Arkansas*

| | | | |
|---|---|---|---|
| K5USE | 136,708- | 800-69-A-38 | |
| K5TYW | 74,095- | 508-73-B-27 | |
| W5DRW | 50,660- | 301-68-A-29 | |
| K5RIT | 13,725- | 122-45-A- – | |
| K5WVC | 9788- | 103-38-A-18 | |
| KN5JEI | 270- | 18-18-A- 5 | |
| K5VON (K5VON, WN5AMQ) | 7875- | 90-36-A-17 | |

*Louisiana*

| | | | |
|---|---|---|---|
| W5BUK | 179,640- | 1002-72-A-37 | |
| K5UYL | 176,968- | 1034-71-A-38 | |
| K5VJT | 176,925- | 1041-70-A-38 | |
| K5PKA | 94,721- | 578-67-A-38 | |
| W5ERR | 80,368- | 523-62-A-31 | |
| K5ZFO | 74,498- | 467-66-A-27 | |
| K5CKD | 72,730- | 531-70-B-36 | |
| K5IGW | 54,360- | 253-48-A-30 | |
| K5IUH | 32,400- | 248-54-A-31 | |
| W5MXQ | 399- | 15-11-A- – | |

*Mississippi*

| | | | |
|---|---|---|---|
| K5RUO | 104,193- | 606-71-A-40 | |
| K5WBL | 99,400- | 570-70-A-40 | |
| W8RMF/5 | 99,138- | 568-70-A- – | |
| K5OTI | 21,000- | 175-48-A- – | |
| K5FNV | 8580- | 88-39-A- 8 | |
| WN5ALL | 495- | 20-12-A-12 | |

*Tennessee*

| | | | |
|---|---|---|---|
| K4PUZ/4 | 192,060- | 1069-72-A-40 | |
| K4AMC | 170,640- | 963-72-A-40 | |
| W4WZC | 158,863- | 900-71-A-40 | |
| K4RIN | 149,760- | 842-72-A-40 | |
| W4SQE | 87,863- | 495-71-A-37 | |
| K4PKV | 58,725- | 435-54-A-40 | |
| W4YQR | 32,175- | 234-55-A-18 | |
| K4AKP | 22,082- | 181-61-B-17 | |
| W4HOS/4 | 20,720- | 148-56-A-14 | |
| W4ZJY | 12,350- | 124-40-A-14 | |
| K4LPW | 8750- | 100-35-A- 2 | |
| K4HPP | 5865- | 70-34-A- 6 | |
| WN4CBF* | 2970- | 44-27-A-17 | |
| WN4ADH | 1075- | 27-15-A-22 | |

## GREAT LAKES DIVISION

*Kentucky*

| | | | |
|---|---|---|---|
| K4GSU | 200,933- | 1110-73-A-38 | |
| W4CVI | 93,896- | 515-73-A-22 | |
| W4JBG | 89,700- | 520-69-A-22 | |
| W4OMW | 85,748- | 520-66-A-30 | |
| K4NJX/4 | 14,400- | 145-40-A-19 | |
| K4ZRA | 9158- | 100-37-A- 6 | |
| K4EMX | 7955- | 87-37-A-12 | |
| WN4AGH | 1350- | 32-18-A- 7 | |

*Michigan*

| | | | |
|---|---|---|---|
| K8QJH | 160,418- | 883-73-A-40 | |
| W8FAW | 151,650- | 843-72-A-40 | |
| W8APN | 138,513- | 792-70-A-39 | |
| K8NHC | 127,800- | 720-71-A-35 | |
| W8VPC | 114,300- | 635-72-A-40 | |
| W8DUS | 112,890- | 643-71-A-31 | |
| W8PXA | 112,590- | 732-67-A-39 | |
| K8IUZ | 110,385- | 669-66-A-35 | |
| W8KWC | 104,720- | 748-70-B-38 | |
| W8INJ | 97,902- | 772-63-B-38 | |
| K8GKX | 86,020- | 506-68-A-36 | |
| W8MPD | 83,583- | 500-67-A-37 | |
| W8PVI | 80,719- | 513-63-A-36 | |
| K8QLL | 78,315- | 454-69-A-35 | |
| W8UMX | 77,175- | 441-70-A-37 | |
| W8CXS | 74,550- | 420-71-A-38 | |
| K8HLR | 50,570- | 392-52-A-28 | |
| W8TRN | 49,545- | 367-54-A-32 | |
| K8RDE | 48,675- | 296-66-A-17 | |
| K8DUB/8 | 45,903- | 301-61-A- – | |
| K8IPR | 44,561- | 353-51-A-15 | |
| K8SKI | 39,848- | 277-58-A-26 | |
| K8WKH | 38,513- | 243-65-A-32 | |
| W8DMI | 37,750- | 302-50-A-21 | |
| K8JXK | 37,294- | 256-65-A- – | |
| K8BGZ | 33,565- | 274-49-A-37 | |
| W8FX | 32,880- | 304-43-A-19 | |
| K8SHQ | 32,205- | 226-57-A-35 | |
| W8MSK | 32,131- | 243-53-A-21 | |
| K8OSQ | 29,160- | 216-54-A-20 | |
| K8TXD | 27,359- | 260-43-A-35 | |
| W8GOW | 22,680- | 174-54-A-23 | |
| K8AMN | 19,110- | 182-42-A-23 | |
| K8RQO | 12,968- | 137-38-A-14 | |
| W8IBB | 11,520- | 132-36-A-10 | |
| W8SS | 8288- | 85-39-A- 9 | |
| K8QBM | 6390- | 71-36-A- 6 | |
| W8EGI | 5775- | 70-33-A- 4 | |
| K8DVL | 4030- | 52-31-A- 3 | |
| K8ZOA | 3990- | 76-21-A-10 | |
| K8QQT | 2573- | 50-21-A- 6 | |
| WV8QVU/8 | 1296- | 33-17-A-33 | |
| W8NBN | 1080- | 30-18-A-10 | |
| K8SFZ | 782- | 23-17-B- – | |
| K8QBW | 600- | 20-12-A- 1 | |
| K8CVV | 536- | 17-13-A- 5 | |
| K8MEG | 475- | 19-10-A- 4 | |
| W8ZHB | 438- | 18-10-A- 7 | |
| W8IVK | 275- | 11-10-A- 2 | |
| W8RTU | 270- | 13- 9-A- 7 | |
| W8BNF | 50- | 5- 4-A- – | |
| KN8ZXQ | 45- | 5- 4-A- 4 | |
| K8EPZ (K8s EPZ QEI) | 47,940- | 286-68-A-22 | |
| W8CDY (7 oprs.) | 28,136- | 275-41-A-40 | |

*Ohio*

| | | | |
|---|---|---|---|
| W8NBK | 194,895- | 1098-71-A-37 | |
| W8OYI | 177,324- | 999-71-A-38 | |
| K8HGT* | 161,525- | 910-71-A-36 | |
| W8IBX | 157,080- | 928-68-A-37 | |
| W8AEB | 153,125- | 875-70-A-40 | |
| K8MTI | 141,911- | 800-71-A-36 | |
| K8SMA | 130,065- | 761-69-A-39 | |
| W8DQG | 125,468- | 724-69-A-38 | |
| W8ETU/8 | 121,613- | 705-69-A-32 | |
| W8CJN | 117,863- | 675-70-A-34 | |
| W8CEA | 116,730- | 649-72-A-34 | |
| W8ZMI | 106,200- | 604-72-A-24 | |
| W8YPT | 104,621- | 607-69-A-32 | |
| K8VLU | 104,363- | 605-69-A-34 | |
| W8YCP | 102,346- | 702-73-B-27 | |
| W8VQI | 89,194- | 535-67-A-36 | |
| K8BXU | 82,995- | 503-66-A-34 | |
| K8RFU | 80,480- | 505-64-A-33 | |
| K8RMK | 80,376- | 596-68-B-32 | |
| K8IPS | 79,440- | 503-64-A-30 | |
| K8DDG | 79,178- | 459-69-A-30 | |
| W8BQT | 78,390- | 585-67-B-22 | |
| W8ENH | 78,306- | 468-67-A-36 | |
| K8HTM | 78,210- | 485-66-A-40 | |
| K8GHG | 77,055- | 468-66-A-37 | |
| K8EKG | 75,869- | 500-61-A-25 | |
| W8LUZ | 70,700- | 404-70-A-33 | |
| W8UPH | 70,455- | 462-61-A-27 | |
| W8UEX | 69,863- | 405-69-A-29 | |
| W8NWR | 68,471- | 481-57-A-38 | |
| W8BOJ | 64,260- | 410-63-A-14 | |
| W8DUP | 63,920- | 376-68-A-36 | |
| W8DWP | 62,305- | 367-68-A-27 | |
| K8EGY | 60,400- | 378-64-A-25 | |
| W8GFH | 59,019- | 333-71-A-26 | |
| W2VCB/8 | 57,788- | 335-69-A-31 | |
| W8EV | 53,320- | 344-62-A- – | |
| K8NYM | 50,166- | 300-67-A-37 | |
| W8APC | 48,378- | 367-66-B-28 | |
| K8HMV | 45,360- | 337-54-A-37 | |
| W8FGX | 44,968- | 308-73-B-17 | |
| K8EDQ | 44,840- | 313-59-A-23 | |
| K8CFH | 44,175- | 285-62-A-16 | |
| W8IDM | 42,840- | 272-63-A-26 | |

One of Canada's most reliable contest entrants, VE2NI, tallied 2nd-high c.w. VE score of 131,040. The VE/W Contest and the DX Contest have been his gravy both at VE2NI and as operator of VE3UOT. Ambition is to beat VE2WW in just one DX Contest and then retire to v.h.f. (*Photo by VE2AXY*).

| | | |
|---|---|---|
| K8VFE | 42,126- | 421-51-B-31 |
| W8EXI | 41,760- | 261-64-A-21 |
| K8RSI | 38,805- | 300-52-A-30 |
| K8SQK | 38,363- | 286-55-A-19 |
| W8OQV | 37,613- | 255-59-A-22 |
| W8MXO | 36,608- | 289-64-B-22 |
| K8UPR | 36,285- | 246-59-A-29 |
| K8IKO | 33,403- | 216-62-A-30 |
| K8UNP | 33,060- | 233-57-A-18 |
| K8TRR | 32,385- | 254-51-A-25 |
| K8VCW | 31,000- | 200-62-A-13 |
| W8GAC | 29,738- | 306-39-A-15 |
| W8OPA | 29,550- | 190-60-A-12 |
| K8PUV | 29,040- | 330-44-B-14 |
| W8VZE | 28,280- | 206-56-A-24 |
| W8CGY | 27,825- | 210-53-A-22 |
| W8SJC | 23,738- | 211-45-A- – |
| K8NEB | 22,575- | 210-43-A-15 |
| W8LOF | 22,275- | 162-55-A-14 |
| W8AL | 22,035- | 226-39-A-28 |
| W8LHV | 21,735- | 161-54-A-13 |
| K8WOU | 20,580- | 169-49-A-23 |
| K8VZU | 20,500- | 205-40-A-24 |
| W8MAE | 20,445- | 141-58-A-11 |
| K8VAK | 18,598- | 175-43-A-23 |
| W8ZLH | 18,240- | 152-48-A-25 |
| K8ZJI | 14,245- | 159-37-A-33 |
| K8PYD | 13,725- | 122-45-A- 9 |
| W8MOH | 13,706- | 128-43-A-20 |
| W8JUP | 12,938- | 113-46-A-13 |
| W8KMF | 12,573- | 107-47-A-25 |
| W8UON | 12,300- | 123-40-A-13 |
| W8YGR | 12,285- | 78-63-A-12 |
| W8JOB | 11,285- | 122-37-A-20 |
| W8DQC | 11,220- | 102-44-A- 8 |
| W8ELB | 11,130- | 106-42-A-16 |
| K8WNY | 10,150- | 102-40-A-12 |
| W8RJH | 10,148- | 123-33-A-16 |
| W8CAR | 9713- | 105-37-A-21 |
| K8OIO | 9701- | 101-39-A-21 |
| KN8BEG* | 8640- | 118-32-A-40 |
| K8NMG | 8085- | 74-44-A-15 |
| W8NPF | 7490- | 107-28-A-25 |
| W8GMK | 7278- | 71-41-A- 5 |
| W8DMV | 6250- | 100-25-A-13 |
| W8DAE | 6020- | 86-28-A- 4 |
| K8WNM | 5750- | 101-23-A- 6 |
| K8BFZ | 5704- | 86-27-A-16 |
| K8BQY | 5460- | 98-30-B- 3 |
| W8PMJ | 5292- | 74-36-B-14 |
| K8VCR | 5148- | 76-29-A-19 |
| K8LGB | 4900- | 56-35-A-12 |
| K8QNT | 4425- | 60-30-A- 9 |
| W8NHO | 4370- | 76-23-A-23 |
| K8MLO | 4095- | 59-28-A- 8 |
| W8EBZ | 3978- | 43-37-A- 9 |
| K8KFC | 3795- | 46-33-A-11 |
| W8JSU | 3710- | 58-28-A- 4 |
| W8TNB | 3915- | 58-27-A-10 |
| W8OYL | 3900- | 60-26-A-11 |
| W8UNE | 3274- | 49-27-A-13 |
| K8KSN | 2750- | 55-20-A- 9 |
| K8TMI | 2678- | 55-21-A-10 |
| K8RZH | 2490- | 42-24-A- 9 |
| W8NAL | 2473- | 43-23-A- 9 |
| KN8ZJD | 2275- | 65-14-A-34 |
| K8ORL | 2043- | 43-19-A- 8 |
| K8GKF | 1500- | 30-20-A-11 |
| W8AEW | 1069- | 30-15-A-14 |
| W8KJZ | 991- | 32-13-A- 8 |
| K8WXH | 600- | 20-12-A- 8 |
| KN8BBH | 293- | 14- 9-A- 8 |
| K8ZDA | 113- | 9- 5-A- 2 |
| K8ETI | 30- | 4- 3-A- – |
| K8UIE | 26- | 4- 3-A- **6** |
| K8TKA (6 oprs.) | 17,120- | 217-32-A- – |
| K8WBL (3 oprs.) | 16,170- | 132-49-A- **9** |
| K8RHN (K8s RHN SQX) | 13,970- | 133-44-A- – |
| K8PVU/8 (2 oprs.) | 383- | 17- 9-A- **2** |

## HUDSON DIVISION

*Eastern New York*

| | | |
|---|---|---|
| K2EIU | 171,998- | 971-71-A-35 |
| K2HVN | 91,460- | 539-68-A-32 |
| WA2HLH | 47,488- | 334-58-A-27 |
| WA2CLQ | 30,210- | 228-53-A-29 |
| WA2KHV/2 | 11,700- | 120-39-A-11 |
| W2TER | 4290- | 78-22-A- 5 |
| WA2LYP/2 | 2375- | 50-19-A- 4 |
| WA2IRK | 2168- | 51-17-A- 7 |
| K2UAN | 2083- | 53-17-A-14 |
| WA2PPE (WA2s OMO PPE) | 28,500- | 231-50-A-29 |

*N. Y. C.-L. I.*

| | | |
|---|---|---|
| K2DGT | 238,801- | 1327-73-A-39 |
| W2AYJ | 197,283- | 1081-73-A-37 |
| K2IAD | 131,425- | 751-70-A-40 |
| K2ZYR | 125,581- | 710-71-A-40 |
| WA2TJA | 119,850- | 705-68-A-35 |
| W2MZB | 109,375- | 625-70-A-35 |
| WA2BQK | | |
| K2OFD | 94,545- | 573-66-A-35 |
| W2HMJ | 91,250- | 500-73-A-25 |
| W2IRV | 81,600- | 480-68-A-25 |
| W2CWD | 78,275- | 505-62-A-30 |
| K2JOK | 76,073- | 444-69-A-35 |
| W2MUM | 71,338- | 439-65-A-24 |
| WA2BWO | 70,913- | 465-61-A-33 |
| WA2CZG | 69,750- | 465-60-A-24 |
| W2DID | 67,688- | 475-57-A-29 |
| K2JQO | 60,475- | 410-59-A-33 |
| W2DUS | 59,640- | 426-56-A-24 |
| WA2NCE | 57,120- | 408-56-A-35 |
| K2BTT | 55,331- | 341-65-A- – |
| K2DXK | 53,288- | 374-58-A-25 |
| WA2KCH | 47,988- | 353-55-A-32 |
| W2GKZ | 46,200- | 280-66-A-18 |
| WA2BNK | 45,655- | 397-46-A-36 |
| WA2SJX | 42,248- | 393-43-A-39 |
| WA2IBF | 39,393- | 267-59-A-22 |
| WA2OOT | 38,999- | 338-59-B-20 |
| W2ZKQ | 35,700- | 210-68-A-19 |
| W2JBQ | 35,625- | 238-60-A-11 |
| WA2JZX | 33,833- | 291-47-A-24 |
| W2UNS | 33,220- | 302-44-A- – |
| W2ICO | 32,863- | 239-55-A-22 |
| WA2DHF | 32,200- | 280-46-A-30 |
| W2ESO | 32,120- | 220-73-B-18 |
| WA2ITR | 31,265- | 338-37-A-30 |
| W2DBQ | 31,000- | 200-62-A-27 |
| WA2ODA | 29,313- | 336-35-A-37 |
| WA2GGB | 28,738- | 209-55-A-31 |
| W2OPY | 28,306- | 325-35-A-27 |
| W2DUN | 25,886- | 266-39-A-33 |
| WA2QGU | 21,000- | 200-42-A-27 |
| W2UAL | 19,000- | 200-38-A-20 |
| W2RDD | 18,213- | 155-47-A-11 |
| W2AZS | 17,600- | 176-50-B-15 |
| W2TNI | 17,000- | 204-34-A-28 |
| W2PJG | 16,800- | 192-35-A-20 |
| WA2MDJ | 16,250- | 262-25-A- – |
| W2AIZ | 14,715- | 218-27-A-18 |
| WA2OBQ | 14,355- | 161-36-A-30 |
| K2YOR | 13,384- | 125-43-A- 5 |
| W2OBU | 13,196- | 196-27-A- 9 |
| K2GNC | 10,260- | 152-27-A- – |
| K2PHF | 10,250- | 125-41-B- 2 |
| W2TUK | 9075- | 110-33-A- 5 |
| K2GV | 8658- | 117-37-B- 8 |
| W2ENW | 8360- | 110-38-B-12 |
| W2ELZ | 8385- | 108-39-B-16 |
| WV2TMW* | 8288- | 100-34-A-29 |
| K2JTW | 8215- | 106-31-A-10 |
| WA2IMH | 7838- | 107-30-A-14 |
| WA2PJL | 7758- | 112-29-A-14 |
| WA2EFU/2 | 7463- | 101-30-A-12 |
| W2MDM | 7360- | 92-40-B- 7 |
| WA2EFN | 6970- | 87-40-A- 7 |
| K2ZL | 6750- | 90-30-A- 9 |
| W2UFT | 6023- | 110-22-A- 5 |
| K2CTK | 5250- | 70-30-A- 9 |
| W2NBI | 3543- | 69-21-A-22 |
| K2HTX | 3456- | 64-27-B-10 |
| W2GES | 3000- | 50-24-A- – |
| W2IAS | 2100- | 42-20-A- – |
| WV2URD | 2048- | 47-18-A-22 |
| WA2LJN | 1845- | 42-18-A- 5 |
| WV2RFL | 1764- | 50-17-A-24 |
| WA2DET | 1744- | 47-15-A-10 |
| K2ABW | 1558- | 41-19-B- 4 |
| WA2IKN | 1540- | 42-15-A-14 |
| K2ZZC | 1320- | 30-22-B- 7 |
| WA2QJU | 1283- | 27-19-A- 4 |
| WV2TBK | 845- | 27-13-A-10 |
| WV2SHO | 675- | 30- 9-A- – |
| WV2UQQ | 575- | 24-10-A- – |
| WA2GMG | 563- | 25- 9-A- 3 |
| WA2DSR | 540- | 18-12-A- 3 |
| WV2UXZ | 518- | 23- 9-A- 7 |
| WV2UNH | 350- | 22- 7-A-11 |
| WV2SRV | 338- | 36- 5-A-20 |
| WV2SJQ | 233- | 16- 6-A-12 |
| WA2NFJ | 188- | 13- 6-A- 4 |
| W2IHE | 140- | 10- 7-B- 3 |
| WA2WEA[7] | 88- | 7- 5-A- 1 |
| WV2UFE | 25- | 5- 2-A- 8 |
| K2LOT | 23- | 3- 3-A- – |
| K2OGJ | 23- | 3- 3-A- 1 |
| WA2BEI | 10- | 4- 1-A- 1 |
| K2JOG | 3- | 1- 1-A- – |
| W2HJ (W2PVQ, WA2DES) | 65,660- | 419-56-A-27 |
| WA2KSJ (WA2s KSJ KSK) | 45,050- | 340-53-A-37 |
| W2DSC (3 oprs.) | 32,063- | 239-54-A-18 |
| WA2GRC (WA2s GRC JWD) | 18,176- | 198-37-A-29 |
| WA2OKO (WA2s MTX OKO) | 16,198- | 175-38-A-20 |
| WA2JLI (WA2s JLI PMP) | 14,615- | 160-37-A-18 |
| WA2LKY (WA2s LKY SJF) | 10,314- | 112-37-A-16 |
| WV2SVF (WV2s SVP TZB) | 5005- | 83-26-A-27 |
| WA2KDX (WA2s KDX OHI) | 1545- | 56-12-A-15 |

*Northern New Jersey*

| | | |
|---|---|---|
| W2DMJ | 176,204- | 967-73-A-38 |
| W2OIB | 164,850- | 947-70-A-40 |
| W2GGE | 148,392- | 1031-72-B-37 |
| W2NNL | 136,588- | 781-70-A-39 |
| W2TSL | 109,725- | 666-66-A-33 |
| WA2EBR | 98,574- | 590-67-A-34 |
| W2GBY | 92,160- | 576-64-A-40 |
| WA2DEC | 75,545- | 443-68-A-36 |
| W2HUG | 73,198- | 438-67-A-28 |
| WA2OTJ | 69,000- | 400-69-A-21 |
| K2BMI | 68,250- | 456-60-A-35 |
| W2TPJ | 63,135- | 415-61-A-18 |
| W2UM[8] | 53,595- | 399-54-A-38 |
| WA2KRC | 53,213- | 323-66-A-30 |
| K2GLQ | 51,000- | 300-68-A-20 |
| W2HTX | 46,800- | 312-60-A-21 |
| K2UBW | 42,280- | 303-56-A- – |
| W2LRO | 38,233- | 373-41-A-23 |
| W2OPE | 36,543- | 313-47-A-22 |
| WA2ONH | 28,025- | 295-38-A-16 |
| WA2FVQ | 25,301- | 262-39-A-26 |
| WA2MYS | 24,668- | 216-46-A-28 |
| W2PDG | 23,904- | 178-55-A-19 |
| K2GLI | 22,563- | 182-50-A-18 |
| W2NEP | 22,540- | 186-49-A-10 |
| K2SBW | 22,234- | 182-49-A-22 |
| W2IBZ | 21,615- | 190-44-A-16 |
| W2EFP | 19,215- | 183-42-A-11 |
| WA2MYB | 18,460- | 142-52-A-29 |
| WA2RGZ | 18,038- | 185-39-A-16 |
| W2EWZ | 17,550- | 156-45-A-14 |
| W2ABL | 16,660- | 136-49-A-10 |
| WA2JHQ | 15,500- | 200-31-A- 9 |
| WA2NPI | 13,943- | 144-39-A- – |
| W2HDT | 12,110- | 173-35-B- 9 |
| W2OPB | 11,445- | 164-28-A- 7 |
| W2BWW | 10,230- | 93-44-A- – |
| W2UFQ | 9900- | 110-36-A- 8 |
| W2FSL | 7582- | 112-34-B-14 |
| W2EHN | 7293- | 111-33-B- 6 |
| WA2CWA | 6580- | 94-28-A-12 |
| WV2QZL* | 6263- | 90-30-A-25 |
| K2MGM | 3623- | 69-21-A- 4 |
| WA2JHD | 2688- | 64-21-B-12 |
| W2SLZ | 2070- | 46-18-A- 8 |
| W2BVE | 1509- | 36-17-A- 5 |
| W2TJD | 1444- | 38-19-B- 8 |
| WA2IOX | 735- | 21-14-A-16 |
| WA2HSZ | 248- | 19- 6-A- 6 |
| W2ZVW | 144- | 9- 8-B- 1 |
| WV2UDT | 113- | 9- 5-A- 6 |
| WA2FBF | 30- | 6- 2-A- 1 |
| K2GKB | 10- | 2- 2-A- 1 |
| WA2KZV | 10- | 2- 2-A- 1 |
| WV2ROF | 4- | 2- 1-A- 3 |
| K2OUR | 3- | 1- 1-A- 1 |
| K2YNT (WA2s KZV PTS QCM) | 89,025- | 596-60-A-40 |
| K2EKM (K2EKM, W2MPP) | 75,098- | 489-62-A-40 |
| WA2APT (WA2s APT JHE) | 11,093- | 153-29-A-15 |
| WA2PTS (K2RGF, WA2s PTS QCM) | 8- | 2- 2-B- – |

## MIDWEST DIVISION

*Iowa*

| | | |
|---|---|---|
| K8SXA/Ø | 156,950- | 860-73-A-30 |
| WØUZO | 119,370- | 692-69-A-37 |
| WØCXN | 118,393- | 667-71-A-32 |
| WØEQN | 104,976- | 735-72-B-36 |
| KØAZJ | 96,730- | 570-68-A-31 |
| WØTEY | 58,163- | 354-66-A-27 |
| WØBSY | 51,340- | 302-68-A-21 |
| KØQWM | 43,869- | 306-58-A-33 |
| KØVEJ | 39,879- | 265-61-A-29 |
| WØATA | 33,863- | 219-63-A-20 |
| WØNCS | 32,576- | 179-73-A-18 |
| KØPUB | 31,176- | 255-49-A-15 |
| KØZLN | 27,930- | 203-56-A-30 |
| KØASI | 27,495- | 214-52-A-22 |
| KØAUU | 26,112- | 256-51-B-32 |
| KØKGS | 18,480- | 155-48-A-15 |
| KØYHN | 16,775- | 154-44-A-23 |
| KØBMH | 15,510- | 144-44-A-17 |
| WØSDV | 13,110- | 114-46-A-19 |
| KNØGLQ* | 5890- | 76-31-A- – |
| KØKNY | 630- | 26-12-A-11 |
| KØGVC | 150- | 10- 6-A- 5 |
| KNØHGH | 55- | 6- 4-A-14 |
| KNØIDJ | 10- | 2- 2-A- 5 |
| KØWWO (4 oprs.) | 30,625- | 274-50-A-38 |

*Kansas*

| | | |
|---|---|---|
| KØYRQ | 120,836- | 706-69-A-40 |
| KØBHM | 75,900- | 440-69-A-33 |
| KØFEI | 73,780- | 480-62-A-25 |
| KØELZ | 63,680- | 403-64-A-28 |
| WØBYV | 62,010- | 477-65-B-23 |
| WØITO | 53,056- | 428-64-B-26 |
| KØMAC[9] | 46,578- | 311-62-A-26 |
| KØFEV | 22,050- | 198-45-A-32 |
| KØYGR | 21,263- | 192-45-A-21 |
| KØJQL | 21,160- | 200-46-A-21 |
| WØYRN | 3313- | 58-25-A-10 |
| WØSPF | 2558- | 47-22-A-10 |

*Missouri*

| | | |
|---|---|---|
| WØARO | 124,718- | 723-69-A-39 |
| WØFLN[10] | 99,360- | 576-69-A-40 |
| WØKCG | 95,584- | 541-71-A-40 |
| KØJPJ | 87,938- | 538-67-A-31 |
| KØLFY | 73,856- | 460-65-A-21 |
| KØVSH | 49,520- | 319-64-A-21 |
| KØYIP | 45,750- | 300-61-A-30 |
| KØCWP | 45,000- | 309-60-A-35 |
| WØMCX | 37,454- | 307-61-B-28 |
| KØDEQ | 31,570- | 230-56-A-20 |
| KØVUR | 29,966- | 198-61-A-25 |
| KØGSV/Ø | 29,000- | 235-50-A-26 |
| WØRXG | 26,313- | 211-50-A-20 |
| KØQCQ | 25,792- | 248-52-B- – |
| KØBVT | 17,684- | 166-43-A-25 |
| KØBQI | 14,923- | 130-47-A-19 |
| KØFPC | 14,265- | 160-56-A-26 |
| KØVUK | 10,045- | 113-39-A-14 |
| KØZEI | 7879- | 98-33-A-13 |
| WØKIK | 7875- | 106-30-A-15 |
| KØDYM | 4089- | 71-29-B- 8 |
| WØJTC | 2736- | 57-24-B-11 |
| KNØJWN* | 1943- | 41-21-A-20 |
| KØOCB/Ø | 8- | 2- 2-A- 1 |
| KØAXU/Ø (6 oprs.) | 80,648- | 615-68-B-40 |
| WØQEV (4 oprs.) | 13,395- | 141-38-A- – |

*Nebraska*

| | | |
|---|---|---|
| WØNYU | 86,179- | 518-67-A-23 |
| KØSCM | 44,298- | 318-58-A-21 |
| KØIPI/Ø | 30,343- | 232-53-A-23 |
| KØQVM | 24,030- | 178-54-A-19 |
| WØFBE | 10,800- | 108-40-A-14 |
| KØSBV | 9296- | 106-37-A- – |
| KØVZP | 9040- | 114-32-A- – |
| KØITL | 5365- | 77-29-A-15 |
| WØMAO (KØRAU, WØRIN) | 81,420- | 475-69-A-39 |

## NEW ENGLAND DIVISION

*Connecticut*

| | | |
|---|---|---|
| W1BIH | 159,231- | 876-73-A-38 |
| K1HTV | 159,218- | 898-71-A-39 |
| K1KSH | 105,300- | 654-60-A-32 |
| WIAW[11,12] | 102,900- | 735-70-B-25 |

| | | |
|---|---|---|
| W1FTX | 59,714- | 357-67-A-23 |
| W1BDI[12] | 58,458- | 350-67-A-28 |
| K1LBH | 47,723- | 304-63-A-25 |
| W1ILV | 46,209- | 461-51-B-32 |
| W1EQV | 45,150- | 301-60-A-32 |
| K1IVK | 40,770- | 302-54-A-26 |
| W1DDJ | 39,098- | 401-39-A-24 |
| K1PQS | 34,875- | 313-45-A-26 |
| K1QKZ | 33,855- | 275-61-A-25 |
| W1ZJJ | 29,190- | 284-42-A-25 |
| K1LOM | 26,666- | 276-39-A- – |
| W1TX | 19,000- | 152-50-A- 8 |
| K1EAO | 17,938- | 176-41-A-22 |
| K1ACQ | 14,630- | 155-38-A-22 |
| W1DGL[12] | 13,965- | 134-42-A- 5 |
| W1RZG | 11,357- | 139-41-B-10 |
| W1ANO | 9775- | 116-34-A-22 |
| W1CHR | 1550- | 31-20-A- 2 |
| W1NJM[12] | 1275- | 30-17-A- 2 |
| K1JGK | 1031- | 39-11-A- 7 |
| KN1RQO | 1031- | 30-15-A-13 |
| W1RFJ | 750- | 25-12-A- 5 |
| K1TAX | 149- | 9- 5-A- 5 |
| W1WEE | 144- | 9- 8-B- 4 |
| W1MHF (K1HOP, W1s ECH MHF) | 147,095- | 818-73-A-36 |
| K1NBZ (K1s HOP NBZ) | 30,533- | 286-46-A-36 |
| K1PUR (K1s PUR QMG T1W) | 15,803- | 160-42-A-33 |

*Maine*

| | | |
|---|---|---|
| W1GKJ | 98,260- | 580-68-A-40 |

*Eastern Massachusetts*

| | | |
|---|---|---|
| W1NJL | 157,604- | 914-69-A-38 |
| K1DIR | 145,461- | 825-71-A-38 |
| W8LQA/1 | 139,910- | 828-68-A-37 |
| KLRUH | 110,688- | 635-70-A-39 |
| W1AQE | 90,563- | 520-70-A-36 |
| K1CUD | 80,850- | 542-60-A-37 |
| W1HGT | 62,481- | 390-65-A-18 |
| W1EPE | 52,800- | 401-66-B-31 |
| K1PNN | 37,044- | 295-63-B-22 |
| W1JSM | 34,023- | 220-62-A-15 |
| W1PTR | 29,225- | 167-70-A-12 |
| K3ICY/1 | 27,743- | 217-54-A-33 |
| W1PLJ | 19,188- | 168-46-A-25 |
| K1MXF | 16,713- | 201-35-A-22 |
| K1MVN | 14,790- | 175-34-A-16 |
| K1HNP | 11,868- | 102-47-A-17 |
| W1KEE | 8844- | 134-33-B-13 |
| K1IUS/1 | 8475- | 113-30-A- 8 |
| K1KK8 | 7844- | 128-25-A- 9 |
| W1QFO | 6016- | 94-32-B-22 |
| W1MYE | 4988- | 62-30-A-20 |
| W1CMW | 2258- | 43-21-A-18 |
| K1AIO | 2243- | 40-23-A- 4 |
| KN1SNO | 1164- | 36-19-A-26 |
| K1NOL | 1106- | 30-15-A- 6 |
| K1LKR | 1058- | 26-18-A- 8 |
| K1BIF | 363- | 19-11-B- 3 |
| KN1TCE | 40- | 4- 4-A- 1 |
| K1KBO (4 oprs.) | 44,800- | 406-56-B-40 |

*Western Massachusetts*

| | | |
|---|---|---|
| W1EOB | 178,033- | 1003-71-A-38 |
| W1JYH | 113,600- | 800-71-B-20 |
| W1EZD | 66,866- | 499-67-B-32 |
| K1OOV | 58,520- | 420-70-B-38 |
| W1AZW | 31,040- | 194-64-A-23 |
| K1IJU | 28,350- | 210-54-A-17 |
| W1WF | 25,380- | 189-54-A-17 |
| K1ITU | 21,364- | 218-49-B-29 |
| K1LSW | 6136- | 87-33-A-14 |
| KN1QQE* | 3675- | 70-21-A-26 |
| KN1SSH | 2450- | 55-20-A-38 |
| KN1TTJ | 525- | 19-12-A- 5 |

*New Hampshire*

| | | |
|---|---|---|
| W1IJB | 142,020- | 789-72-A-38 |
| K1CXP | 74,195- | 423-71-A-29 |
| K1AEG | 64,080- | 404-64-A-39 |
| W1PYM | 56,713- | 349-65-A-30 |
| W1FZ | 55,080- | 341-68-A-27 |
| K1PIA | 49,091- | 351-57-A-29 |
| W1TVB | 40,043- | 282-57-A-37 |
| K1KRP | 36,518- | 271-54-A-26 |
| W1SWX/1 | 29,500- | 295-40-A- 9 |
| K1PMY | 26,508- | 234-46-A-28 |
| K1RKH | 21,908- | 196-46-A-22 |
| K1MOZ | 1632- | 51-16-B- 4 |
| K1RTB | 1444- | 38-19-B- 2 |
| KN1TQF | 184- | 11- 7-A-10 |
| K1IIK | 50- | 5- 4-A- 1 |
| K1CTQ (K1s 1DY PCT) | 33,685- | 287-50-A-27 |

*Rhode Island*

| | | |
|---|---|---|
| K1LPL | 101,003- | 603-67-A-40 |
| K1LDK | 68,355- | 435-63-A-38 |
| K1BAZ | 36,915- | 321-46-A-39 |
| W1SXX | 16,560- | 142-48-A-19 |
| K1TXK | 6435- | 80-33-A-26 |
| KN1SGY* | 4125- | 77-25-A-22 |
| W1AWE | 3960- | 60-33-B- – |
| K1MZS | 633- | 27-11-A- 8 |
| KN1SWK | 481- | 19-11-A- 7 |

*Vermont*

| | | |
|---|---|---|
| W1QMM | 95,112- | 668-72-B-35 |
| W1RWP | 24,388- | 235-52-B-29 |
| W1FPS | 14,000- | 126-56-B-30 |
| K1UAU/1 | 3- | 1- 1-A- 1 |

## NORTHWESTERN DIVISION

*Alaska*

| | | |
|---|---|---|
| KL7BJW (KL7s AQU BJW) | 33,165- | 303-55-B-39 |

*Idaho*

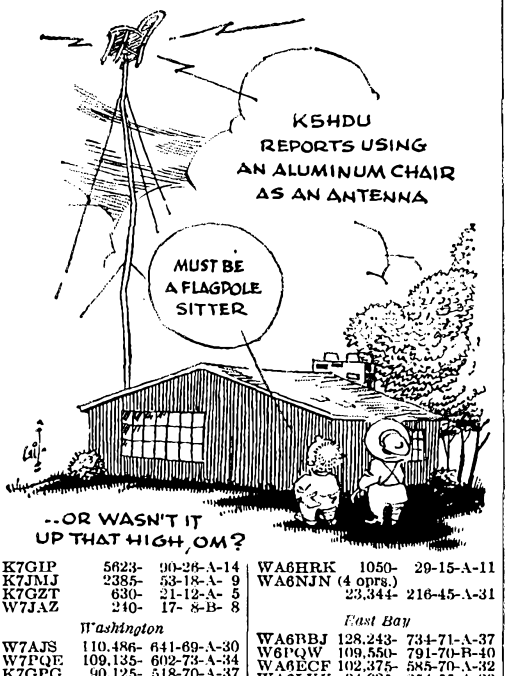
| | | |
|---|---|---|
| W7BSP | 104,913- | 602-70-A-39 |
| K7CPC | 49,290- | 319-62-A-33 |
| W7WMIO | 37,050- | 250-60-A-30 |
| K7HLR | 28,175- | 237-49-A-27 |
| W7ZRF | 3780- | 56-27-A-20 |
| W7IY | 15- | 3- 2-A- – |

*Montana*

| | | |
|---|---|---|
| K7CTI | 114,975- | 632-73-A-28 |
| W7HAH | 108,405- | 600-73-A-29 |
| K7HNV | 38,983- | 255-62-A-28 |
| K7KOK | 29,070- | 204-57-A-21 |
| K7LTV | 6388- | 73-35-A-10 |
| K7QCO | 2250- | 50-18-A-29 |
| KN7QWB | 259- | 13- 9-A-18 |

*Oregon*

| | | |
|---|---|---|
| W7TML | 125,528- | 887-71-B-39 |
| W7TDK | 116,265- | 678-69-A-40 |
| K7ENA | 107,121- | 620-71-A-37 |
| W7PLI | 87,500- | 523-70-A-40 |
| W7GHB | 61,320- | 336-73-A-29 |
| K7IWD | 58,433- | 371-63-A-36 |
| K7CAD | 54,495- | 347-63-A-27 |
| W7LAQ | 47,925- | 326-60-A-36 |
| K7BPR | 46,284- | 305-61-A-29 |
| K7JVN | 33,000- | 240-55-A-29 |
| K7KCZ | 30,015- | 209-58-A-25 |
| K7GFH | 29,160- | 216-54-A-28 |
| W7CLS | 12,198- | 121-41-A- 9 |




| | | |
|---|---|---|
| K7GIP | 5623- | 90-26-A-14 |
| K7JMJ | 2385- | 53-18-A- 9 |
| K7GZT | 630- | 21-12-A- 5 |
| W7JAZ | 240- | 17- 8-B- 8 |

*Washington*

| | | |
|---|---|---|
| W7AJS | 110,486- | 641-69-A-30 |
| W7PQE | 109,135- | 602-73-A-34 |
| K7GPG | 90,125- | 518-70-A-37 |
| K7JHA | 85,921- | 594-73-B-34 |
| K7KPM | 82,950- | 480-70-A-38 |
| W7WIB/7 | 79,305- | 470-68-A-40 |
| W7IUS | 63,550- | 410-62-A-26 |
| K7KDK | 51,000- | 340-60-A-37 |
| K7KGP | 47,348- | 322-59-A-35 |
| K7JRE | 44,320- | 279-64-A-30 |
| K7HSB | 38,569- | 284-55-A-24 |
| W7ZVY | 36,383- | 299-49-A-28 |
| W7JC | 32,280- | 269-60-B-38 |
| W7IBR | 24,323- | 208-47-A-38 |
| K7LCA | 24,029- | 206-47-A-26 |
| K7OUW | 23,911- | 206-47-A- – |
| K7BZE | 18,956- | 173-45-A-28 |
| K7KAA | 18,420- | 154-48-A-15 |
| K7EKY | 17,743- | 152-47-A-12 |
| W7AEA | 15,190- | 156-49-B- 8 |
| W7ETO | 14,945- | 122-49-A-15 |
| K7LXC | 12,968- | 140-38-A-21 |
| K7JCA | 10,150- | 116-35-A- 9 |
| K7BVZ | 9180- | 77-48-A-11 |
| K7DBU | 7468- | 105-29-A-22 |
| W7EWP | 6250- | 100-25-A- – |
| W7MEA | 3675- | 70-21-A- 8 |
| K7KXE | 3245- | 59-22-A-13 |
| K7EKX | 2915- | 53-22-A- 8 |
| W7OVJ | 2250- | 46-20-A- 6 |
| K7NSQ | 1485- | 51-12-A-27 |
| K7HYC | 210- | 14- 6-A- 5 |
| K7ONB (K7s ONB ONF) | 44,370- | 317-58-A-37 |

## PACIFIC DIVISION

*Hawaii*

| | | |
|---|---|---|
| KH6IJ | 144,000- | 1000-72-B-29 |
| KH6DVD | 63,236- | 407-63-A-25 |
| KH6DIG | 16,275- | 158-42-A-14 |
| KH6DMW | 1911- | 46-21-B- – |

*Nevada*

| | | |
|---|---|---|
| W7KEV | 204,674- | 1125-73-A-40 |
| W7VIU | 14,490- | 138-42-A-10 |

*Santa Clara Valley*

| | | |
|---|---|---|
| WA6TGY | 168,630- | 924-73-A-40 |
| W6UTV | 164,970- | 916-72-A-33 |
| W6MVQ | 156,420- | 869-72-A-36 |
| K6VVA | 132,130- | 725-73-A-29 |
| W6VUN | 63,059- | 416-61-A-35 |
| K6BPB | 42,525- | 288-60-A-37 |
| W6CLZ | 41,728- | 326-64-B-28 |
| W6ISQ | 36,685- | 253-58-A-12 |
| WA6PMK | 35,126- | 248-57-A-31 |
| WA6NYK | 32,230- | 300-55-B-36 |
| W7ZOI/6 | 25,875- | 215-16-A-27 |
| WA6OLQ | 25,025- | 229-44-A-20 |
| WA6TKV | 24,000- | 193-50-A-31 |
| WA6LSQ | 18,404- | 214-43-B-18 |
| WA6QDP | 9894- | 103-39-A-10 |
| W6MMG | 9790- | 101-39-A- 8 |
| W6HDO/6 | 7525- | 90-35-A- 8 |
| K6GWQ | 5638- | 105-22-A-12 |
| WA6KED | 4725- | 74-30-A-15 |
| W6YBV | 4200- | 84-25-B-10 |
| WV6RCJ | 1388- | 45-15-A-29 |
| WA6HRK | 1050- | 29-15-A-11 |
| WA6NJN (4 oprs.) | 23,344- | 216-45-A-31 |

*East Bay*

| | | |
|---|---|---|
| WA6BBJ | 128,243- | 734-71-A-37 |
| W6IPQW | 109,550- | 791-70-B-40 |
| WA6ECF | 102,375- | 585-70-A-32 |
| WA6LVX | 34,925- | 254-55-A-20 |
| WA6FKN | 31,500- | 225-56-A-23 |
| W6IPH | 30,720- | 240-64-B-14 |
| K2DNL/6 | 18,153- | 138-53-A-14 |
| WA6NFC (3 oprs.) | 14,625- | 153-39-A- – |

*San Francisco*

| | | |
|---|---|---|
| WA6QEH | 123,589- | 848-73-A-40 |
| W6WLV | 36,250- | 254-58-A-26 |
| WA6MDL | 17,595- | 207-34-A-32 |
| K6EKC | 4130- | 59-35-B- 7 |
| K6GRX | 2350- | 50-20-A- 7 |

*Sacramento Valley*

| | | |
|---|---|---|
| WA6GIS | 70,639- | 450-63-A-30 |
| W6EGX | 43,313- | 275-63-A-32 |
| W6WLI | 21,168- | 189-56-B-15 |
| WA6PWV | 1680- | 43-16-A- 5 |
| WA6FGL | 950- | 30-13-A-13 |
| K6GPB | 731- | 23-13-A- 4 |
| WA6JAN | 315- | 14- 9-A- 4 |

*San Joaquin Valley*

| | | |
|---|---|---|
| W6BVM | 102,930- | 761-73-B-35 |
| W6VPV | 86,768- | 509-69-A-37 |
| K6BTK | 69,345- | 402-69-A-20 |
| W6QXF | 14,260- | 92-62-A-21 |
| WA6NOS | 6996- | 98-29-A-11 |
| WV6SBG | 375- | 16-10-A- 7 |

## ROANOKE DIVISION

*North Carolina*

| | | |
|---|---|---|
| K4YEP | 126,788- | 735-69-A-37 |
| W4LYV | 111,600- | 618-73-A-32 |
| K4MPE | 88,148- | 512-69-A-33 |
| K4IEX | 52,675- | 401-70-A- 9 |
| W8EXZ/4 | 49,010- | 377-52-A-19 |
| K4YCL | 28,320- | 193-59-A-24 |
| W4EII | 24,938- | 175-57-A-19 |
| K4DWU/4 | 24,232- | 233-52-B- – |
| K4MWB | 9040- | 114-32-A- 4 |
| W4VON | 8098- | 82-41-A-11 |
| WN4AAL* | 6280- | 85-32-A-29 |
| WN4APD | 5464- | 74-31-A-31 |
| WN4AQE | 4420- | 84-26-A-22 |
| W4IZI | 1440- | 37-16-A- 9 |
| WN4GXR | 863- | 24-15-A- 9 |
| W4EJP | 450- | 15-12-A- 1 |
| K4ZVK | 30- | 4- 3-A- 2 |

*South Carolina*

| | | |
|---|---|---|
| WØYFT/4 | 138,086- | 801-69-A-40 |
| W4BWZ | 91,455- | 547-67-A-40 |
| K4ZHV | 89,775- | 516-70-A-33 |
| K4YYL | 72,136- | 508-71-B-33 |
| W4PED | 14,625- | 117-50-A-11 |
| W4JA | 12,128- | 99-49-A-12 |
| K4DAH | 10,063- | 115-35-A-19 |
| W4KVF | 1318- | 31-17-A- 6 |

*Virginia*

| | | |
|---|---|---|
| W4KFC | 250,938- | 1377-73-A-40 |
| W4JAT | 180,219- | 990-73-A-40 |
| K4GMX | 170,045- | 959-71-A-40 |
| W4YHD | 164,250- | 900-73-A-31 |
| W4CKD | 162,856- | 919-71-A-39 |
| W4RQR | 158,220- | 879-72-A-31 |
| W4PRO | 143,190- | 800-72-A-40 |
| W4BZE | 141,468- | 798-71-A-27 |
| K4MXF | 127,889- | 721-71-A-37 |
| W4GF | 126,350- | 725-70-A-35 |
| W4RIM | 124,516- | 706-71-A-39 |
| W4TKR | 119,901- | 678-71-A-40 |
| W4NH | 116,188- | 715-65-A-37 |
| W4PK | 107,100- | 595-72-A-35 |
| W4KXV | 102,200- | 584-70-A-22 |
| W4JFE | 93,390- | 566-66-A-20 |
| W4SNU | 92,813- | 563-66-A-32 |
| K4ORQ | 92,650- | 549-68-A-40 |
| W4KVH | 89,100- | 540-66-A-37 |
| K4IKF | 83,680- | 524-64-A-25 |
| W4WBC | 79,730- | 469-68-A-38 |
| W4VBX | 76,110- | 516-59-A-31 |
| W4HTV | 75,775- | 433-70-A-28 |
| K4RNH | 60,300- | 360-67-A-30 |
| K4PQL | 58,685- | 537-44-A-34 |
| W4NUC | 52,272- | 409-66-B-31 |
| W4FZG | 51,405- | 381-54-A-23 |
| K4WVT | 51,040- | 320-64-A-40 |
| W4LK | 50,925- | 291-70-A-21 |
| W4PNK | 47,053- | 319-59-A-12 |
| K4VUY | 39,290- | 275-58-A-17 |
| W4DLA | 36,801- | 250-59-A-19 |
| K4ITV | 29,424- | 307-48-B-18 |
| W4RXE | 28,875- | 210-55-A-19 |
| K4ZHA | 26,571- | 263-51-B-12 |
| W4SLT | 23,940- | 200-48-A-20 |
| K4YAM | 23,310- | 173-56-A-32 |
| W4JDX | 22,613- | 202-45-A-28 |
| W4JUJ | 21,390- | 173-62-B-12 |
| K4TSU | 20,250- | 150-54-A-27 |
| K4WQZ | 19,404- | 184-43-A-13 |
| K4IYK | 16,815- | 177-38-A-19 |
| W4NLC | 12,968- | 125-42-A-28 |
| W4FJ | 12,808- | 110-47-A- 9 |
| K4EJG | 8453- | 81-42-A-21 |
| WN4BGD* | 8405- | 83-41-A-20 |
| WN4AKK | 7693- | 92-34-A-25 |
| K4UVT | 5480- | 78-28-A- 7 |
| W4SZV | 5363- | 74-30-A-16 |
| W4JTR | 3105- | 69-27-B- 5 |
| W4WRG | 2271- | 40-23-A- 5 |
| W4JXD | 1753- | 39-19-A- – |
| K4KLC/4 | 1710- | 37-19-A-14 |
| WN4AFG | 1103- | 34-14-A-14 |
| K4NGZ | 880- | 24-16-A- 6 |
| WN4BIX | 383- | 23- 9-A- – |
| WN4BXS | 75- | 9- 5-A- 5 |
| K4VCK | 45- | 5- 4-A- 4 |
| W4IA (W4s IA TFX) | 118,260- | 657-72-A-38 |
| K4TZF (K4TZF, W4WCT) | 31,000- | 250-50-A-30 |

*West Virginia*

| | | |
|---|---|---|
| K8HID | 145,550- | 817-71-A-40 |
| K8QX8 | 54,733- | 353-57-A-39 |
| K8MYU | 53,604- | 353-61-A-31 |
| K8OQL | 35,768- | 251-57-A-22 |
| W8HZA | 34,306- | 250-55-A-20 |
| K8BHG | 33,345- | 241-57-A-28 |
| KN8YRU* | 30,525- | 207-60-A-39 |
| W8NTV | 19,125- | 150-51-A-17 |
| K8PPW | 15,210- | 156-39-A-22 |
| K8JLF | 12,600- | 105-48-A- 5 |
| K8LOU | 5775- | 70-33-A- 5 |
| K8PRC/8 | 3675- | 53-28-A- – |
| K8CNB | 2700- | 54-25-B- 2 |
| K8QYG | 938- | 25-15-A- 5 |
| K8TDL (2 oprs.) | 1706- | 34-21-A- 8 |

## ROCKY MOUNTAIN DIVISION

*Colorado*

| | | | |
|---|---|---|---|
| W0CDP | 195,640- | 1072-73- | A-38 |
| W0EFT | 104,193- | 587-71- | A-35 |
| K0VFN/0 | 79,040- | 498-64- | A-40 |
| W0MLYB | 71,910- | 423-68- | A-30 |
| K0RTI | 50,400- | 340-60- | A-38 |
| K5IQA/0 | 36,190- | 273-56- | A-36 |
| W0EFTU | 33,825- | 311-55- | B-22 |
| K0SUB | 27,440- | 210-56- | A-17 |
| K0ZCO | 15,250- | 155-40- | A-14 |
| W0OZE | 9100- | 104-35- | A- 9 |
| K0SPT | 3010- | 47-28- | A- 6 |
| K0ZSQ | 2734- | 42-27- | A- 7 |
| KN0FNW | 935- | 22-17- | A- 7 |
| K0ECD (WA2HXC, K0ECD) | 84,085- | 515-67- | A-40 |

*Utah*

| | | | |
|---|---|---|---|
| W7BAJ | 87,630- | 508-69- | A-34 |
| W7POU | 37,604- | 227-67- | A-24 |
| K7NWP | 29,500- | 200-59- | A-19 |
| K7OXR | 8288- | 85-39- | A-19 |
| K7DDL (2 oprs.) | 57,493- | 405-58- | A-29 |

*New Mexico*

| | | | |
|---|---|---|---|
| W5FJE | 130,410- | 756-69- | A-39 |
| W5CK | 127,942- | 903-71- | B-36 |
| K5VLG | 95,783- | 587-66- | A-39 |
| W5NTM | 94,430- | 539-71- | A-39 |
| K5UYF | 56,183- | 341-66- | A-16 |
| K5STL | 45,500- | 360-65- | B-18 |
| K5MXF | 30,345- | 250-51- | A-22 |
| K5QIN | 16,931- | 160-43- | A-17 |
| W9HDH/5 | 3250- | 52-25- | A- 4 |
| W5WVZ | 245- | 14- 7- | A- 3 |

*Wyoming*

| | | | |
|---|---|---|---|
| K7QYG | 117,250- | 700-67- | A-35 |
| W7HRM | 50,660- | 373-68- | B-24 |
| K7GMN | 43,956- | 276-65- | A-37 |
| K7KAX | 20,710- | 229-38- | A-17 |

## SOUTHEASTERN DIVISION

*Alabama*

| | | | |
|---|---|---|---|
| K4LNA | 109,288- | 630-70- | A-24 |
| K3GJD/4 | 77,435- | 456-68- | A-29 |
| K4DSM | 52,855- | 342-62- | A-27 |
| W3CHH/4 | 51,750- | 300-69- | A-30 |
| K4FQG | 35,280- | 297-48- | A-27 |
| W4ABAD | 27,164- | 213-53- | A-24 |
| K4ESX | 8510- | 95-35- | A-14 |
| W4USM/4 | 7210- | 103-28- | A- 4 |
| W4HVK | 5425- | 79-35- | B-10 |
| WA4BDW | 4410- | 64-28- | A-16 |

*Eastern Florida*

| | | | |
|---|---|---|---|
| W4DQS | 225,570- | 1240-73- | A-40 |
| K4TML | 200,250- | 1116-72- | A-40 |
| W4QVJ | 138,863- | 805-69- | A-32 |
| W4LVV | 91,438- | 527-70- | A-21 |
| W4JTA | 90,786- | 549-68- | A-35 |
| K4JLD | 88,755- | 589-61- | A-26 |
| K4YXJ | 78,043- | 511-62- | A-40 |
| W2MTA/4 | 59,598- | 452,66- | B-27 |
| K2LWN/4 | 48,060- | 356-54- | A-26 |
| K6SXX/4 | 39,060- | 279-56- | A-22 |
| W4NTE | 30,000- | 200-60- | A-36 |
| K4AMA | 25,650- | 239-54- | B-19 |
| W4OMG | 13,720- | 112-49- | A-16 |
| K4EEK | 10,185- | 106-42- | A- 5 |
| K4KDN | 8910- | 99-36- | A- 6 |
| WN4RYR * | 7343- | 89-31- | A-24 |
| K4GRD (K4s GRD LIN YLX) | 82,705- | 490-68- | A-36 |
| K4RSZ (K4s NET RSZ) | 780- | 20-16- | A- 3 |

*Western Florida*

| | | | |
|---|---|---|---|
| W4WKQ | 138,863- | 807-69- | A-39 |
| W4MLE | 138,688- | 797-70- | A- – |
| K4FWJ | 44,718- | 290-62- | A-23 |
| K4VFY | 36,170- | 262-58- | A-25 |
| WN4BEG * | 4125- | 61-30- | A-19 |

*Georgia*

| | | | |
|---|---|---|---|
| K4BAI | 174,470- | 956-73- | A-40 |
| K4FEA | 136,675- | 770-71- | A-40 |
| K4LZH | 103,445- | 612-68- | A-35 |
| K4BVD | 100,923- | 560-73- | A- – |
| K4UJS | 65,813- | 405-65- | A-23 |
| K4QPL | 49,840- | 356-56- | A-26 |
| K4FPZ | 45,960- | 317-58- | A-21 |
| K4PEG | 38,320- | 240-64- | A-18 |
| K4RPK [13] | 19,125- | 213-45- | B- 6 |
| W4KXM | 16,167- | 159-51- | B-17 |
| K4FRM | 13,858- | 124-46- | A-13 |
| K4NVN | 10,440- | 103-43- | A-13 |
| K4MQT | 10,260- | 117-36- | A- 9 |
| W4LVX | 10,010- | 91-44- | A-12 |
| W4HYW | 9682- | 103-47- | B- 9 |
| K4BWQ | 6055- | 92-28- | A-10 |
| WN4CJQ | 823- | 27-14- | A-20 |

*West Indies*

| | | | |
|---|---|---|---|
| KP4BDS | 73,868- | 500-63- | A-40 |
| KP4CH | 5530- | 79-28- | A- – |

*Canal Zone*

| | | | |
|---|---|---|---|
| KZ5TD | 89,619- | 555-65- | A-24 |
| KZ5DF | 25,085- | 173-58- | A- – |

## SOUTHWESTERN DIVISION

*Los Angeles*

| | | | |
|---|---|---|---|
| K6CTV | 197,820- | 1107-72- | A-40 |
| W6SRB | 188,540- | 1049-72- | A-39 |
| W61XK | 149,504- | 1033-73- | B-38 |
| W6WII | 140,310- | 786-72- | A-37 |
| K6JBV | 123,769- | 725-69- | A-34 |
| W6NKR | 105,390- | 586-72- | A-36 |
| K6QPH | 102,240- | 576-71- | A-39 |
| W6SRT | 91,413- | 515-71- | A-32 |
| WA6AYU | 78,680- | 562-70- | B-30 |
| W6VRJ | 73,030- | 567-67- | B-27 |
| WA6NNJ | 73,000- | 500-73- | B-25 |
| W6OEO | 69,948- | 526-68- | B-40 |
| W6GEB | 66,990- | 406-66- | A-26 |
| W6JST | 59,379- | 355-67- | A-28 |
| W6VUZ | 54,080- | 342-64- | A-37 |
| K6UYK | 51,975- | 330-63- | A-22 |
| W6QIL | 49,500- | 276-72- | A-32 |
| WA6CRN | 42,560- | 266-64- | A-26 |
| W6CRV | 41,540- | 247-67- | A-22 |
| WA6KZI | 40,838- | 302-55- | A-25 |
| W6ANR | 38,805- | 251-62- | A- – |
| WA6NHC | 38,689- | 277-57- | A-28 |
| WA6KXY | 34,333- | 225-62- | A-23 |
| WA6FVA | 32,625- | 225-58- | A-24 |
| W6WQ | 32,364- | 261-62- | B-23 |
| K6BFZ | 23,158- | 159-59- | A-13 |
| W0WUE/6 | 20,115- | 230-36- | A-35 |
| WA6GDS | 19,140- | 160-48- | A-26 |
| WA6EFI | 18,820- | 160-47- | A-13 |
| K6HCY | 16,200- | 162-50- | B- – |
| WA6KGA | 12,925- | 139-47- | B-11 |
| W6BES | 10,672- | 116-46- | B- 3 |
| K6ZSL | 9720- | 123-32- | A- – |
| K6DJO | 9563- | 85-45- | A-20 |
| W6LVQ | 9563- | 75-51- | A-10 |
| W6QAE | 8720- | 109-32- | A-21 |
| WA6GOB | 6188- | 77-33- | A- 7 |
| WV6R1N * | 3951- | 61-29- | A-14 |
| K6EEZ | 3191- | 56-23- | A- 6 |
| W6RPX | 2063- | 58-15- | A- 8 |
| WA6FVL | 688- | 25-11- | A- 5 |
| WV6TSC | 525- | 25-10- | A-16 |
| WV6SLF | 20- | 6- 2- | A- 9 |
| K6YFM | 2- | 1- 1- | B- 1 |
| W6JNX (W6s JNX KQD) | 76,432- | 571-68- | B- – |

*Arizona*

| | | | |
|---|---|---|---|
| W7ZMD | 161,010- | 909-72- | A-37 |
| K7NTG | 96,560- | 545-71- | A-38 |
| K6TWD/7 | 32,038- | 233-55- | A-20 |
| K7KGG | 4480- | 56-32- | A- 8 |

*San Diego*

| | | | |
|---|---|---|---|
| WA6BUX | 162,180- | 901-72- | A-33 |
| K6LLI | 105,346- | 595-71- | A-40 |
| W6LRU | 86,991- | 492-71- | A-26 |
| K6BHM | 86,265- | 608-71- | B-22 |
| WA6CEZ | 82,886- | 483-69- | A-37 |
| K6STZ | 17,313- | 139-50- | A-29 |
| K6CQF | 12,070 | 71-68- | A- – |
| WV6PQD* | 5580- | 91-31- | A-26 |
| WA6GKX | 1980- | 37-22- | A- 8 |
| W4UU/6 | 1485- | 33-18- | A- 5 |
| WA6QBN | 866- | 16- 14- | A- 7 |
| WV6SKO | 675- | 28-10- | A-12 |
| WA6HWO | 600- | 16-15- | A- 1 |
| WA6PDE | 553- | 18-13- | A- – |
| K6DLY | 210- | 14- 6- | A- 5 |
| W6YZD | 50- | 5- 5- | B- 1 |

*Santa Barbara*

| | | | |
|---|---|---|---|
| W6ULS | 176,876- | 973-73- | A-36 |
| W6YK | 122,731- | 684-73- | A-39 |
| WA6FGV | 62,100- | 414-60- | A-33 |
| W6BHZ (4 oprs.) | 59,426- | 361-69- | A-39 |

## WEST GULF DIVISION

*Northern Texas*

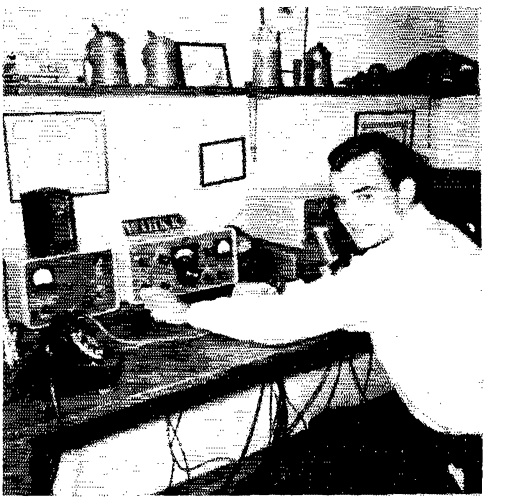
| | | | |
|---|---|---|---|
| W5DWO | 95,992- | 676-71- | B-37 |
| W3YUW/5 | 84,934- | 481-71- | A-35 |
| W5EOZ | 70,000- | 404-70- | A-32 |
| K5ZAI | 64,695- | 477-57- | A-40 |
| W5LMI | 58,663- | 387-65- | A-28 |
| K5PSL | 53,463- | 329-65- | A-31 |
| K5ETA | 45,979- | 314-61- | A-25 |
| K5HFR | 44,103- | 301-59- | A-29 |
| W5AWT | 39,556- | 344-58- | B-19 |
| K5PNV | 35,550- | 237-60- | A-20 |
| K5DEB | 30,450- | 219-56- | A-21 |
| K5IMC | 27,948- | 278-51- | B-11 |
| K5ZOM | 24,778- | 188-53- | A-18 |
| W5AHC | 18,438- | 149-50- | A- 6 |
| WN5ADB * | 2750- | 46-25- | A-17 |

*Oklahoma*

| | | | |
|---|---|---|---|
| W5CWX | 164,250- | 902-73- | A-37 |
| K5OCN | 160,726- | 908-71- | A-35 |
| K5IZM | 129,478- | 786-67- | A-32 |
| W5GJE | 105,080- | 600-71- | A-40 |
| K5VRX | 54,870- | 365-62- | A-19 |
| W5EUL | 41,040- | 286-57- | A-38 |
| K5QEA | 39,050- | 301-55- | A-18 |
| K5CPS | 12,690- | 135-47- | B-11 |
| K5FQJ | 6845- | 82-37- | A-11 |
| K5WZJ | 3220- | 57-23- | A- 6 |

*Southern Texas*

| | | | |
|---|---|---|---|
| W5WZQ | 285,521- | 1576-73- | A-40 |
| W5LJT | 75,563- | 467-65- | A-25 |



Beams up better than 90 feet for 40, 20, and 15 and a dipole on 80 doing the radiating for a 32S-1, scored 108,953 points for W1HKK with operator K1KTH shown here. W1HKK topped E. Mass., New England, and was 10th highest phone score.

| | | | |
|---|---|---|---|
| K5LWL | 48,495- | 318-61- | A-18 |
| K5HDU | 46,835- | 350-58- | A-33 |
| W5ARJ | 32,890- | 254-52- | A-14 |
| W5ZIJ | 7128- | 100-36- | B- 6 |
| K5ZIK | 5851- | 76-31- | A- 9 |
| W5IEND | 4160- | 52-32- | A-13 |

## CANADIAN DIVISION

*Maritime*

| | | | |
|---|---|---|---|
| VE1ZZ | 58,984- | 405-73- | B-29 |
| VE1ADH | 40,200- | 336-60- | B-32 |
| VE1TV | 15,570- | 175-36- | A-32 |
| VE1DB | 10,164- | 116-44- | B-16 |

*Quebec*

| | | | |
|---|---|---|---|
| VE2NI | 131,040- | 733-72- | A-39 |
| VE2AYU | 11,700- | 133-36- | A-31 |
| VE2BFE | 10,734- | 139-31- | A-26 |
| VE2OL | 4523- | 67-27- | A- 5 |

*Ontario*

| | | | |
|---|---|---|---|
| W0AIH/VE3 | 184,590- | 1026-72- | A-38 |
| VE3PE | 80,763- | 455-71- | A-34 |
| VE3AWE | 79,475- | 470-68- | A-33 |
| VE3ON | 79,205- | 513-62- | A-34 |
| VE3DDU | 69,540- | 457-61- | A-28 |
| VE3ACB | 62,370- | 378-66- | A-31 |
| VE3DH | 39,193- | 262-61- | A-20 |
| VE3AO | 33,605- | 269-65- | B-35 |
| VE3EGG | 18,135- | 188-39- | A-12 |
| VE3ES | 10,823- | 111-39- | A- 6 |
| VE2AKH/3 | 3836- | 54-31- | A-16 |
| VE3ETX | 1140- | 31-16- | A- 7 |
| VE3RIT (VE3s BFA DRD ESN) | 72,528- | 434-67- | A-30 |
| VE3VX (12 oprs.) | 15,925- | 190-35- | A-38 |

*Manitoba*

| | | | |
|---|---|---|---|
| VE4JB | 105,743- | 620-69- | A-34 |
| VE4IM | 93,258- | 511-73- | A-31 |
| VE4FO | 21,038- | 201-45- | A-27 |
| VE4JT | 12,015- | 134-45- | B- 9 |
| VE4KZ | 5734- | 70-33- | A-11 |

*Saskatchewan*

| | | | |
|---|---|---|---|
| VE5HV | 13,812- | 119-50- | A-19 |
| VE5BK | 12,233- | 120-41- | A-20 |
| VE5MS | 12,173- | 132-47- | B-20 |
| VE5NX | 154- | 19-11- | A- 3 |
| VE3EVE/5 | 56- | 6- 5- | A- 1 |

*Alberta*

| | | | |
|---|---|---|---|
| VE6LX | 97,380- | 547-72- | A-36 |
| VE6MA | 37,425- | 250-60- | A-26 |
| VE6QI | 32,700- | 225-60- | A-25 |
| VE6TP | 18,513- | 188-51- | B-12 |
| VE6AGW | 3438- | 55-25- | A-33 |

*British Columbia*

| | | | |
|---|---|---|---|
| VE7AGN | 23,328- | 218-54- | B-21 |
| VE7JL | 9529- | 117-33- | A-24 |
| VE7AQD | 8288- | 111-30- | A-26 |

*Yukon-N. W. T.*

| | | | |
|---|---|---|---|
| VE8DM | 7200- | 80-36- | A- 6 |
| VE8BC | 6394- | 80-33- | A-12 |
| VE8CW | 2214- | 42-23- | A-13 |

[1] K3JJG, opr. [2] K2MGM, opr. [3] W3DVB, opr. [4] W4IYR, opr. [5] W3CVE, opr. [6] K8HVT, opr. [7] K2UFT, opr. [8] WA2JAM, opr. [9] KØAYO, opr. [10] K0GJD, opr. [11] W1WPR, opr. [12] Hq. staff, not eligible for award. [13] K4TKM, opr. [14] K6EEZ, opr.

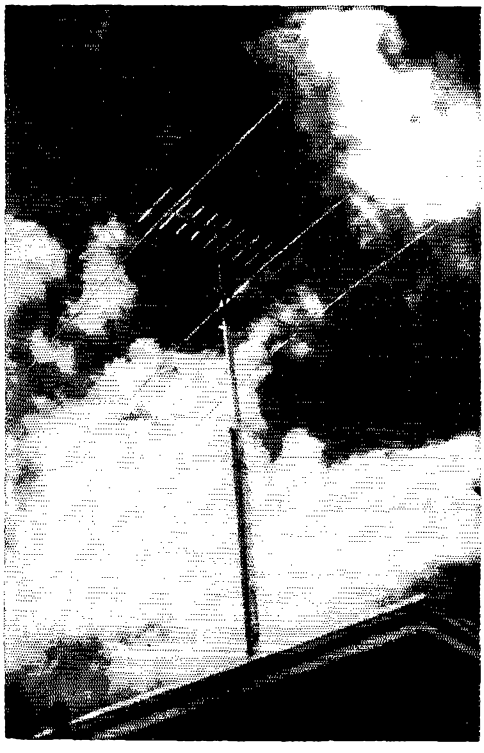
# Phone Scores

## ATLANTIC DIVISION

*Eastern Pennsylvania*

| | | | |
|---|---|---|---|
| K3DVS | 116,903- | 601-65- | A-30 |
| K3JWV | 53,100- | 300-59- | A-24 |
| K3HYT | 31,050- | 224-46- | A-30 |
| K3RFH | 17,226- | 150-58- | B-19 |
| K3EYL | 11,655- | 108-37- | A-11 |
| K3GKB | 9751- | 99-33- | A-12 |
| K3MYL | 9648- | 101-32- | A- – |
| K3EUJ | 8307- | 109-26- | A-31 |
| K3LBI | 8280- | 94-30- | A-26 |
| K3IPAI** | 6384- | 266- 8- | A-33 |
| W3LEZ | 5348- | 58-31- | A- – |
| W3UQV | 5103- | 63-27- | A-11 |
| K3MOM | 4914- | 63-26- | A-22 |
| W3ADV | 4658- | 58-27- | A- 7 |
| K3MFI | 3770- | 185- 7- | A-24 |
| K3EIH | 2397- | 49-17- | A- 5 |
| W3BPM | 2132- | 102- 7- | A-15 |
| W3HGZ | 2025- | 45-15- | A- 9 |
| K3MTK/3 | 1950- | 66-10- | A-12 |
| W3ZQP | 1704- | 36-16- | A- 8 |
| K3HNP | 1530- | 85- 6- | A-19 |
| W3EWE | 1248- | 104- 4- | A-14 |
| W3CNO | 1155- | 35-11- | A- 6 |
| K3NZF | 774- | 86- 3- | A-13 |
| K3NGH | 690- | 23-10- | A- 5 |
| K3MUT | 657- | 73- 3- | A-13 |

*(Continued on page 144)*



This simple 22-foot tilt-over mast will raise a lightweight 20-meter beam to a height of 40 to 50 feet above ground when mounted on the roof of the usual ranch or split-level. Still higher is VE3DPC's 2-meter Yagi.

# A Small Tilt-Over Mast for Roof-Top

BY FRANK GUE,* VE3DPC

***Using customary ham logic, VE3DPC figured that if he used the house as the bottom part of his mast, he would have to build only the top end. He carries this sort of logic through into the design of the folding top section which allows most of the work to be done at a safe (comparatively) level.***

According to the book, the higher they are, the better they are. However, this is in conflict with experience of several years of putting up antenna supports which has developed the empirical expression:

$$d = kh^3,$$

where $d$ is the difficulty in getting the structure up, $h$ is the height in feet, and $k$ is the frustration constant. Bearing this in mind, it is not difficult to calculate that the shortest mast that will reach the desired height is one mounted on the roof. Thus, while the first 15 to 25 feet may cost between $15,000 and $25,000, the remainder will be a lot easier to put up!

In considering a roof-top installation, the factor of safety is, of course, of prime importance. Otherwise those first 15 to 25 feet may depreciate rapidly. The support should also be designed so that it can be raised and lowered by one man. A roof top is no place to hold an antenna-raising party. And volunteers become scarce if you try to round them up every time you want to make an adjustment on the beam, or inspect the guy wires.

The final requirements were those well understood by hams everywhere — the mast must be cheap, simple, and demand no special tools, materials or skills.

### *General*

Referring to the photographs and the sketch of Fig. 1, the mast is in two sections, each about 11 feet long. The lower section consists of two 2 × 6 cedar timbers spaced their thickness with suitable blocks. The upper section consists of a single similar timber which slips into the clevis formed at the upper end of the lower section, and pivots on a bolt passing through all three members. Bolted to the bottom of the top section is a permanently-attached "tail" which provides leverage by which the top section may be swung into a vertical position. Still further mechanical advantage is provided by an arrangement using an ordinary aluminum clothesline pulley attached to the free end of the lever. The bottom section is hinged at the base, making it unnecessary for someone to attend the base while the section is being raised into position.

Climbing rungs are provided on the lower section for use during the initial installation, but they are not needed thereafter except for possible inspection or servicing.

*2252 Joyce St., Burlington, Ontario, Canada.

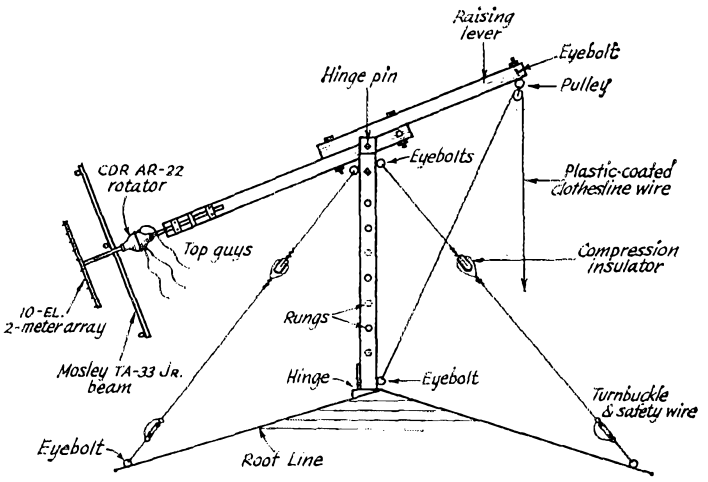



Fig. 1—General plan of VE3-DPC's tilt-over mast. The combined mechanical advantage of the lever and pulley makes it possible for one man to hoist the upper section into place.

### *Materials*

A list of materials required is given at the end of the article. Cedar lumber is specified because it is light and can be used in large cross sections to provide torsional strength without building up excessive weight that would add strain and make it difficult to erect. It is very resistant to rot and, if properly protected, will last indefinitely outdoors. It can be obtained in long, straight pieces, free from knots, straight-grained, and usually quite dry. It is warp-resistant. You will be wise, however, to visit the lumber yard and personally select the best pieces available.

To exclude moisture and retard rotting, the various pieces should be precut to dimensions and then each piece given a coat of primer and at least one coat of paint on all surfaces before assembling. Use any good outdoor paint system considered suitable for your particular climate. One good general-purpose treatment consists of one coat of boiled linseed oil followed by two coats of any good-quality white lead house paint. Colored paints are usually not very durable in comparison. A week or two of final drying time is recommended before assembly.

Hardware should be heavily galvanized or otherwise treated to avoid corrosion, if possible. If only common iron or steel hardware is procurable, protect it by the use of Cosmoline (a machine preservative with a tarry base), Antenna Coat (Mosely) or similar corrosion resistive, preferably both before and after assembly. (Paint usually adheres poorly to metallic surfaces of this type.) Another good treatment is to leave the hardware unprotected, let it rust, spray it with rust oil (obtainable at auto-supply stores), and then paint it.

### *Bottom Section*

Fig. 2 shows the details of the base-section assembly. The two 12-foot members are spiked together with the two spacing blocks in between. (The spacing blocks are cut from the timber used for the top section of the mast.) Then the bottom end of the timber to be used for the top section should be inserted in the clevis at the top end of the bottom section to a depth of 18 inches. The two mast sections should be lined up accurately on a level surface while the holes for the pivot and locking bolts are bored through all three pieces. This will assure proper alignment in final assembly.

The holes for the ladder rungs should be bored at a slight angle, as shown, to discourage slipping. In each case (except for the top pair) the hole is carried through into the opposite member to a depth of ¾ to 1 inch. The extra rung at the top makes standing more comfortable. The rungs are pinned in place with 3-inch common nails.

After the rung holes have been bored, the assembly is turned on edge while the holes for the eyebolts (four at the top and one at the bottom) are drilled. Screw eyes should not be used as substitutes for the eyebolts, since they pull out of the wood too easily.

Install stand-off insulators (TV screw type) for the r.f. and rotator-control lines at 2-foot intervals. Keep the lines as well separated as possible.

Fig. 3 shows the hinging arrangement at the base. The footing block should be shaped to conform to the pitch of the roof. If you can find a solid 8 × 8-inch block of wood, fine. Otherwise, you can build up a facsimile of 2 × 8 material glued and fastened together with screws or bolts. Before mounting the hinges at the bottom of the mast, make sure that the butt ends of the two timbers and the plywood plate are perfectly square and exactly even with each other. After the hinges have been fastened to the plywood plate, place the footing block in proper position and mark the screw holes for the other half of each hinge with a pencil, while holding the block firmly against the base of the mast. After marking, drive an ice pick or nail at the hole centers to form both more durable marks and starting holes for the screws.

### *Top Section*

Fig. 1 shows the general idea of the top section

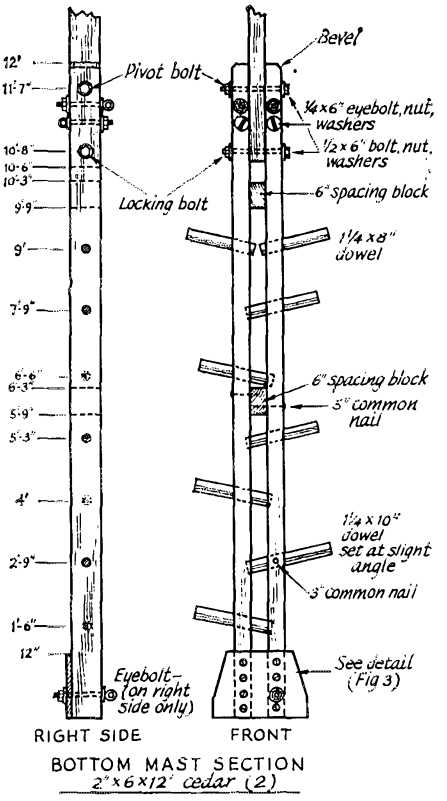



*Fig. 2—Details of the bottom mast section. The climbing rungs are a convenience in initial installation.*

and its raising lever, while Fig. 4 gives the detailed dimensions. The top mast section is an 11-foot length of 2 × 6 cedar (12 feet minus the bottom-section spacing blocks). The raising lever is a similar piece 12 feet long. A 4-foot length of 1½-inch TV pipe mast, clamped to the top section, serves as a mounting for an AR-22 rotator. As shown in Fig. 4, two of the clamps (principally for alignment) are made from pieces of 2 × 4 lumber bored out to fit the 1½-inch pipe snugly. They are secured with ¼-inch bolts. The central clamp is a standard 1½-inch TV U bolt with a serrated yoke that will bite into the pipe to keep it from turning.

The top section and the raising lever should be lined up accurately while the holes for the 12-inch assembly bolts are being bored. A ¼ × 6-inch eyebolt is placed about 6 inches from the bottom end of the lever for attaching the pulley. Plastic-sheathed steel clothesline is used for the hoisting line. Stand-off insulators should be installed at 2-foot intervals as described previously for the base section.

A 6½-foot section of 1½-inch TV mast supports two beam antennas at VE3DPC. A 3-band TA-33 Jr. is fastened to this extension a foot or so above the rotator, while a 10-element 2-meter Yagi crowns the top. (The TV antennas? They're in the attic!)

### *Guy Wires and Their Anchorages*

There are two sets of guy wires — one set attached to the eyebolts at the top of the lower section, while the upper set is attached to the anchorages provided on the antenna rotator. One top guy is run directly back from the mast, while the other two are dispersed to forward anchorages spaced approximately 120 degrees to either side of the rear guy. The lower guys are similarly spaced, and are connected to the same anchorages. The rear guy is double — one strand attached to each of the two rear eyebolts at the top of the bottom section. This spacing allows the raising lever to pass between the two strands when the upper section is raised.

Depending on roof dimensions, this exact configuration may not be possible; however, it should be followed as closely as conditions permit. In general, the anchorages should be spaced sufficiently well from the base of the mast that the top guys form an angle of not less than 30 degrees with the mast.[1] If you know your simple trigonometry, you can calculate the distance from the base required for this minimum angle. Otherwise, you can make a scale model of the roof (a scale of ¼ inch to the foot is suggested) of cardboard, and measure the proportionate distances and the angle. By either method you will also be able to determine the required length of each guy wire in advance. This will permit you to precut your guys to length (with some to spare), assemble insulators and turnbuckles, and neatly coil up the wire in the peace and quiet of the basement. Each guy should be broken with a compression-type (egg) insulator at a point that will avoid resonant lengths. Tie an identification tag to each coil so that there will be no hitch when you get up on the roof, in getting the right guy at the right corner. Nothing can get out of control quite so fast as when it is discovered that a guy is too short with the mast halfway up! Use good stout galvanized iron wire rated at not less than 500 pounds breaking stress. Use "thimbles" (a standard TV hardware item) at all guy anchorages to reduce abrasion or cutting. It is very well worthwhile to treat the guy wires with one of the metal preservatives mentioned earlier. Unprotected galvanized wire has a useful life of two years or less in humid, saline or other corrosive atmosphere.[2]

Eyebolts (½-inch) secured to roof rafters should be used as anchorages if roof space permits. (If the space turns out to be inadequate, you may have to carry one or more of the guys to anchorages on the ground.) If you find no way of locating rafters from the outside, bore the holes from the inside with a ½-inch bit. Have no qualms about drilling right through the roof, shingles and all.

The eyebolts used for the anchorages should, of course, be about an inch longer than the depth of the rafters. Slip a washer over the eyebolt shank and drive the bolt into the rafter, from the

[1] Abraham, "Guys for Guys Who Have To Guy," *QST*, June, 1955.

[2] Billings, "Apartment-House Antenna Precautions," *QST*, September, 1959.

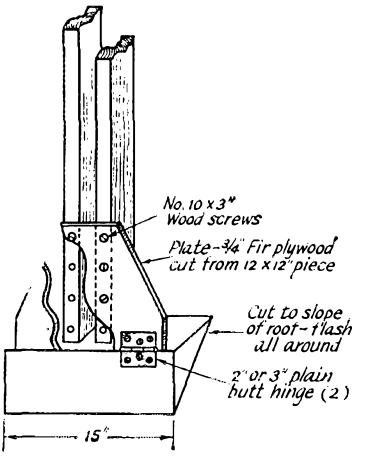



**Fig. 3—Sketch showing the hinging arrangement at the base of the lower mast section.**

outside, until the threads have disappeared. Then spread the still-exposed portion of the bolt liberally with roofing cement before driving it all the way in. Tighten up the nut (with washer) from the inside, and then finish outside by daubing freely around the head of the bolt and over and around the washer.

### *The Footing Block*

Before mounting the footing block, smear the bottom thickly with roofing cement. Be sure to locate it accurately before fastening it down with long wood screws or lag bolts. (Use a spirit level to check the level of the block in both directions.) Use flashing copper on the up-slope edge and sides. Copy the technique used by the builder of your home in flashing around chimneys and vent pipes. And use plenty of roofing cement.

### *Putting Up the Bottom Section*

Attach the lower set of guys to the eyebolts at the top of the base section and unroll the coils to within 5 or 6 feet of the bottom of the section. Tie the remainder of the rolls to the mast. Hoist the section to the roof with its hinge plate face down, so that its butt rests against the footing block. At a safe distance from the edge of the roof, place a sawhorse, or other prop, under the outer portion of the mast section to elevate it sufficiently to allow placement of the hinge screws in the footing block. Now block up the butt end of the mast section with odd pieces of lumber to mate the hinge holes with the marks previously made. Install the screws. (Hinges of the loose-pin type — door hinges or slightly smaller versions of the same type — with the separable halves lined up and fastened in advance, might be of advantage here, since it should not be necessary to prop up the outer end of the mast section. Assembly would then consist merely of slipping the loose pin in place when the hinge halves are lined up. If the prop is used, it would probably be advisable to guy it with rope to a vent pipe and chimney, or to run long ropes over the ridge to anchorages on the ground. — Ed.)

Unroll the two front guys carefully to avoid kinks and attach them to their anchorages at the predetermined lengths, making sure that the turnbuckles are fully extended. Walk the mast up until it is vertical (or as nearly vertical as the front guys permit). If you find that you have miscalculated too much, lower the mast and readjust the front guys. With the mast again vertical, hold it in place by keeping tension on the rear guys as you walk down to their anchorages. Final adjustment of the guys may be made with the turnbuckles, checking the mast for plumbness with a spirit level. When the mast is plumb, the bottom ends of the base section should be resting squarely on the footing block.

### *Mounting the Upper Section*

The upper section and the raising lever should be raised to the pivot point minus the weight of the rotator and antenna, of course. Be sure, however, to attach the pulley and hoisting line, and tie the line ends together before starting. The feed and control lines can be installed along the upper section at this time. Leave sufficient slack in the feed line at the top to permit turning the beam through 180 degrees either side of center.

The mounting job can be done following one of two general methods. The mast section and raising lever can be elevated separately, or the whole assembly can be lifted at once (total weight 49 to 50 pounds). I did not use the first method because it involves maneuvering the long overhang of the lever while you are stationed at the top of the bottom section. It could be done, however, with the aid of a safety belt which, of course, is advisable anyway. Using the second method, you can work the lever end up along the bottom section, a rung at a time, and eventually into the clevis, with the top end of the mast resting on the roof.

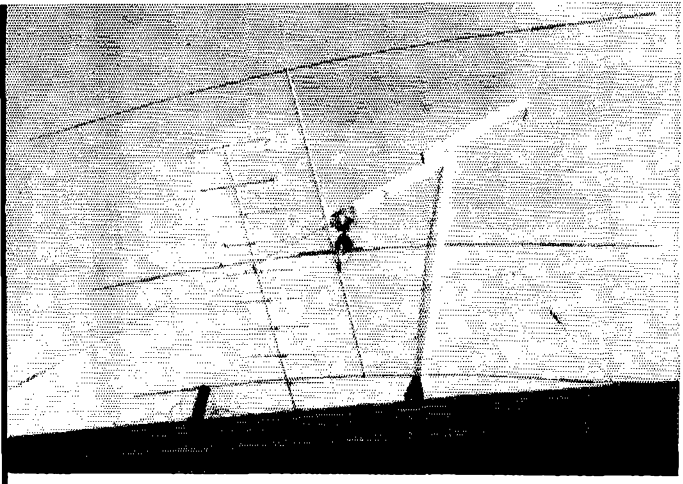
When the holes are lined up, push the pivot bolt through. In tightening the nut, leave enough freedom for the upper section to pivot without binding. Tie the "standing" end of the hoisting line to the eyebolt at the base of the mast, making sure that both ends of the line run between the double rear guy.

### *Raising the Upper Section*

It should now be possible to swing the upper section to a convenient level for mounting the rotator and attaching the upper set of guys.

Although the mast is sturdy enough, once it is up and the guys are adjusted, it goes without saying that the raising operation should not be attempted with a full gale blowing. Especially for the trial run with the rotator (but not antenna) mounted, you should wait, if necessary, for a reasonably calm day.

Secure the top front guys at the approximate lengths previously estimated. Pass the top rear guy *over* the two forward guys of the lower set. After the upper section has been raised to within 20 degrees or so of vertical, tie the hoisting line



The upper section of the mast may be lowered in a few minutes for antenna inspection or adjustment.

to the eyebolt at the base, and use the rear guy to pull the section the remainder of the way to vertical. Watch the front guys and, if necessary, readjust the length as soon as it becomes evident that one is either too short or too long. Pull the hoisting line snug and wrap several turns around the lever and base before securing. All guys should now be adjusted for proper tension; they should be reasonably snug, but not fiddle-string tight. Watch out for kinks. If you find any that cannot be straightened out easily, or if there is evidence of twist in the wire at the kink point after it has been straightened out, play safe and replace the guy section.

Before lowering the top section, install the feed and control cables along the bottom section, leaving sufficient slack at the pivot point to allow for lowering the top section. In lowering the top section, only the rear top guy needs to be loosened, of course.

### *Mounting and Raising the Antenna*

With a 12-foot boom, such as the one supplied with the TA-33 Jr., it should be possible to mount the antenna without climbing from the roof. The antenna should be clamped to its pipe stub in advance. Raise the top section of the mast to 90 degrees or higher to get it out of the way temporarily. Hoist the antenna to the roof, in front of the mast, with its top side resting on the roof and the front end of the boom toward the base of the mast. Adjust the position of the antenna until its mounting point is approximately under the rotator when the top section is horizontal. Tie a rope around the boom and mounting stub. Now swing the outer end of the boom up toward the mast into an almost vertical position and, while holding it there with the rope, tie the rope to the mast. Then lower the mast and adjust the tilt of the boom until the mounting stub lines up reasonably close to the rotator socket. Push the stub into the socket and clamp in place. Longer booms may require the use of a short ladder to reach the rotator after it and the mounting stub have been lined up approximately, as described. A 6-foot ladder can be made very easily by boring 5 1-inch holes on 12-inch centers along the center lines of two pieces of 1 × 4 spruce, and passing 10-inch lengths of 1-inch dowel through the holes. The rungs can be locked in place with 3-inch common nails. Such a ladder weighs only about a pound per foot and is amply strong for low climbing jobs. I've had one for five years and it shows no sign of deterioration. Don't paint any ladder; the paint makes inspection for cracks and damage more difficult. To use the ladder, place it on the slope of the roof with its rungs parallel to the ridge of the roof, and tilted toward the eaves at an angle of approximately 90 degrees to the slope of the roof. Guy the top ends of the ladder rails to the rungs of the mast with good stout rope or guy wire. To be on the safe side, also run a guy to an anchorage in the opposite direction, and to the sides also.

As the antenna is raised, there may be some interference between the tips of the lowermost antenna element and the forward guys of the lower set. Bring the mast up until this interference occurs. Anchor the hoisting line while you gently flex the tips of the element around the guys. At this point it is a good idea to make a tour of inspection. See that all fastenings are secure under the newly-imposed weights and stresses. Make sure that the feed lines are clear of snags at the mast joint. Trace the idle top guys to make sure that they will not tangle as the mast goes up. It is advisable to repeat the procedure at intervals as the antenna is raised. When the mast is not quite vertical, tie the hoisting rope and, after one more search for kinks, pull the mast into vertical position with the top back guy and fasten it. Finish the job by a final adjustment of all seven guys. Now all you have to do is to step back (no farther than the gutters!) and admire your work.

The mast as described has stood up well through fair weather and foul, including conditions of heavy icing. In severe gusts, the beam will twist a maximum of about 5 degrees. Once you've done it a few times, you'll find that raising and lowering can be done in 5 to 10 minutes at the most.

Results with the beam have been all that could be expected. Running an input of less than 20 watts at all times, we are well satisfied with the contacts we have on 10, 15 or 20 meters.

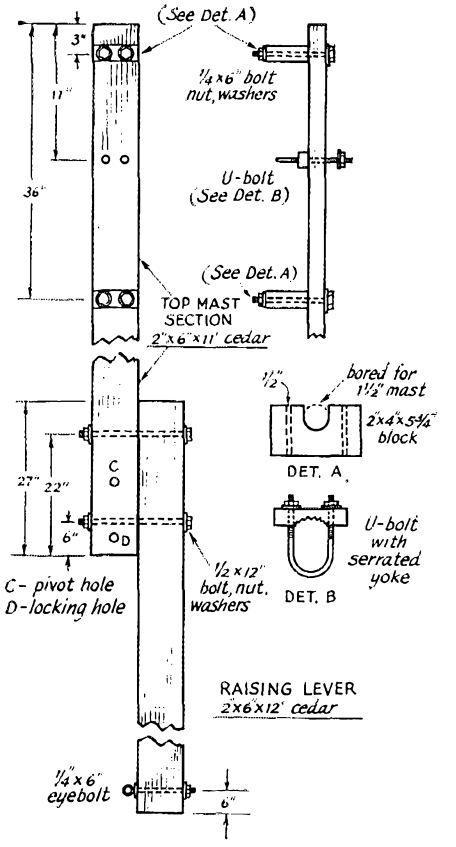



Fig. 4—Details of the top section and raising lever

### *Maintenance*

Any structure lifting a large rotary beam 40 to 50 feet into the air should be erected and maintained with a sense of responsibility. Detailed inspection should be carried out at least twice each year — preferably just before and just after the season which brings the roughest weather in your area. In Ontario this means about September and May. The inspection should cover the following points:

Check the guy-wire anchorages and the footing block and the weather sealing around them for any sign of looseness, cracking or corrosion. Look for any water stains on the rafters inside that would indicate seepage.

Check the guy-wire tension, and examine the wires and their fittings for any indication of corrosion or mechanical damage. Examine the insulators for cracks or chips. See that the turnbuckles still turn freely.

Examine all other hardware for looseness or rust. Make sure that the pulley still runs freely, and that the hinge at the base is secure and in good condition.

Check the wood in the mast carefully for warps, cracks or rot, and don't overlook the ladder rungs. Examine the paint for chips or peeling.

Lower the top section and examine the rotator mounting clamps, guy-wire fastenings and the antenna mounting and feed-line connections. It is not safe to assume that the upper section is in satisfactory shape simply because you find nothing wrong below.

Any defect discovered should be remedied at once. Carry a spray can of rust oil with you on your round of inspection and arrest minor rust damage with a shot or two from the can. But don't attempt to salvage guy wires in this way. The minute you find rust anywhere on a guy wire, replace it. It's cheap insurance.

In case anyone is tempted to build this mast "just like *QST* — except," it should be pointed out that the bending moments on this assembly are considerable during the raising operation. Using the standard formulas and assuming a total weight of 60 pounds for rotator, antenna and hardware, concentrated for calculation purposes at a point 11 feet from the nearest raising-lever bolt hole, we find that the stress in the wood is a maximum of about 1700 pounds per square inch. Cedar fails at around 3900 pounds per square inch. Therefore, it would not be wise to attempt to use a much greater top load, nor a longer upper section than described here, without taking steps to strengthen the section and raising lever. This might be done by doubling up on the 2 × 6s in both, which would double the bending strength. However, this would add so much to the weight that much of the advantage would be lost. As can be seen, this entire design assumes the use of fairly lightweight components. QST

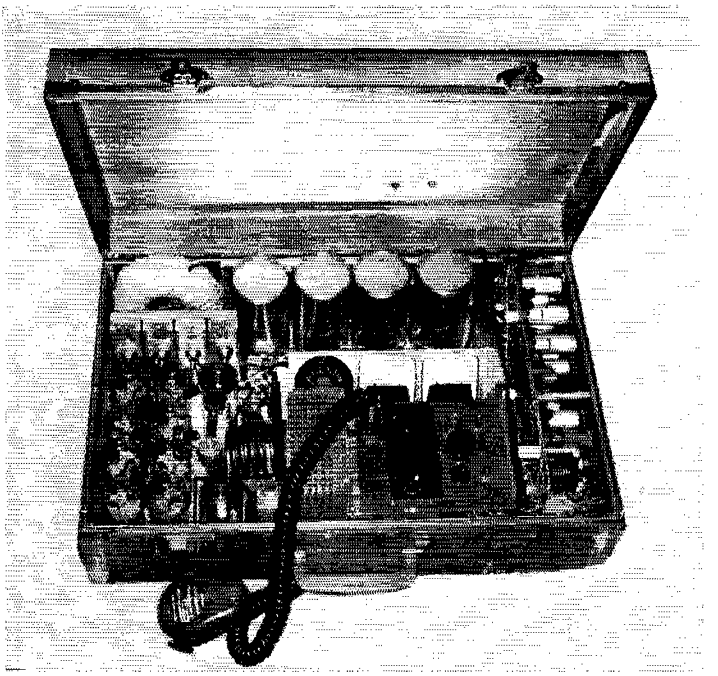
### *List of Materials*

| Quantity (Wood) | Description |
|---|---|
| 4 | 12-foot 4 × 6 clear cedar (mast, lever, spacing blocks) |
| 8 | 10 × 1¼-inch fir dowels (ladder rungs) |
| 1 | 12 × 12 × ¾-inch fir plywood (base plate) |
| 2 | 1 × 4 spruce, 6 inches long (rotator support). |
| | Wood (cedar) for footing block (see text). |
| (Bolts, Nuts, Washers) | |
| 2 | 12 × ½-inch carriage (lever assembly) |
| 2 | 6 × ½-inch hex-head steel (pivot and locking) |
| 4 | 6 × ¼-inch hex-head steel (rotator mounting) |
| 6 | 6 × ¼-inch eyebolts, thimbles added (guys, pulley, line anchor — on mast) |
| 3 | ½-inch eyebolts, thimbles added, length to suit rafters (guy anchors — in roof) |
| (Other hardware) | |
| 2 | 2- or 3-inch butt hinges (mast base) |
| 1 | TV U bolt with serrated yoke (mounting) |
| 1 | 5-foot length 1½-inch TV mast (rotator support) |
| 7 | 6-inch aluminum turnbuckles (guys) |
| 1 | 6-inch aluminum clothesline pulley (hoist) |
| 7 | Porcelain compression insulators (guys) |
| 8 | 3-inch No. 10 wood screws (base plate) |
| 50 | feet, plastic-sheathed steel clothesline (hoist) |
| 500 | -pound test (or better) galvanized iron guy wire, as required. |

## Strays

W5CA, 9 Kay Rd., Tijeras, N.M., is trying to locate Raymond Linda, ex-9COV. Can you help?

When W4UFQ called at the local post office to inquire about a c.o.d. package, he was handed a QSL from W3COD.



A 1-kw. s.s.b. station in a small suitcase! Total weight, including a portable antenna, is about 30 lbs. The linear amplifier and power supply described in the text occupies less than half of the total available space. The filament transformer behind the silicon rectifiers (mounted on aluminum-channel heat sinks insulated from the chassis) and the power-supply capacitors are lined up across the rear. In the interest of safety, the amplifier and power-supply components should be covered against accidental contact as described in the text.

# A Hand-Portable Kilowatt (P.E.P.) Linear with Power Supply

***The implication in the title of this article is highly conservative. Actually, the unit pictured is a complete s.s.b. station of the transceiver type, and the suitcase is little larger than some brief cases we've seen! Because of space restrictions, the discussion here is confined to the most intriguing portions of the unit — the 9-tube linear and its transformerless power supply.***

## *7-Mc. Suitcase Unit of Unusual Design*

BY JO EMMETT JENNINGS,* W6EI

For many years, it has been the desire of the author to have a 1-kw. suitcase station suitable for hand carrying and one that could be transported on airlines without incurring excess-weight charges. Many different approaches have been tried toward miniaturizing high-power amplifiers and power supplies with varying degrees of success.

The power supply has always been the chief stumbling block. When high-power transistors became available, it was hoped that they might be a solution to the problems of power-supply weight and space. However, in addition to their high cost, experience proved them to be lacking in certain essential respects, namely, electrical ruggedness and temperature stability.

*Jennings Radio Mfg. Co., P.O. Box 1278, San Jose 8, Calif.

In arriving at a final solution, I have departed from conventional methods of producing high voltage to use transformerless circuitry, thus eliminating the major contribution to weight. A compatible amplifier has also been designed to match the supply.

### *Power-Supply Circuit*

After perusing various handbooks, it became apparent that the answer to the problem of a high-power d.c. supply could be found in the well-known voltage multiplication principle. The advent of economical high-power silicon rectifiers and "miniature" ultrahigh-value capacitors has made feasible the production of one kilowatt of d.c. directly from the 115-volt a.c. line. The voltage-quadrupler arrangement shown in Fig. 1 will deliver approximately 600 volts d.c. output

at a load current of 2 amperes. Voltage regulation is good, being essentially that of the a.c. supply line. With the large values of capacitance employed, filtering is excellent. A center tap provides 300 volts for a voltage divider from which the amplifier screens are operated.

The silicon rectifiers are rated at 400 p.i.v., 20 amperes. The conservative current rating provides a safety factor which has prevented the loss of rectifiers except in one instance when one of the capacitors was accidentally discharged through one of the diodes. High values of bleeder resistance were used to minimize the dissipation. Because of the large capacitances involved, these bleeders will be protective against shock only after the a.c. power has been turned off for a half hour or longer. Where heat is not a consideration it would be desirable to reduce the bleeder resistances to 10,000 ohms, 10 watts each. With the 1-megohm bleeders, it is advisable to allow the heaters of the 6DQ5s to run for a few minutes after the high-voltage switch $S_1$ has been turned to its off position. (Don't forget the ARRL Safety Code rule, "Never put your hands into any gear without first using a grounded probe at all exposed points.")

The large values of capacitance require a precaution in turning on the supply. The initial high-surge charging current is limited by a group of five 460/35-ohm Globar thermistors in parallel. $S_1$ should always be set initially in the start position. Then after a lapse of one or two minutes, it may be turned to the run position. Thereafter, the supply should be left on continuously during the time the station is in operation. The standby switch, or change-over relay, should be connected so that the 300-volt supply connection to the screen voltage divider is broken on standby. The screens are then automatically grounded through the voltage-divider resistance to ground.

It should be emphasized that since there is a direct conductive path from the negative output terminal of the supply and the a.c. line, the negative side of the supply should *not* be connected directly to an earth ground. The ground symbols in Fig. 1 indicate connection to the chassis. The usual a.c.-d.c. practice of shielding the unit against accidental contact by the operator must be followed. This means that the unit should be enclosed in a cabinet of insulating material, or one of metal which has no electrical contact with any part of the circuit, *including the chassis. The metal cabinet should then be connected to an earth ground.*

### *The Amplifier*

The design of the amplifier was complicated by the fact that there are no single amplifier tubes available that will handle a kilowatt at 600 volts. After looking over the available 600-volt tubes, the first experimental amplifier was built around ten 6146s in parallel. However, since it was found that distortion products could not be brought down to a satisfactory level, a search was made for better tubes. In the final version, nine 6DQ5s were used in the circuit shown in Fig. 2. Neutralization is required, but this presents no particular problem. The 47-ohm resistors at the grids and screens help to equalize currents and suppress parasitics. They also will serve as fuses in case of a short.

The plate load impedance of the parallel combination is about 150 ohms, requiring an unusually large tank capacitance for reasonable tank $Q$. In this particular instance, the tank circuits are designed for 7 Mc. It should be possible to operate the amplifier at 80 meters if the values of output tank inductance and capacitance are doubled. (A grid tank capacitance of about 200 $\mu\mu$f. should be added in addition to doubling the inductance.) While it might be possible to work the amplifier at 14 Mc., operation at higher frequencies would probably not be too satisfactory because the lead lengths will constitute an increasing proportion of the tank inductance. In estimating tank capacitance, don't forget that the tube output capacitance amounts to about 100 $\mu\mu$f., while input capacitances total about 200 $\mu\mu$f.

Although conventional air capacitors should work satisfactorily, the space required could not

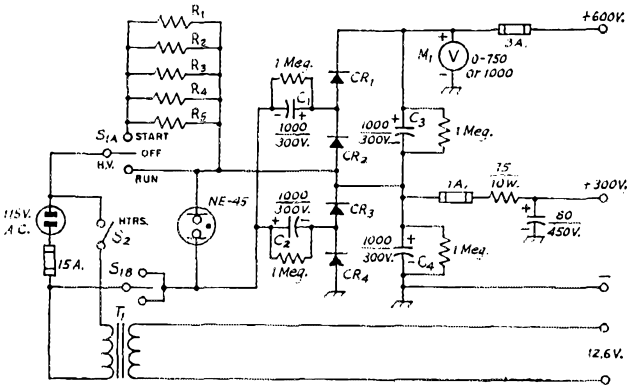
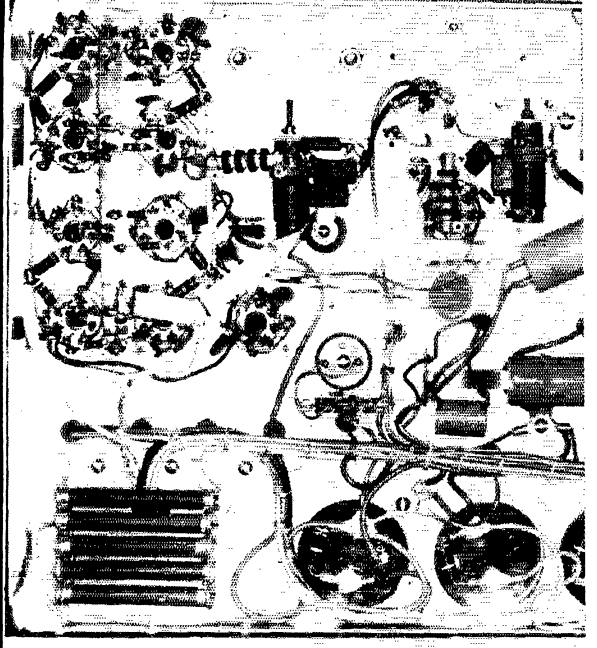



Fig. 1—Circuit of the voltage-quadrupler power supply. Resistances are in ohms. Capacitances are in $\mu$f. Ground symbols indicate chassis ground which must not be allowed to contact earth. Fuses in +600-volt and +300-volt lines should be high-voltage types.

$C_1$–$C_4$, incl.—1000-$\mu$f. 300-volt polarized paper (Mallory SP-020-7435A-245-6139X).
$CR_1$–$CR_4$, incl.—Silicon diode, 20 amperes, 400 p.i.v.
$M_1$—D.c. voltmeter.
$R_1$–$R_5$, inc. 460/35-ohm Globar thermistor (G.E. KRW054).
$S_1$—15-amp. d.p.d.t., center-off toggle switch.
$S_2$—15-amp. toggle switch.
$T_1$—See text.



Partial bottom view showing amplifier socket connections. The No. 1 grid connections are made to the copper strip running between the two rows of sockets, and thence to the slug-tuned coil in the grid tank assembly. (The similar coil to the right is in the driver output circuit.) Clearance holes are cut in the chassis for the terminals of the filter capacitors, two of which may be seen at the bottom of the photo.

be afforded. The same capacitance can be provided in much smaller space through the use of vacuum capacitors. The high-$C$ output tank circuit results in an unloaded tank current of about 40 amperes, so it is obvious that the coil cannot be made of No. 16 wire. The coil shown in the photographs is made of ¼-inch silverplated copper tubing. Leads between the coil and tank capacitors must be short and made of heavy conductor. Direct antenna coupling with an adjustable loading tap was used because it was found impossible to obtain adequate coupling to the copper-tubing coil with conventional link coupling.

### *Construction*

The most important point to remember before planning the construction is that the same precautions in regard to isolation of the line voltage from controls or exposed parts of the circuit mentioned in connection with the power supply must be observed in the amplifier. The ground symbols in Fig. 2 indicate connections to the chassis which must not be allowed to come in contact with earth-grounded metal. The chassis r.f. output connection is made through a pair of 0.02-$\mu$f. capacitors. $C_4$, $C_5$, $L_3$ and $J_1$ are mounted and grounded to a separate chassis insulated from the main chassis, and this separate chassis should be connected to an external earth ground. Don't forget that metal capacitor cans mounted directly on the chassis will be "hot" by line voltage to earth ground, and should be shielded against accidental contact.

Some sad experience with series-connected heaters across the a.c. line led us reluctantly to the use of a filament transformer in spite of its disadvantage in this application. Since a conventional transformer capable of handling the nine tubes was too heavy and much too bulky, a special 12-volt toroid type was designed around a best-grade Arnold 1 × 1-inch strip-wound core which has a permeability about twice that of ordinary transformer iron. The primary has 480 turns

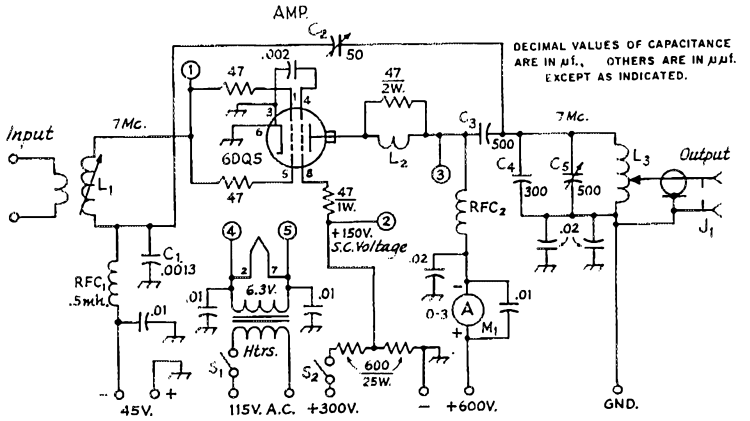



Fig. 2—Basic circuit of the amplifier. Resistances are in ohms and resistors are ½-watt unless indicated otherwise. All 47-ohm resistors should be carbon. Capacitors not listed below are disk ceramic; 0.02-$\mu$f. units have a 1400-volt rating, others may be 600-volt. A total of nine 6DQ5s, each with its similar grid, screen and plate suppressors, are connected in ½-watt unless indicated otherwise. All 47-parallel at circled points 1, 2, 3, 4, and 5. (See photos for detailed connections.) Each heater terminal is individually bypassed to chassis with 0.01-$\mu$f. capacitors. Ground symbols indicate chassis grounds which must not be allowed to contact earth. Earth ground should be made to the output ground terminal.

$C_1$—Silver mica, 1000- and 300-$\mu\mu$f. units in parallel.

$C_2$—Vacuum neutralizing capacitor, 2.3–50 $\mu\mu$f. (Jennings KS-30).

$C_3$—5-kv. ceramic (Centralab 858S or similar).

$C_4$—Fixed vacuum capacitor (Jennings type JCSF-300).

$C_5$—Variable vacuum capacitor (Jennings type GCS-450).

$J_1$—Chassis-mounting coax receptacle (SO-239).

$L_1$—20 turns No. 26 enam. on ½-inch iron-slug form, 3-turn link (National XR-50 form).

$L_2$—7 turns No. 18, close-wound on associated resistor.

$L_3$—5 turns ¼-inch copper tubing, 1¾-inch diam., turns spaced ¼ inch.

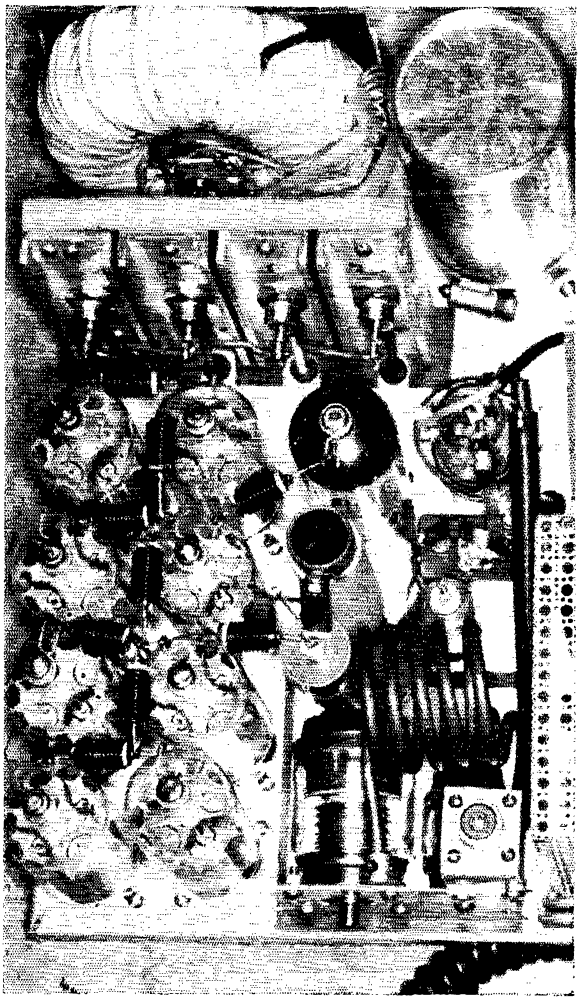
$M_1$—D.c. ammeter.

$RFC_1$—0.5-mh. r.f. choke (National R-50 or similar).

$RFC_2$—3-inch winding length of No. 24 d.c.c. magnum wire, close-wound, ⅛-inch diameter.

$S_1$, $S_2$—S.p.s.t. toggle switch ($S_2$ function may be performed by contacts on change-over relay).

$T_1$—6.3-volt 20-amp. filament transformer, or 12.5-volt 10-amp. if heaters are connected series-parallel (also see text).



Close-up shot of the final amplifier, showing the parasitic-suppressor arrangement which should be followed closely in paralleling the nine 6DQ5s. The box containing the tank coil, vacuum capacitors and coax output connector is insulated from the chassis and should be connected to an earth ground while the station is in operation. The plate r.f. choke and blocking capacitor are behind the tank assembly. Fan or blower circulation of air through the unit is recommended.

No. 20 Formvar wire. The secondary has 54 turns, two strands No. 14 Formvar in parallel. The heaters were connected in series-parallel, with the heater of a tenth 6DQ5 (used as driver) in series with the heater of the ninth tube in the amplifier.

After completing the unit and firing it up, it was a rather pleasant surprise to find that the output to a dummy load measured 800 watts under Class C conditions. In $AB_1$, linear operation, for which the amplifier was designed, the final is operated at an input of 1000 watts p.e.p. Fixed bias is obtained from batteries. The s.s.b. driver used with the amplifier delivers an output of about 6 watts p.e.p.

It is felt that the approach outlined here is one that can be used to advantage in many high-power applications, especially where compactness and light weight are important factors. QST

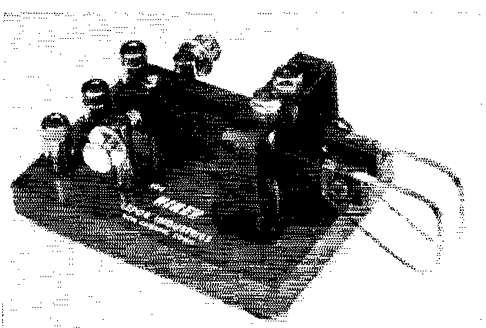
# • New Apparatus

## Actuator for Electronic Keyers

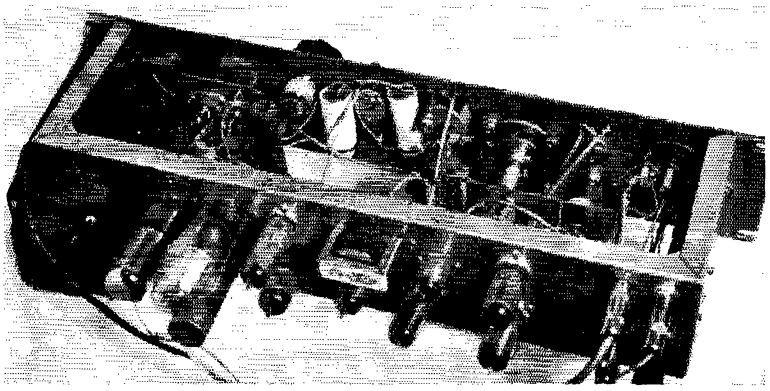
REMEMBER the July 1961 *QST* article entitled "The Nikey"? It described a s.p.d.t. keying mechanism for electronic keyers. The author, Nicholas Lefor, W2BIQ, is now manufacturing an improved model which is shown in the photo.

The new Nikey is mounted on a heavy 3 × 4-inch base which has been fitted with rubber feet. Two paddle armatures are supported in a yoke by two adjustable bearings. Adjustments are also provided for the spring tension on the armatures, and for the gaps at the contact ends of the armatures. Three binding posts are used for making connections to the electronic keyer.

The Nikey base is finished in a blue-tone gray; the armatures and yoke are in flat black. Most of the hardware is nickel-plated and the paddles are clear plastic. The Nikey has an extremely



good "feel," one of the best we have come across. The Nikey is manufactured by Lefor Industries, New Canaan, Conn. — *E. L. C.*



Top-rear view of the versatile audo amplifier. $R_5$ and $S_2$ are mounted on a subpanel to provide space for the National type AN vernier dial mechanism. Power-supply components are grouped at the left end of the chassis. The small transformer near the center is $T_2$. Input jacks are grouped at the right. $J_2$ and $J_5$ are hidden by the 5Y3GT and OD3 immediately to the right of the power transformer at the left-hand end. Inside at the right-hand end are the filter choke $L_1$, and output transformer $T_1$.

# A Versatile Receiver Audio System

BY GEORGE THURSTON,* W4MLE

***The unit described here by W4MLE comprises several well-known audio specialties in a single package. Included, on option, are a Selectoject for high selectivity, clipping and compression for automatic control of volume, and a muting system. The only receiver connection required is a plug in the output jack.***

It is surprising how a good audio amplifier can improve the over-all performance of even the fanciest commercial or home-brew receiver. Receiver manufacturers seldom seem to pay proper attention to the audio system. Once the a.f. is recovered from a demodulator, it is normally boosted through a power amplifier to drive a speaker with no further ado.

I decided that I'd eliminate this Achilles heel as the first step in construction of a rather elaborate home-built receiver. In addition, I wanted to be able to use this new audio system with other receivers in the shack while completing the remainder of the receiver.

The following objectives dictated the over-all design:

a) Sufficient power to drive a small speaker.
b) Effective amplitude clipping.
c) Adjustable and removable audio selectivity.
d) Volume compression.
e) Provision for several input sources.
f) Self-contained power supply for operation independent of any one receiver in the shack. The last item was important because operation at present depends on several surplus receivers and monitors in addition to the main receiver.

The amplifier which emerged from this plan (see Fig. 1) has little in it which is unusual by itself. The combination of several conventional units in a single package is my only claim to originality. Basically, it is simply a three-tube audio amplifier beginning in a 6BA6 remote-cutoff pentode with a voltage gain of about 130, which is followed by one 12AX7 triode with a voltage gain of about 55 and a 6AQ5 power amplifier capable of delivering about 4.5 watts to a small loudspeaker and/or two sets of headphones.

* 3407 Prock Drive, Tallahassee, Florida.

### *Clipping*

Input to the amplifier is fed to the cathode of a 6AL5 series noise limiter of conventional design. The bias is adjusted so that clipping begins when the input signal reaches 3 volts peak to peak. A potentiometer on the panel can reduce the bias to zero, so that the clipping threshold can be reduced to a small fraction of a volt, limited only by contact potential.

The effect of the clipper is readily apparent if a comparison is made against an unclipped amplifier. Static crashes no longer rattle the windows. Key clicks are no longer pistol shots which threaten to rupture the speaker cone. It is possible to grub in the noise for a weak c.w. signal with no fear of becoming a candidate for a hearing aid if an S9 signal lands on the same frequency.

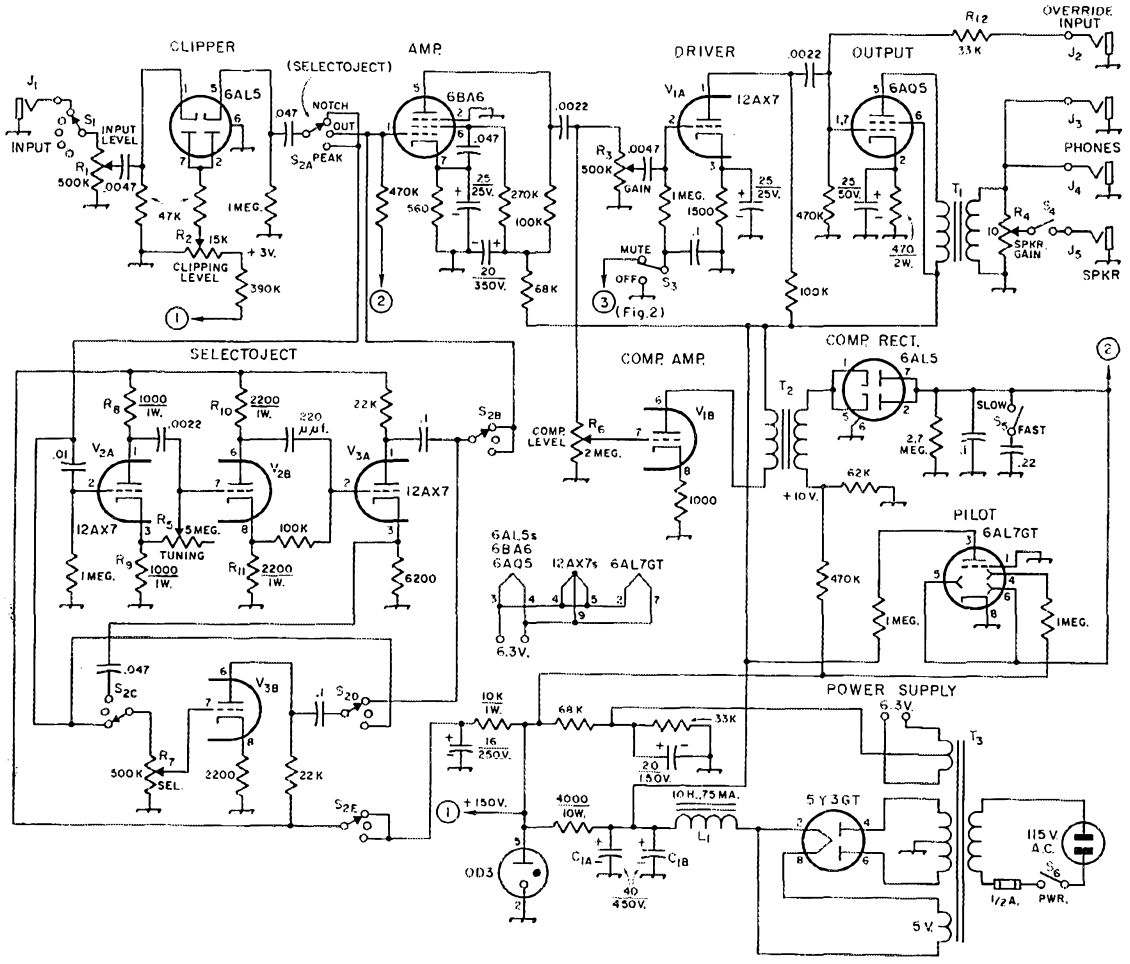



Fig. 1—Circuit of the versatile receiver-audio system. Unless indicated otherwise, capacitances are in μf. and resistors are ½ watt. Capacitors are paper or ceramic, excepting those marked with polarity, which are electrolytic. Resistances are in ohms.

$J_1$—Open-circuit headphone jack, number to suit desired number of inputs.
$J_2$–$J_5$, inc.—Open-circuit headphone jack.
$L_1$—Filter choke 10 hy. or more, 75 ma. or more (Stancor C1001 or similar).
$R_1$, $R_3$, $R_4$, $R_6$, $R_7$—Audio-taper control.
$R_2$—Wirewound.
$R_5$—Linear taper.
$R_8$, $R_9$—Should be matched as closely as possible.
$R_{10}$, $R_{11}$—Should be matched as closely as possible.
$S_1$—Single-pole rotary switch, positions to suit number of inputs desired.
$S_2$—Five-pole three-position rotary switch (Mallory 3263J, or similar, one pole not used, or equivalent).
$S_3$—S.p.d.t. toggle switch.
$S_4$, $S_5$—.Sp.s.t. toggle switch.
$S_6$—S.p.s.t. snap switch on $R_3$.
$T_1$—Output transformer: 5000 ohms to voice coil, 5 watts.
$T_2$—Interstage transformer: approx. 10K to 100K.
$T_3$—Power transformer: 700 volts, r.m.s., c.t., 75 ma. or more; 6.3 volts, 3 amp.; 5 volts, 2 amp. (Stancor PC-8409 or similar).

### *Compression*

The output of the clipper may be switched directly to the grid of the 6BA6, or the signal may be fed through a selective filter before reaching the 6BA6 grid. In either event, the signal from the 6BA6 is amplified and passed to the grids of two 12AX7 triodes. One triode drives the output stage. The other triode is coupled through a transformer to a 6AL5 rectifier to develop a d.c. bias voltage which is roughly proportional to the amount of audio signal reaching the triode grid. This bias is controlled from the panel by the compression potentiometer. The bias voltage is fed back in series with the 6BA6 grid to control the gain of the tube, and hence the over-all gain of the amplifier.

The filter time constant is chosen to give a fairly rapid decay time. An extra capacitor can be switched in to give a much longer decay time.

I have seen a number of articles on compression circuits (mostly for transmitter speech amplifiers) which use sharp-cutoff tubes like the 6AU6 or the

pentode half of a 6AN8. I have tried both tubes. In my opinion, the 6BA6, or any remote-cutoff pentode, is vastly superior in this application. In this amplifier a 6AU6 blocks completely on strong signals. Sometimes recovery requires 5 to 10 seconds before bias falls to where the tube will again pass signals. With the 6BA6, volume control is smooth and even. No signal will cause it to cut off completely. It does not "pump" or poke holes in the signal. In operation, the stage holds the speaker level perfectly steady, so far as the ear can detect, even though QSB is very disturbing with compression off.

This circuit has little advantage in phone operation. But on c.w. it is extremely helpful. For traffic-net operation, it will hold output levels constant even though S9 signals follow S5 signals in rapid succession. The short time constant is best for this. For QSO purposes, it is often better to use the long time constant so that the amplifier will follow the long slow QSB without opening up during short pauses in the transmission.

Bias on the 6AL5 compression rectifier is chosen so that signal voltages must exceed 10 volts peak to peak before any negative bias voltage is developed. This delayed a.v.c. action prevents reduction of amplifier gain on weak signals. Compression can be removed completely by running the gain down on the compression amplifier stage.

### *Selectivity*

A conventional Selectoject circuit follows the clipper stage. The Selectoject is controlled by a three-position switch on the panel. In the first position, the Selectoject is in the notch condition. In the second position, the clipper output bypasses the Selectoject, and the latter's plate voltage is removed. In the third position, the Selectoject is in the peak condition. The peak position provides a sharp audio peak which may be tuned anywhere in the audio range. It has a variable band width. In the peak condition, all signals off the Selectoject peak are sharply attenuated — an effect which could be obtained in the i.f. only with circuits providing extremely steep skirts and narrow band width.

The notch is also sharp and is tunable throughout the audio range. It helps remove heterodynes from phone signals or phone carriers from c.w. reception. The Selectoject is helpful even with receivers not capable of "single-signal" reception. It is of greatest benefit, however, with those which have it. The Selectoject makes a very valuable backstop for a good crystal filter or $Q$ multiplier. If desired, a selective audio filter, such as described by K8OCO [1] could be substituted for the Selectoject.

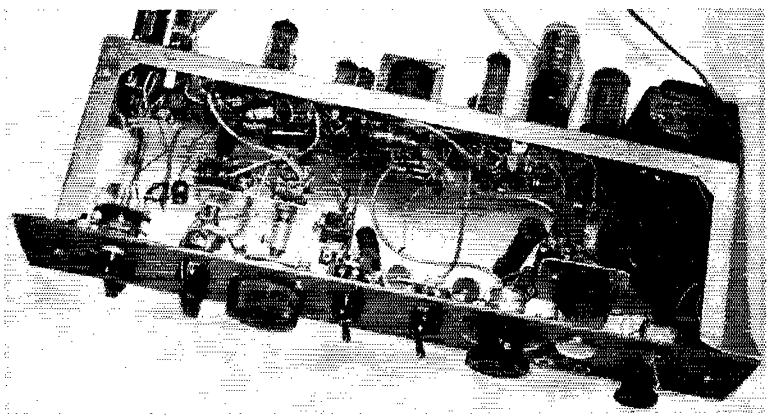
There are half a dozen or so input jacks on the amplifier chassis — one for each receiver or audio-signal source available. The desired one is selected by a rotary switch on the panel.

### *Override*

In addition, there's an "override" input through which a signal may be fed directly to the grid of the 6AQ5, bypassing all compression, selectivity and clipping. Any number of audio sources may be fed into the override, provided each is isolated by a series resistor. The sidetone from a keyed audio oscillator is fed in here to provide a keying monitor for c.w. operation. The override input is not affected by the muting circuit described below.

The advantages of this override system are obvious, after a little reflection. Squelched net monitors or v.h.f. receivers can be left hooked to the override. So can a Conelrad monitor arranged to feed audio into the system only in case of a Conelrad alert signal. The output of a WWV monitor can be hooked to the override so that the time signal can be observed even while listening to a net or during a QSO. Of course, the output of the WWV monitor would be turned off and on manually. Depending on the output impedance of the source feeding the override jack, it may be necessary to try different values at $R_{12}$ to provide maximum signal output from the 6AQ5. This also applies to the external isolating resistors used when more than one source is fed into the override jack simultaneously. With Command sets and other surplus as cheap as they are, and squelched v.h.f. equipment becoming very common, it's a rare shack

[1] Gensler, "The OCO Audio Filter," *QST*, January, 1962.



Front-bottom view. Panel controls, left to right, are for $S_1$ (above) and $R_7$ (below), $R_1$ and $S_2$, $R_5$, $R_2$ and $S_3$, $R_6$ and $S_5$, $R_3$, $S_4$ and $R_4$. To the left of the latter are the 6AL7GT (mounted on a subpanel) and the two headphone jacks $J_3$ and $J_4$.

that doesn't have at least two such signal sources. And the sidetone is a big help on c.w. The override feature costs nothing but a few phone jacks and small resistors. If there is no immediate need for it, it can be omitted and added to the amplifier later if desired.

### *Muting*

A muting circuit[2] for full break-in on c.w. and single-switch phone operation was installed in the amplifier as an afterthought. A 100-volt negative source is available from other equipment mounted in the same cabinet with the amplifier deck. This source is keyed by the keyer relay and is also operated by an extra pair of contacts on the phone transmit-listen switch. (See Fig. 2.)

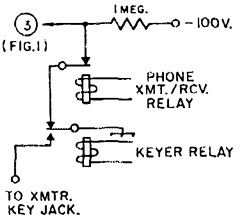



Fig. 2—Muting control as used by W4MLE. Actuation of either relay will mute the receiver. See text for other details.

When the key is down, or the switch in transmit, the negative voltage is applied to the grid of the 12AX7 driver through a 1-megohm isolating resistor. The result, of course, is complete cutoff of the amplifier, ahead of the override injection. Override signals are not muted. Release time is so fast that you can hear a breaking signal through a string of 30-w.p.m. dits. There is no click or thump on either make or break of the key characters. And muting is so fast that there's no audio squeak when the phone switch goes to transmit.

The front end of the receiver in my station is protected by back-to-back 1N34s across the antenna terminals. A t.r. switch is just as good. Anything which will prevent r.f. damage to the antenna coils of the receiver and swamping of the a.v.c. with consequent slow recovery on phone is adequate protection. The audio muting takes care of all the possible sounds which might otherwise come through.

### *Outputs*

All receiver outputs are taken from the 3.2-ohm secondary of the output transformer. A 10-ohm wire-wound potentiometer provides direct control over speaker level, regardless of the setting of gain controls. The master gain may be set for any desired headphone level, and the speaker volume adjusted to taste. Plugging in the phones does *not* mute the speaker. The speaker may be muted with a switch in series with the voice coil.

Two headphone jacks are connected in parallel so that two operators may use phones simultaneously — handy in contests if you're using a logger. One phone jack may be used to feed a tape recorder, if desired, while using phones in the other. Phones and speaker may be used simultaneously.

[2] McGraw, "A Complete Break-In Unit for C.W.," *QST*, January, 1960.

### *Power Supply*

The power supply circuit is a conventional arrangement using a choke-input filter. It delivers 250 volts. A VR tube across the output provides regulated 150 volts for the 6AL5s, the 6AL7, and the Selectoject. Regulated voltage for the Selectoject reduces frequency drift and stabilizes it under conditions of changing line voltage.

When the amplifier was first tried out, trouble was experienced from severe hum. Originally, one filament lead at each tube socket had been grounded. Insulating both sides of the filament line and grounding one side at one point almost removed the hum. The hum level went down still further when the filament transformer center tap was grounded instead. But lowest hum level resulted when the center tap was made 50 volts positive to ground by tapping it up on a voltage divider and bypassing it to ground with a large electrolytic capacitor.

A 6AL7 magic-eye tube mounted in a socket hole in the panel serves as pilot lamp to indicate the presence of heater and B voltages. It also gives a very rough indication of the amount of compression bias voltage being developed and hence serves as a crude S meter.

### *Construction*

There's nothing critical about layout or construction beyond ordinary good practice. The panel is a standard rack unit 3½ inches high. The chassis is an open panel-mounting type (Bud CB-1371). A U-shaped chassis was used to hold panel space to a minimum. The tubes project horizontally from the rear chassis apron. The 5Y3 rectifier must be mounted with the plates in a horizontal plane, as recommended in the tube manual.

The tuning potentiometer of the Selectoject is coupled to a 6-to-1 vernier drive. This is a big help with precise tuning, since adjustment of the potentiometer is extremely critical if a direct-drive knob is used.

### *Conclusions*

To appreciate this amplifier, you have to use it a few months and then go back to the straight squawk-box-type amplifier. With this amplifier, static crashes still blot out portions of the signal, but they no longer rattle the windows. In fact, the QRN is no louder than the signals it drowns. QSB is noticeable on c.w. signals mainly if you watch the green bars on the 6AL7 expand and shrink as the compression voltage changes. You don't hear it on the speaker or headphones. Heterodynes are less troublesome, either in phone or c.w. operation, because of the Selectoject notch. QRM is less of a problem on c.w. because of the Selectoject peak. Because of the combined clipping and compression it is possible — even natural — to tune across a c.w. band without keeping one hand on the r.f. gain control. It's an extremely worthwhile addition to any receiver, including the $700 jobs. QST

# • Technical Correspondence

## NEGATIVE-CYCLE LOADING

2431 N. Wilkie Drive
Pomona, California

Technical Editor, *QST*:

A few years ago, a west coast ham magazine published an article dealing with the correction of a problem encountered in plate modulation. The concept presented is still being discussed occasionally when the conversation turns to modulation techniques. The original development is repeated here for reference, and comments follow.

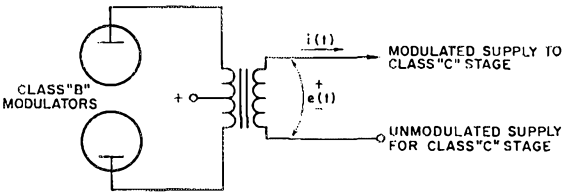



Fig. 1—Typical plate modulation system.

Consider the modulation system shown in Fig. 1. The idealized time histories of the variables involved are shown in Fig. 2, curves *A* and *B*, for 100 per cent sinusoidal modulation. Curve *C* of Fig. 2 is obtained by dividing curve *A* by curve *B* on an instant-by-instant basis, yielding the impedance into which the transformer secondary operates.

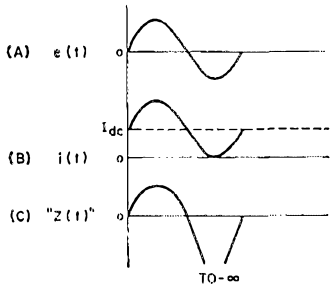



Fig. 2—Time plots of the variables of Fig. 1.

Since this impedance is much higher on negative half-cycles than on positive, uneven loading of the modulators occurs. This is further demonstrated by measuring the modulator cathode currents independently, and observing that one is higher than the other. Further, if the modulator tubes are interchanged, the unbalance in cathode current "stays with the sockets," rather than "following the tubes," so that tube unbalance is not the cause of current unbalance.

The remedy proposed, called "negative-cycle loading," is a nonlinear loading arrangement of the general form shown in Fig. 3. As long as $e(t) > 0$, the diode is cut off and $R$ has no effect. When $e(t) < 0$, the diode conducts and $R$ is placed in parallel with the Class C stage, loading the negative half-cycle more heavily. The effect is to balance the operation of the two modulator tubes, as shown by the more nearly equal cathode currents.

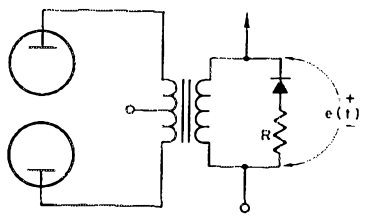



Fig. 3—Negative-cycle loading.

The main fallacy is in the division of curve *A*, Fig. 2, by curve *B*. If these variables existed at one passive, linear pure-resistive impedance, the technique would be valid, with the apparently indeterminate impedance at $e(t) = i(t) = 0$ being evaluated by limit techniques. However $i(t)$ is not across the load and cannot be used to find the "instantaneous" load impedance. Although $e(t)$ and $i(t)$ both exist at the transformer secondary, their quotient still yields no direct information about any physical impedance, because the transformer secondary is an active element (a source) rather than passive.

The division of curve *A*, Fig. 2, by curve *B* will be valid if $e(t)$ is shifted upward by an amount equal to the unmodulated Class C supply voltage, and the load is purely resistive. In this case, $e(t)$ and $i(t)$ will both apply to the load presented by the Class C stage, and the quotient will be the value of load resistance.

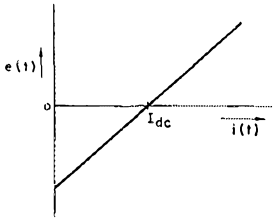



Fig. 4—Time variation of voltage *vs.* current.

Alternatively, the variables $e(t)$ and $i(t)$ could be plotted as shown in Fig. 4, with the fixed *slope* of the line representing the resistive load impedance. It should be recognized that the coordinates of the points along the line do not yield information directly on any physical impedance.

In either case, the load resistance will be a constant, rather than the variable suggested in Fig. 2C.

The observed unbalance, if any, in modulator cathode currents may be due to the variation in transformer core flux over an audio cycle. In contrast to an all-a.c. transformer (filament, etc.), a modulation transformer has a non-zero value of average flux in the core. On one half cycle, the core will be nearer to saturation than on the other, and the two modulator tubes will be unequally loaded.

Another possible cause of modulator current unbalance is nonlinearity in the load which the Class C stage presents to the transformer secondary. If this load impedance varies over an audio cycle, the modulator tubes will operate into different loads, and will have different cathode currents.

In conclusion, it appears that "negative-cycle loading" is designed to correct a situation which does not exist, and serves only to increase complexity and waste power.

— *R. W. Thorpe, W6WYD*

## "SIDEBAND PACKAGE" NOTES

R.R. 3
Newcastle
Ontario, Canada

Technical Editor, *QST*:

Following three years of active s.s.b. operation on 75, 20, 15 and 10 meters, and an extensive overhaul of my "S.S.B. Package," built in 1958 from W6TEU's original article in June, 1958, *QST*, I have several suggestions which should be of help to anyone constructing this excellent exciter.

1) The use of high-quality potentiometers such as Ohmite CA will prevent failure and allow better operation. I had to replace the carrier-insertion control (a replacement-type radio and TV control) because of failure, and changing to an Ohmite CA also cured an annoying reduction in carrier on a.m. and c.w. as the exciter warmed up. Apparently the carrier-insertion control increased in resistance due to heating caused by the cathode current of Vi*a*.

2) The 8th harmonic of the carrier oscillator at 3640 kc., unless attenuated, will leak out of the sideband generator, be amplified in the 3.5-Mc. part of the exciter and will appear as an extra signal on each band. This extra frequency will also beat with the desired frequency if the two are close in frequency, resulting in an unacceptable signal. After much experimentation I have discovered a simple and very effective way of attenuating this unwanted harmonic. A parallel trap, using a low-inductance slug-tuned coil in parallel with a large silver-mica capacitor (I used 470 $\mu\mu$f.) tuned to 3640

kc., should be connected in the plate lead of the 6X8 frequency multiplier, $V_{4B}$. Using a small inductance and relatively large capacitor seems to cause less detuning and attenuation of the desired multiplier frequencies. This treatment reduces the harmonic many db., but does not eliminate it. Complete elimination may be obtained by placing a series trap, consisting of a 4-30-$\mu\mu$f. ceramic trimmer in series with a large inductance (TV peaking coil), between the grid of $V_{101A}$ and ground, across coil $L_{101}$. This trap detunes $L_{101}$, so the capacitance used should be small. By working back and forth between $L_{101}$ and the series trap capacitor, the harmonic may be completely eliminated while the 2250-kc. s.s.b. signal is not attenuated. Use a receiver tuned to 3640 kc. with a test probe connected to the antenna input for an indicator.

3) Very careful shielding and placement of components in the final mixer and amplifier stages is necessary to make the exciter completely stable. I would recommend that these stages, as well as the band-switching coils, be enclosed in shield compartments. Carefully located and dressed leads are a must for stable operation. Shielding coil $L_{101}$ resulted in a very definite improvement in operation.

4) In my exciter, heat has been a problem and a blower is required to cool the unit — which, incidentally, is mounted in a well-ventilated hinged-lid cabinet. At a future date I plan to replace the 83 rectifier by silicon rectifiers. This should result in much less heat being generated as well as better efficiency and a reduction in receiver noise.

The "Sideband Package" is used at VE3BHQ to drive a pair of 811s in grounded grid (*QST*, January, 1960). The output of the exciter is exactly right for this linear. Reports on all bands verify the excellent sideband suppression and almost complete carrier suppression claimed for this exciter. Audio quality reports are excellent and compare favorably with the most expensive commercial amateur transmitters. Frequency stability is remarkable, with practically no drift after the first several minutes of operation. I certainly would not recommend this exciter as a project for a beginner; however, for a person with some construction experience it is well worth while. All of the equipment which I use is home brew; building it has been very educational, enjoyable and a challenge, as well as a source of reasonably-priced equipment which I am proud to operate on the air.

— *Farncomo Le Gresley, VE3BHQ*

## 50-MC. MOONBOUNCE EXPERIMENTS

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Technical Editor, *QST:*

Communication by moon-reflected radio waves offers amateurs the opportunity for making v.h.f. contacts anywhere in the world, for periods of from a few minutes to several hours each day, if the considerable technical problems can be solved. The following describes some attempts to obtain moon echoes on 50 Mc.

Previous work with the reception of 50-Mc. transmissions by W7RDY at VE7AIZ gave evidence of perhaps two or three consecutive weak echoes during each of half a dozen trials.[1] Lack of more consistent results was assumed to have been due to Faraday rotation of the plane of polarization in the ionosphere, causing loss of signal. Antennas at both ends were horizontally-polarized Yagis. It seemed worth while to make another attempt at VE3BZS, using circular polarization, in a manner similar to that used by K1IMU [2] to overcome the Faraday-effect problem.

Four Yagis, each with 5 elements in a horizontal plane and 5 in a vertical plane, were arranged in box configuration approximately 20 feet square. The vertical driven elements were fed 90 degrees out of phase with the horizontal ones. The antenna could be rotated only in azimuth, and was usually optically aimed. The transmitter used a heterodyne exciter for maximum stability. An external tunable oscillator at 1 Mc., with 50 times frequency multiplication, gave receiver injection at 50 Mc., plus the Doppler shift, plus or minus the audio filter frequency of 940 cycles. This beating signal and the returned signal, if any, are fed into the regular 50-Mc. converter, and then into the station receiver, set for 600-cycle bandwidth. Then follows the 940-cycle audio filter, with a bandwidth of 20 cycles, and a tape recorder.

An important receiver point is that the gain of the receiver should be set so that the noise at the output of the audio filter disappears when the external injection is turned off. Under this condition the effective predetection (i.f.) bandwidth of the receiving system is determined by the audio filter. The heterodyne system for the transmitter allows the oscillators to run continuously, permitting better frequency stability than when turning the oscillator on and off. Heterodyning also reduces the drift at the signal frequency, for a given amount of oscillator drift, compared to a conventional oscillator-multiplier system. Absolute frequency stability was not extremely good, due to lack of temperature control of crystals and transistors, but relative drift to the receiver was from one to two cycles per minute. This is good enough to permit audio filter selectivity of 10 to 20 cycles to be used.

Because of this narrow bandwidth the Doppler shift had to be calculated. The approximate formula used was:

$$\Delta f = f\left[\frac{37.04}{(\text{transit})}(\cos L_T \cos H_T + \cos L_R \cos H_R)\cos D \times 10^{-6} + 5.54\left(\frac{1}{(\text{semi})_1} - \frac{1}{(\text{semi})_2}\right)\times 10^{-2}\right]$$

where $\Delta f$ = Doppler shift in cycles;
$f$ is = transmitter frequency in megacycles
$(\text{semi})_1$ = semidiameter of the moon expressed in seconds of arc
$(\text{semi})_2$ = semidiameter of the moon expressed in seconds of arc 12 hours later for the day concerned
(transit) = the time in hours between ephemeris transits of the moon (approx. 25 hours)
$L_T$ = latitude of the transmitter
$H_T$ = hour angle of the moon and is approximately $\frac{360}{(\text{transit})} \times t$ where $t$ = time in hours after local mean time of moonrise at the equator
$L_R$, $H_R$ similarly for the receiver
$D$ = apparent declination of the moon

The necessary information for the calculation may be obtained from a current *American Ephemeris and Nautical Almanac*. The first term in the square brackets is usually dominant and at moonset at 45 degrees latitude amounts to about — 110 cycles at 50 Mc.

Three trials were made and only one or two weak but identifiable echoes were received. Signal-to-noise power ratios were of the order of 1:1, or less. This means that little or nothing can be heard of the return signal by ear, but a visual presentation shows evidence of a return. The advantage of visual methods in detection of very weak signals increases with very narrow receiver bandwidth, since signal and noise tend to sound the same under these conditions.

The average signal-to-noise ratio at the output of the audio filter was calculated using the following formula, which neglects fading effects produced by the motion of the moon's surface, Faraday rotation and ground reflection:

$$\left(\frac{S}{N}\right)_{\text{POWER}} = \frac{1.6 \times 10^{-26}\, G_R \lambda^2\, G_T P_T\, 10^{\frac{-2KL}{10}}}{4.1 \times 10^{-21}\left(.22\lambda^{2.4}\ 10^{\frac{-KL}{10}} + F - 1\right) B}$$

where $P_T$ = transmitter power output in watts
$K$ = attenuation of transmission line in db./100 ft.
$L$ = transmission line length in units of 100 ft.
$\lambda$ = wavelength in meters
$G_R$ = gain of receiver antenna over isotropic radiator
$G_T$ = similarly for transmitter
$F$ = noise figure of receiver at wavelength $\lambda$
$B$ = effective noise bandwidth of receiver in c.p.s.

It should be noted that $P_T$, $K$, and $F$ vary with $\lambda$ for given components. Frequency stability problems make minimum B vary with $\lambda$ also. For given conditions there is an optimum $\lambda$ to produce maximum average signal-to-noise ratio. The words "average signal-to-noise ratio" are used, since the instantaneous noise power may deviate from the average value, but the actual signal-to-noise ratio should be within a factor of two of the average about 50 per cent of the time.

(*Continued on page 142*)

[1] *The VHF Amateur*, February, 1961, pp. 13-16.

[2] See photos in *QST*, November, 1961, p. 89.

# Happenings of the Month

## *League Opposes License Fees*

## *Board Meeting on May 11*

### LEAGUE OPPOSES LICENSE FEES

The Executive Committee, meeting in Hartford on March 28, voted that the League should express its opposition to the adoption of Docket 14,507, the FCC proposal to establish license fees (see pages 64 and 98 of April *QST*.) At press time the League's comments are being prepared by the General Manager and General Counsel for filing with the Commission before the April 16 deadline. The text of the comments will be published in this column in the June issue.

### BOARD MEETING

The Annual Meeting of the ARRL Board of Directors will be held in Hartford, with the formal sessions planned for Friday, May 11, 1962. Topics currently under discussion by amateurs and therefore expected to be discussed at the meeting include a re-examination of last year's recommendation concerning the upper end of the 14-Mc. band, possible expansion of phone subbands on 75 and 40 meters, 10-meter band privileges for Technician Class licensees, amending the Communications Department rules to allow appointment by Section Communications Managers of Novices and Technicians as Official Observers, Official Phone Stations and Official Bulletin Stations within their own band segments, an additional League radio station ("West Coast W1AW"), adoption of the ICAO/Military phonetic alphabet as the official ARRL word list, a minor amendment to the By-Laws making it clear that committees of the Board may originate recommendations, a change in convention rules providing for approval by the director instead of by the Executive Committee and a clarification of policy concerning travel by vice directors on League business within the division.

Members are invited to get in touch with their respective directors expressing their views on these or other matters. The list of directors appears on page 8 of this and every issue. Members who are not sure in which division they reside can find their state, or part of a state, listed on page 6 under a division heading. Comments should reach the directors by May 7, since most directors come to Headquarters a couple of days in advance to observe staff operations and discuss League affairs informally with the other directors and the staff members before the formal sessions begin.

### THAILAND ON "BANNED LIST"

The U. S. Government has been notified that Thailand has not withdrawn its objections to international communications by its amateurs, previously filed with the International Telecommunications Union in Geneva. Accordingly, Thailand has been returned to the FCC's list of countries with which communications by U. S. amateurs are prohibited. Other countries on the list are Cambodia, Indonesia and Viet Nam. Prefixes to be avoided are: FI8, HS, PK, XU, XV, YB through YH and 3W. Please change your "Extract of Regulations" sheet (page 64A, October, 1961, *QST*) accordingly.

The Canadian list differs slightly because of differing interpretations of some notifications: Canadian amateurs are not permitted to work amateurs in Laos, Cambodia, Viet Nam, Indonesia, Thailand, Roumania and Jordan. Prefixes to be avoided by VE/VOs are: FI8, HS, JY, PK, XU, XV, XW, YB through YH, YO and 3W.

### CANADA/COSTA RICA THIRD-PARTY TRAFFIC

To its previous agreements with the United States and with Venezuela, Canada has added an agreement with Costa Rica, permitting amateurs in the two countries to exchange relatively-unimportant communications on behalf of third parties. The exchange of notes, concluded on February 23, 1962, provides that the amateurs of the two countries may handle third-party communications of a technical or personal nature such that recourse to the public telecommunications service is not justified, provided that the amateurs receive no direct or indirect compensation. Agreements with other countries are in the discussion stage.

## Strays

Chosen as 1962 Community Ambassadors of Kalamazoo, Mich., from a field of 74 candidates, K8QEX will have an all-expenses-paid trip to Japan while K8TMD will visit Ireland. Upon their return they will write newspaper articles and give slide lectures of their experiences. The Kalamazoo Community Ambassador program is supported by some sixty local organizations.

—•••—

If you're a diviner (dowser), Charles Brown, K6RKR, P.O. Box 478, Saratoga, Calif., would like to swap ideas with you.

—•••—

W2KJY sends us a newspaper classified ad offering a B&W Lopaz filter — just the thing for those South American QSOs!

—•••—

Thirty-eight years between QSOs. WØDVR (ex-9BRT) worked WØFMX (ex-9DAN) on 80 c.w. recently, they not having seen or worked each other since June, 1923. — *KØBND*

# Hints and Kinks For the Experimenter

## IMPROVING THE ELECTROMONIMUTER

I BUILT the Electromonimuter described in *QST*, August, 1960, and found that it performed well except for the sidetone oscillator, which failed to oscillate when the keyed circuit current exceeded about 100 ma. Voltage measurements showed that the *IR* drop developed across the 6AS7G keyer tube canceled out the voltage applied to the audio oscillator.

Inspection of the Electromonimuter circuit on page 24 of *QST*, August, 1960, revealed that one section of a 12AU7, $V_{2A}$, was used as a diode on the voltage tripler circuit. This tube section was disconnected and a third 1N34 crystal diode ($CR_1$ in Fig. 1) was substituted in its place. The spare-tube section was then wired as a separate vacuum-tube keyer for the monitor section of the Electromonimuter. The new circuit is shown in Fig. 1. The only change to the original circuit above the dotted line is the addition of the 1N34 diode in place of the $V_{2A}$. The circuit below the dotted line shows how $V_{2A}$ is connected as a keyer for the monitor. Switch $S_2$ is a d.p.d.t. toggle switch.

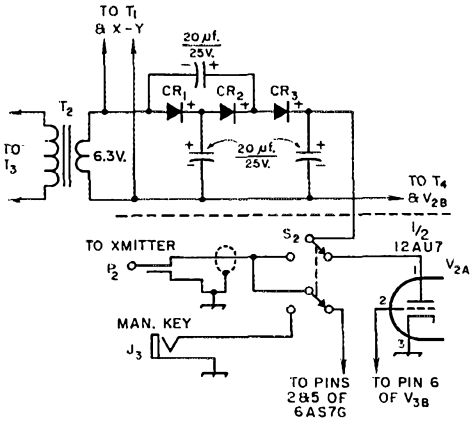



Fig. 1—Circuit shows how $V_{2A}$ is connected as a keyer for the monitor section of the Electromonimuter. See text for details on the components.

The changes shown here will increase the sidetone oscillator pitch somewhat, so it may be necessary to change values of $C_1$ and $R_6$ in the original circuit.

These changes permit the Electromonimuter to perform with any cathode-keyed transmitter up to about 250 ma.

— *Arthur S. Gillespie, jr., WAVON*

## THE GUTTER-SNIPER

FOR about five dollars, plus a little elbow grease, it is possible to build this ten-meter vertical dipole. The antenna is designed so that it hooks on to the rain gutter of the house, a method that is both convenient and strong. Its name is derived from sniper, one who shoots at a distant target from a fixed position, and its method of mounting; thus Gutter-Sniper.

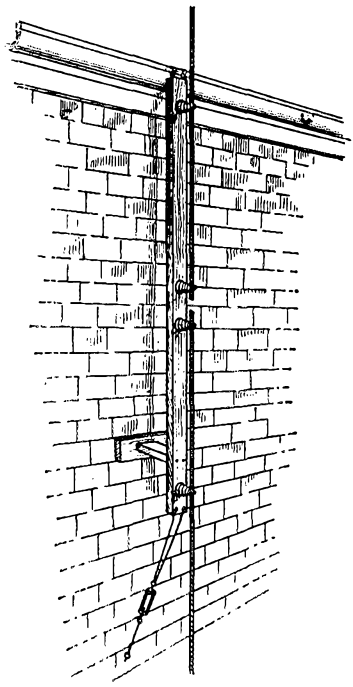


Fig. 2—W1CMG's Gutter-Sniper.

The antenna consists mainly of two pieces of hard drawn copper tubing, one-half inch in diameter. Of course, aluminum tubing could just as well be used, but the copper tubing is easily procurable at any plumbing shop. The tubing comes in ten-foot lengths and two lengths are required. Cut the lengths to 8 feet 1 inch and mount them on standoff insulators on a board. See the sketch in Fig. 2. Two large hooks are screwed into the top of the board, and wires and a turn-buckle are attached to the bottom as shown in the sketch. The antenna is fed with 50-ohm coax, such as RG-8/U or RG-58/U.

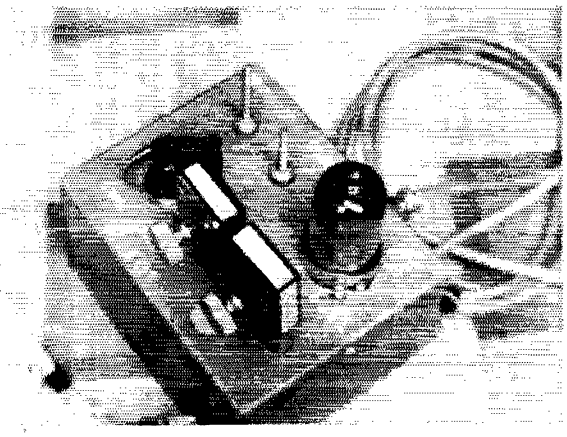
— *William J. Cummings, W1CMG*

## REMOVING STUCK GROUND RODS

AN easy way to remove ground rods that are stuck is to use an automobile bumper jack. Hook the bumper catch under the ground rod's clamp and jack the rod out of the ground.

— *Gary C. Apgar, K6RIR*

*Simple Adapter for Simultaneous Transmitter and Receiver Frequency Control*



Top view of the "Little John" conversion unit. The thumbscrews on the crystal holders are for varying the pressure on the crystals as described in the text.

# "Little John" on 40 and 80

BY CECIL M. JOHNSON,* W6EOT

Working in traffic nets often entails more effort than the mere handling of messages. One of the more tedious and exacting duties is that of shifting back and forth between the net frequency and specific QSO frequencies assigned by the net-control station. If QRM crops up on the QSO frequency, further shifting may be necessary. During an evening of checking into several nets, a lot of dial twisting goes on.

An arrangement that permits simultaneous tuning of the transmitter and receiver relieves much of this irksome detail and speeds up the process tremendously. In the system to be described, the transmitter receives its frequency-determining signal from the receiver. Similar transceiver systems have been described in earlier *QST* articles.[1] However, the frequency stability and circuitry of certain receivers having their tuning systems in an i.f. amplifier, such as the Collins 75S-1, the Drake receivers and the SX-115, are particularly easy to adapt. In the S-1, which the author uses, output from the variable i.f. oscillator is available at a jack on the chassis, and therefore no modification is needed. Drake and Hallicrafters receivers require the addition of an output coupling lead from the tunable oscillator.

### *Frequency Conversion*

The v.f.o. in the 75S-1 is tunable over a 200-kc. range (approximately 2.7 to 2.5 Mc.) and, of course, this range remains fixed for all amateur-band segments. In Fig. 1, the signal from the receiver v.f.o. is fed to the triode section of a 6U8A where it is mixed with the signal from a crystal-controlled oscillator using the pentode section of the same tube. A frequency equal to the difference between the two input frequencies appears in the mixer output circuit. Therefore, the crystal frequency to be chosen should be equal to the sum of the receiver v.f.o. frequency and the desired transmitter output frequency.

Crystals may be chosen that will provide transmitter coverage of any of the 200-kc. segments covered by the 75S-1 and covered also by the transmitter's v.f.o. *fundamental*. The arrangement cannot be used for bands where frequency multiplication takes place after the v.f.o. output, since the width of the frequency segment covered will also be multiplied, making tracking of the transmitter and receiver impossible. However, the author's interest is in the c.w. portions of the 80- and 40-meter bands where most of the traffic nets operate. The transmitter is a DX-100 in which no multiplication takes place after the v.f.o. in covering these two bands.

***W6EOT finds that the "transceiver" type of transmitter frequency control is of tremendous advantage in traffic-net operations. The system is easily applied to the 75S-1 and similar receivers and will work into almost all transmitters covering the 40- and 80-meter traffic-net frequencies.***

* 8841 Almond Road, Lakeside, California.

1 Jones, "Flexible Transmitter-Receiver Frequency Control," *QST*, July, 1958.
Moser, "Autosync Frequency Control," *QST*, June, 1957.
LaRue, "A Contest Man's Receiver-Tracking V.F.O. for 7 Mc.," *QST*, May, 1956.

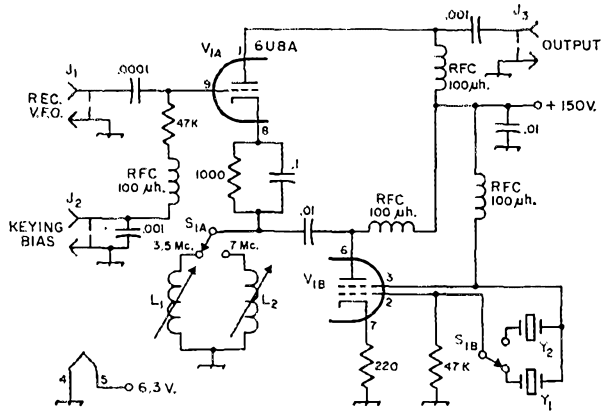



Fig. 1—Circuit of the converter unit. Capacitances are in μf. and capacitors are disk ceramic. Resistances are in ohms and resistors ½ watt. All r.f. chokes are Miller 4632 or similar.

$J_1$, $J_2$, $J_3$—Phono connector.

$L_1$—(3.5 Mc.)—50 turns No. 26 enam. on ⅜-inch iron-slug form.

$L_2$—(7 Mc.) 35 turns, same as $L_1$.

$S_1$—2-pole, 2-position rotary switch (Centralab 2504).

$Y_1$—Approx. 6100 kc. for 3400–3600-kc. output. Approx. 6300 kc. for 3600–3800-kc. output. Approx. 6500 kc. for 3800–4000-kc. output.

$Y_2$—Approx. 9.7 Mc. for 7000–7200-kc. output. Approx. 9.9 Mc. for 7200–7400-kc. output.

### *Transmitter Connections*

Fig. 2 shows how the mixer is connected to the DX-100. This is a simple matter, consisting of disabling the v.f.o. in the DX-100 and feeding the output of the mixer instead to the grid of the 12BY7 buffer stage. Since I had no particular use for the crystal-control feature of the DX-100, I rewired the v.f.o./crystal switch ($S_2$) as shown. Now the switch serves to switch back and forth between conventional v.f.o. and receiver control. (The DX-100B has a d.p.d.t. crystal/v.f.o. switch which can be rewired for the same purpose merely by disconnecting the crystal socket from the switch and connecting the output lead of the mixer to the same point on the switch.)

The diagram of Fig. 2 also shows a differential keying system that was added to the DX-100 earlier. When receiver control is employed, the differential keyer is not used, since the blocking voltage developed in the keyer is not sufficient to prevent tails on the break characteristic. However, the negative supply of the keyer is used in blocked-grid keying of the mixer and the 12BY7. The d.p.d.t. switch $S_1$ makes the necessary changes in the keying circuit. If it is desired to retain the original cathode keying of the DX-100 (or 100B), the mixer can be keyed along with the 12BY7 by shorting $J_2$ in Fig. 1, bypassing the junction of $L_1L_2$ to ground with an 0.01-μf. capacitor (after removing the ground connection), and connecting the coil junction to the point marked X in Fig. 2.

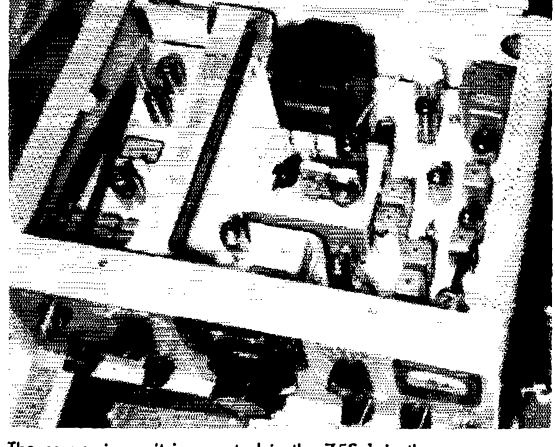
All voltages for the unit, except negative bias, are obtained from the 75S-1.

### *Construction*

The conversion unit is built into a 3¾ × 3 × 2-inch Minibox, and is installed in the open area on the 75S-1 chassis that is normally reserved for the noise blanker. The crystal sockets, switch, tube socket and coils are all mounted on the top side of the Minibox. The mixer-input cable emerges from a grommetted hole in the front skirt of the box where it goes to the v.f.o. output jack on the S-1 chassis. A similar hole in the rear skirt of the box takes care of the key and mixer-output cables. These holes should be placed far enough toward the right-hand end of the box so that the cables will clear the power transformer and v.f.o. box in the S-1. The cables were made from plastic-covered shielded microphone cord having polyethylene insulation. Power leads are dropped through the cutout opening to connections below. The unit is fastened to the receiver chassis by means of sheet-metal screws.

### *Crystal Frequencies*

Remembering that the required crystal frequency is the sum of the receiver v.f.o. and desired transmitter output frequencies, the approximate crystal frequencies needed to track with the 75S-1 are 3400 + 2700 = 6100 kc. to cover the 3400- to 3600-kc. segment, and 3600 + 2700 = 6300 kc. for the 3600- to 3800-kc. segment. (A third crystal at 6500 kc. would provide coverage from 3800 to 4000 kc.) Using a similar process for the 7-Mc. band, we find that a 9.7-Mc. crystal will provide coverage from 7000 to 7200 kc., while a 9.9-Mc. crystal will cover the segment of 7200 to 7400 kc. Perhaps it should be



The conversion unit is mounted in the 75S-1 in the space normally reserved for the noise blanker.

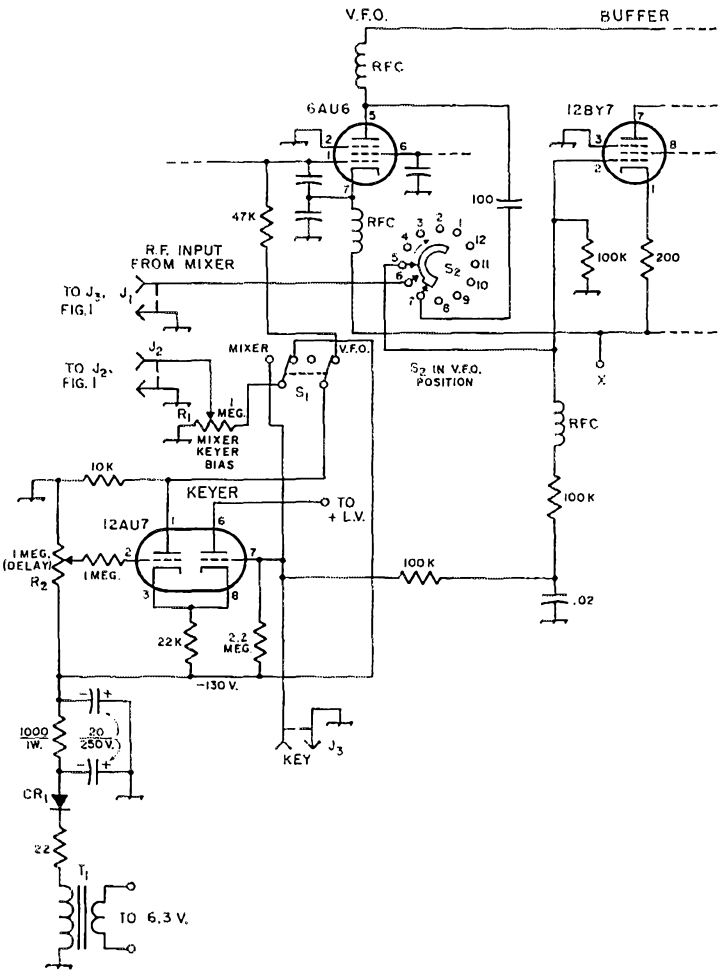



Fig. 2—Partial diagram of DX-100 v.f.o. and buffer circuits showing the addition of a differential keyer and provisions for mixer input to the buffer. (Only the negative power supply of the differential keyer is used with mixer input. $S_1$ makes this change.) The 47K resistor at grid No. 1 of the 6AU6 replaces the original grid-leak resistors in the DX-100. The original v.f.o./crystal switch has been rewired to permit switching between mixer and conventional v.f.o. drive to the buffer. Capacitances are in μf. and capacitors are disk ceramic except when marked with polarity which indicates electrolytic. Resistances are in ohms and fixed resistors are ½ watt unless indicated otherwise.

$CR_1$—140-volt 65-ma. selenium rectifier.
$J_1$, $J_2$, $J_3$—Phono jack.
$R_1$, $R_2$—Linear-taper control.
$S_1$—D.p.d.t. toggle switch.
$S_2$—V.f.o./crystal switch in DX-100 (see text).
$T_1$—6.3-volt 1.2-amp. filament transformer, used as step-up transformer.

pointed out that the v.f.o. in the 75S-1 tunes in a reverse direction; that is, the v.f.o. frequency is tuned to a lower frequency to receive a signal higher in frequency. This is because of the particular heterodyne combination used in the receiver.

### *Grinding Crystals*

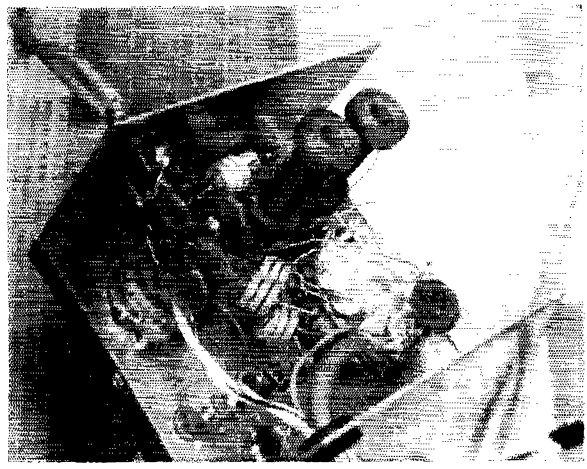
It might be possible to purchase crystals for the required frequencies. However, the ultimate crystal frequency must be accurate to within a hundred cycles or so and, to avoid possible disappointment with purchased crystals whose frequencies may deviate more than this, the author considered it best (and cheapest) to grind down available surplus crystals. This job is not at all difficult and little in the way of materials is required. The task is chiefly one of patience.

Try to get crystals that are as close as possible to the required frequency (on the *low-frequency* side, of course). The closer the crystal is to the desired frequency, the less grinding you will have to do.

Almost any glass store will give you an odd piece of plate glass to be used for the grinding surface. A piece 6 inches square is large enough. Obtain some Grade AA fine grinding compound. (I used fine-grade valve-grinding paste, but it cuts a little too fast.) Rubbing alcohol is used as the slushing agent.

After the conversion unit has been wired up and connected to the receiver, plug in the crystal and turn on the receiver and converter. If the crystal frequency is much more than 200 kc. away from the desired frequency, it would probably be advisable to check the frequency directly at 6 (or 9) Mc., rather than to try to check the beat from the mixer. When you have the frequency spotted on a calibrated monitor or general-coverage receiver (with a pick-up close to the mixer), make an accurate notation of the frequency before proceeding with the grinding.

Put a dab of grinding compound on the glass surface and moisten with a few drops of alcohol. Remove the crystal from its holder and place the crystal in the mire. With a light, even pressure with the finger tips, rub the crystal in spiral paths over the surface of the glass.



Bottom view of the conversion unit, showing the band-selector switch and the two oscillator plate coils.

Rotate the crystal from time to time to make the wear as even as possible over the surface of the crystal.

After a few turns, clean the crystal with fresh alcohol and a paper towel. Return the crystal to its holder and replace the spring with a soft wad of paper for minimum pressure before clamping the holder lid on with a spring clothespin. The clothespin saves the time required to remove and replace the lid screws each time. Plug in the crystal again and check the new frequency. From this you will be able to tell how fast you are moving the frequency.

When you have the crystal within 200 kc. of the desired frequency, set the monitor accurately to 3400 kc. Close the mixer key circuit, set the 75S-1 mode switch to either the L.S.B. or C.W. positions, (and be sure to keep it there during the grinding process) and tune the 75S-1 until you hear the mixer signal on the monitor. The difference between the dial reading on the 75S-1 and 3400 kc. will tell you how much you have left to grind. As you grind, the dial setting on the 75S-1 that produces zero beat on the monitor tuned to 3400 kc. will gradually fall at a lower frequency. When the dial setting on the 75S-1 is within 3 kc. or so of 3400 kc., you should be able to hear the beat note on the 75S-1 itself, and the monitor can be dispensed with. This beat note will remain the same regardless of the setting of the 75S 1, since the mixer output frequency will vary at the same rate as the receiver tuning.

Now grind very carefully, making only a swirl or two at a time until the beat note heard on the receiver passes down through zero beat and out to about 2 kc. on the other side. The beat note can now be set at the pitch you desire to copy (on either side of zero beat) by adjusting the pressure on the crystal. To make this possible, a hole is drilled and tapped in the holder cover for a set screw centered over the crystal body. See the sketch of Fig. 3. A piece of $\frac{1}{8}$-inch hard fiber sheet is cut and fitted over the top plate. Then the cover, with the set screw backed out, is fastened in place. Compression will lower the frequency of the crystal which will also lower the output frequency of the mixer.

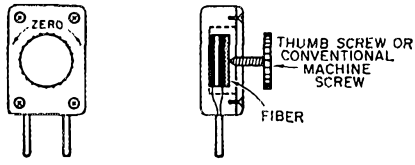



Fig. 3—Sketch showing modification of FT-243 crystal holder to provide adjustment of compression. See text for details.

Most C.W. operators using "single-signal" receivers prefer to set the b.f.o. so that the signal appears on the low side of zero beat. In the 75S-1, this occurs with the mode switch in the C.W. or U.S.B. positions. To set the converter crystal frequency, zero-beat the mixer signal in the receiver by adjustment of the crystal pressure. Then back off on the compression to a point that gives the desired beat note. To calibrate the receiver dial, zero beat the mixer signal with the calibrator signal and set the dial hairline to 3400 kc.

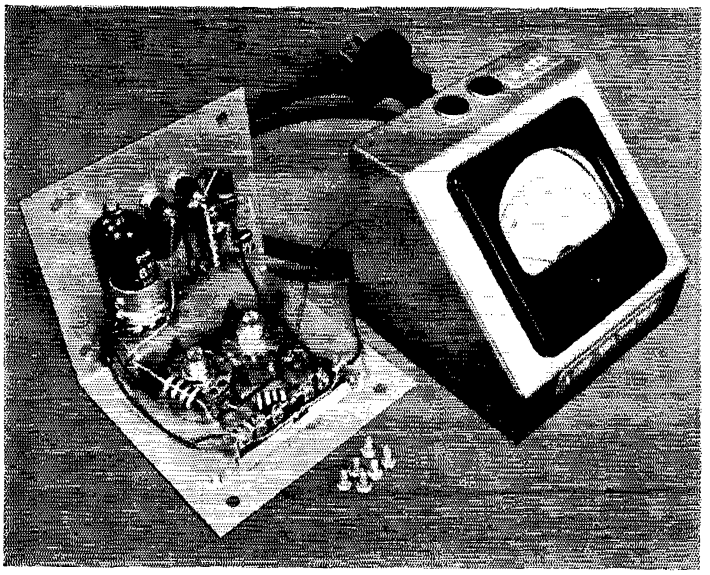
A similar procedure should be followed in grinding crystals for other band segments.

### *Operation*

With the crystal set on frequency, the converter can be connected to the transmitter. The slug-tuned coil associated with the crystal in use, in the plate circuit of the crystal oscillator, should then be adjusted for maximum drive to the final, with the receiver set at the center of the band segment in use. (Remember to readjust when you go from one segment to another in the same band.) In my case, it was found that the output from the mixer was almost identical to that from the v.f.o. in the DX-100, and that it was possible to cover ± 20 kc. or more from the tune-up point without readjustment of the transmitter.

When you want to zero-beat with a signal from another station, tune your receiver so that his signal produces a beat note the same as the one you have chosen, and your signal will be zero beat with his. Be sure that the mode switch is always in the original C.W. or U.S.B. positions. The receiver oscillator conditions in the 75S-1 are the same in the U.S.B. and C.W. positions, but if the switch should happen to be turned to the L.S.B. position, the transmitted frequency will be increased by about 2 kc.

If you wish to switch back to conventional v.f.o. control of the transmitter, merely turn the modified crystal switch to the v.f.o. position, and flip the switch in the keying system. QST



*Differential Voltmeter for Accurate Readings*

The differential voltmeter is entirely contained in a sloping-front meter case. After calibration is complete, the two screwdriver-adjusted controls should require no further attention.

# How's Your Line Voltage?

BY JOHN SANKEY,* VE2ARH

THE importance of maintaining line voltage at the value for which the manufacturer has designed his component or equipment is often underestimated. It works now, so why worry? The fact is, however, that a relatively small increase in line voltage may often reduce the life of many components quite drastically. On the other hand, in the case of transmitting tubes for instance, the consequences of under voltage may be as serious as those of over voltage. In other cases, low line voltage may result in poor unit performance, even though there may be no observable reduction in service life.

Many of those who are conscious of the desirability of keeping the line voltage within reasonably close limits monitor the line with an a.c. voltmeter. The trouble here is that the difference between 110 and 115 volts is not easy to read on the scale of the 0–150-volt meter commonly used for the purpose.

### *The Differential Voltmeter*

Fig. 1 shows the circuit of a differential voltmeter on the dial of which the range of 110 to 120 volts is spread out linearly over the full scale, making accurate readings easy. The meter deflection is actually in terms of the peak value of the line voltage, to which the large capacitor charges, but the scale is calibrated in corresponding r.m.s. values.

The zero-scale voltage setting is made by $R_1$, while the setting of $R_2$ determines the full-scale reading. $R_3$ is for meter-damping purposes only. However, since its presence in the circuit has an effect on the calibration, it is important that it be used and that it have a resistance value equal to that of the microammeter used, if the circuit is to cover the prescribed voltage range.

*46 South Drive, St. Catharines, Ontario, Canada.

### *Calibration*

Calibration requires a d.c. supply delivering 200 volts or more, an adjustable resistor or potentiometer having a resistance of approximately 500 ohms for each volt that the supply output voltage exceeds 150, and a d.c. voltmeter. These are connected temporarily to points A and B, as shown in Fig. 1. (The differential meter must *not* be connected to the a.c. line during the calibration process, of course.)

Before turning on the supply, temporarily disconnect one side of the microammeter and its shunt at the point marked X. Turn on the supply and adjust the series resistance until the voltmeter reads 155 (the peak value corresponding to 110 volts r.m.s.). Turn off the supply and temporarily bridge the open gap at X with a 100K resistor. Set $R_1$ at about three quarters toward the 13K end. Turn on the supply, and adjust $R_1$ for a zero scale reading on the microammeter.

***A simple differential circuit permits accurate reading of line voltage by spreading a small range of voltages, such as 110 to 120 volts, over the complete linear meter scale.***

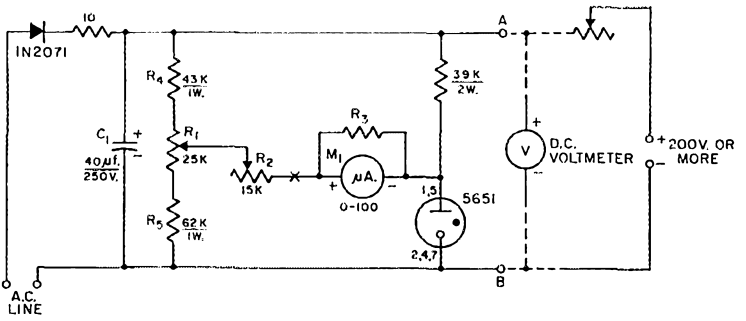



Fig. 1—Circuit of the differential a.c. voltmeter. Resistances are in ohms.

$C_1$—40-$\mu$f. 250-volt electrolytic.
$M_1$—0–100 d.c. microammeter.
$R_1$, $R_2$—Linear control.
$R_3$—Resistance should be equal to internal resistance of microammeter used.
$R_1$, $R_5$—5 per cent.
Components to right of terminals A and B are in calibrating equipment discussed in the text.

Be sure that this is the original zero on the scale, since it is possible to drive the needle of the meter below zero by adjusting $R_1$ too far toward the 62K end. This adjustment establishes a calibration of 110 volts r.m.s. at zero on the meter dial. Before turning the supply off, be sure that the d.c. voltmeter still reads 155 volts when this adjustment has been completed.

Now remove the 100K resistor, reconnect the meter and shunt, and set $R_2$ at maximum resistance. Readjust the power-supply series resistance for a reading of 169 (peak value of 120 volts r.m.s.). Decrease the value of $R_2$ until the meter reads full scale. This establishes a calibration of 120 volts r.m.s. at full scale. Recheck the d.c. voltmeter when this adjustment is completed.

### *Other Ranges*

The full-scale reading may be made less than 120 volts, if desired, by simply adjusting $R_2$ for a full-scale deflection with the calibrating supply voltage set at the peak value (1.41 times the r.m.s. value) of the desired lower voltage. The full-scale reading may be made higher than 120 volts up to the peak value at which the maximum resistance of $R_2$ will no longer limit the meter deflection to full scale.

It will also be found that the zero-scale reading may be calibrated at a voltage lower than 110 by adjustment of $R_1$, the minimum value depending upon the exact values of components within their rated tolerances. This refers particularly to the 5651, where the drop across sample tubes may vary from 82 to 92 volts. The zero-scale voltage may be made lower for a tube with lower voltage drop.

For those who already have a 0–1-ma. meter (the total cost will be about the same if the meter must be purchased new), a meter of this range may be used by dividing all resistance values (except the 39K VR-tube voltage-dropping resistor) by 10, and multiplying the capacitance by 10. The power ratings of the resistors must also be increased appropriately. Similarly, a 0–500-$\mu$a meter may be used by dividing and multiplying by 5. However, these less-sensitive meters may result in less accuracy because of the increased VR-tube current variation.

### *Adjustment of Line Voltage*

For those who cannot afford a variable-voltage or constant-voltage transformer, Fig. 2 shows an inexpensive way of obtaining some adjustment of line voltage. The transformer is a 5- or 6.3-volt

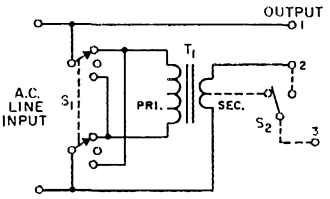


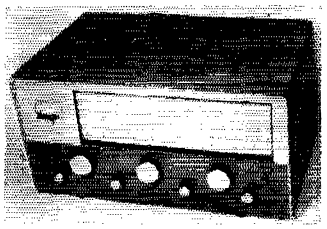

Fig. 2—Some adjustment of line voltage may be obtained by connecting a filament transformer so as to aid or buck the line voltage. $T_1$ is a 5- or 6.3-volt filament transformer (10 amp. for a 1-kw. load). $S_1$ is a two-pole three-position rotary switch (1 amp.). If the transformer has a center-tapped secondary, the addition of $S_2$ shown in the dotted lines will permit a finer adjustment. $S_2$ should be a s.p.d.t. toggle having a 10-amp. rating. See text.

filament transformer. A current rating of 10 amperes will be about right for a 1-kw. load. In one position of $S_1$, the line voltage (taken from terminals 1 and 2) will be boosted by 5 or 6.3 volts; in the center position, the line voltage will be unaffected; in the third position, the line voltage will be reduced by 5 or 6.3 volts. If the filament transformer has a center-tapped secondary, smaller voltage variations may be obtained by adding $S_2$, as shown in the dotted lines, and taking the output from terminals 1 and 3. This arrangement provides two output voltages, in steps of about 3 volts, for each of the first and last positions of $S_1$.

In most urban centers, this system may not be required, but for those in rural areas (excursions in line voltage as wide as from 105 to 138 volts have been experienced at the author's home station) or those operating from portable generators, this arrangement should keep your equipment healthy. QST

# • Recent Equipment —

## Gonset GR-212 Receiver



THE Gonset GR-212 is a 6-tube receiver that covers 2 to 30 Mc. in six bands, plus the broadcast band, 550 kc. to 1600 kc. It has a separate tunable b.f.o., an S meter, built-in speaker, both general-coverage and ham-band dial calibration, and uses double conversion with intermediate frequencies of 1650 and 455 kc. Extensive use has been made of etched circuits — even those in the front end are partially etched. As the photographs show, only one tube and a few power-supply components are actually mounted on the metal chassis.

A block diagram of the GR-212 is shown in Fig. 1. The receiver has no r.f. stage, the 1650-kc. first i.f. being relied on to take care of images. The antenna circuit has some interesting features even though there is only a single tuned circuit at the signal frequency: a two-section low-pass filter with a cut-off frequency in the neighborhood of 35 Mc. is permanently connected to the antenna terminals, and there is also a parallel-tuned 1650-kc. trap in series with the antenna coil for suppressing i.f. feedthrough on this frequency. The antenna input circuit is designed primarily for working from coax, although other types of line or the usual "random" wire can be used. The tuned circuit for the mixer grid can be peaked up with a panel ANTENNA trimmer control.

The first mixer, $V_{1A}$, is the pentode section of a 6U8. H.f. oscillator voltage is applied to its screen. This tube always operates at full gain. The h.f. oscillator, $V_{1B}$, is the triode section of the same 6U8; it operates 1650 kc. above the incoming signal frequency on all bands. The proper antenna and oscillator coils are cut in by a panel BAND-SELECTOR switch.

Rather unusual for a general-coverage receiver of this price class is the fact that the frequency range is divided into six bands rather than the usual four or, in some cases, five (a predecessor receiver, the G-43, had this same feature). This puts each ham band on a separate range, starting with the 3.5-Mc. band; there is no 160-meter coverage because the first i.f. is in that region. The separate ranges give better control over the bandspread on the amateur bands; when three bands fall on one tuning range, as is the case in some receivers, bandspread is necessarily a compromise business. The electrical system for band spreading used in the 212 is a simple shunt tuning capacitor of small range across the main tuning capacitor, but in addition series and shunt padders are used to adjust each range individually. The result is that all ham bands have approximately the same dial length, requiring five complete turns of the bandspread knob for going from one end to the other. The one exception is the 7-Mc. band, which is not spread quite so much. The tuning ranges are 550 to 1600 kc., 2 to 5.7 Mc., 5.7 to 13 Mc., 13 to 20 Mc., 20 to 25 Mc., and 25 to 30 Mc. Note that the two highest ranges have a 5-Mc. spread. This has been done

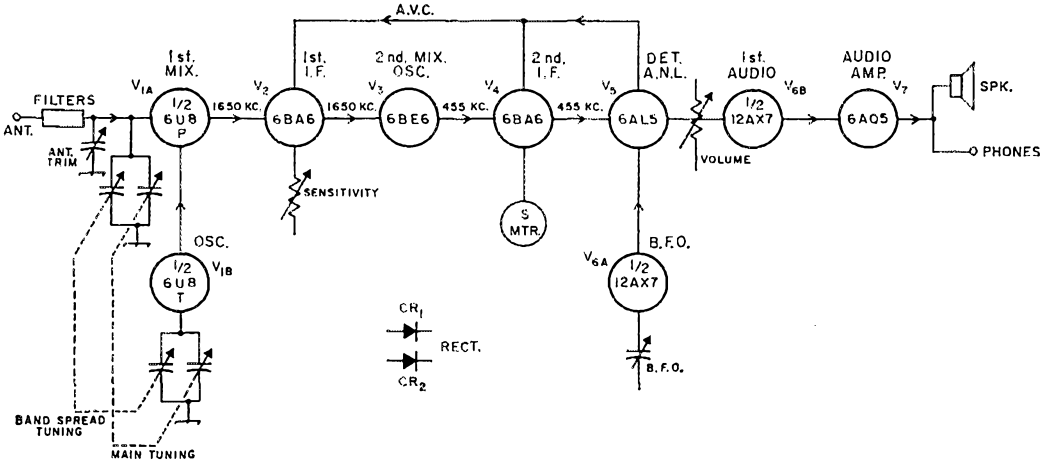



Fig. 1—Block diagram of the GR-212 receiver.

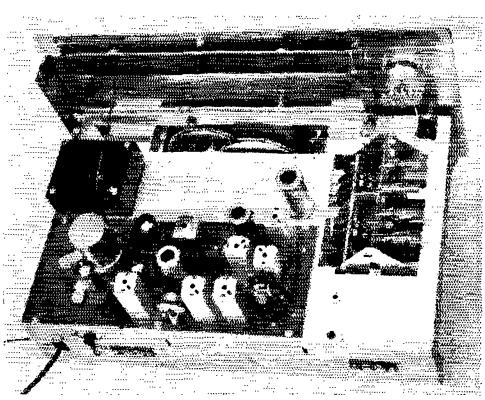
so the receiver can be used as a tunable i.f. amplifier for crystal-controlled v.h.f. converters. The instruction book specifically mentions 25–30 Mc. for this purpose, but the 20–25-Mc. range is equally usable (with suitable crystals in the converters, of course) and has the advantage that WWV can be spotted at the 20-Mc. end for accurate frequency setting.

There are two illuminated slide-rule tuning dials on the receiver's front panel, one for general coverage and one for bandspread. The four lower-frequency bands are marked off in 20-kc. steps. The 28-Mc. band is marked at the 100-kc. points. There is also a 0–100 logging scale on the bandspread dial.

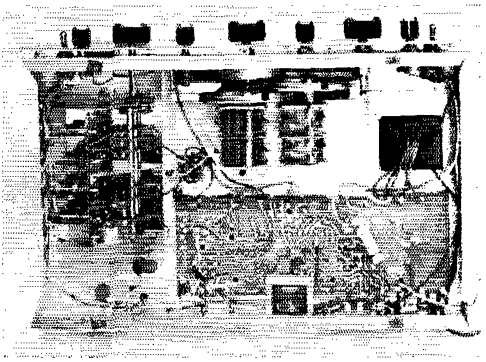
Output from the first mixer, $V_{1A}$, at 1650 kc. is coupled to $V_2$, a 6BA6, through a double-tuned transformer. This tube has its cathode returned to ground through a potentiometer, the panel control labeled SENSITIVITY. This is the only r.f. or i.f. tube in the receiver that has any manual gain control.

Coupling between the first i.f. tube and the 6BE6 second mixer, $V_3$, is through two double-tuned transformers in cascade, making a total of six tuned circuits at the 1650-kc. i.f. The 6BE6 is used as a converter, generating its own oscillator voltage at 2105 kc. to give 455-kc. output. Between the 6BE6 and the second i.f. amplifier, $V_4$, there are two 455-kc. double-tuned transformers in cascade, and another double-tuned transformer is between $V_4$ and the diode detector, $V_5$. Thus there are also six tuned circuits in the 455-kc. i.f. — par for the ordinary two-stage i.f., although only one tube is used here.

A.v.c. voltage for a.m. reception is also developed in the detector diode and is applied to both i.f. amplifiers ($V_2$ and $V_4$). The remaining diode section of the 6AL5 is used as an automatic noise limiter. The limiter is turned on and off by a switch located on the rear apron of the receiver



Top view of the Gonset GR-212 receiver. The front-end inductors are mounted on a vertical etched-circuit board in the well at the right. Rear-apron connectors and leads are, from left to right: Line cord, a.n.l. slide switch (top) and external speaker or headphone jack (bottom), antenna/ground terminals. The lead crossing over the transformer connects to the pilot-lamp bus near the top of the front panel.



Most of the etched circuitry in the GR-212 receiver can be seen in this bottom view of the chassis. The mixer and oscillator coils are adjacent to the band switch at the left. Power-supply components are at the right, and the bandspread and main tuning capacitors are in the center.

(see photograph), which seems a rather odd spot for an operating control.

One half of a 12AX7, $V_{6A}$, operates as a b.f.o. for c.w. and s.s.b. reception. The oscillator is controlled by a front-panel toggle switch marked PHONE and CW-SSB. When the switch is in the CW-SSB position the b.f.o. is turned on and the a.v.c. circuits are disabled.

Audio amplification is provided by $V_{6B}$ and a 6AQ5 power pentode, $V_7$. There is a built-in speaker mounted on the receiver's dust cover, and a jack is provided at the rear for an external speaker or headphones. A front panel RECEIVE-STANDBY switch is tied in with the audio circuits and, when in the STANDBY position, opens one lead to the speaker. The switch terminals are also in parallel with the MUTE terminals at the rear of the cabinet so that an external switch or relay can be used to "quiet" the receiver.

A transformer-type power supply using semiconductor rectifiers furnishes the necessary voltages to operate the GR-212 receiver. There is no voltage regulation for the high-frequency oscillator, with the result that there is some change in oscillator frequency as the sensitivity control is varied. It is not excessive, but could be a little annoying when receiving c.w. or s.s.b. whenever it becomes necessary to adjust the gain to the incoming signal level. However, there is plenty of room on the chassis for the owner to install a VR tube if he wants. The receiver seems solidly constructed and the mechanical stability is good. There is, however, rather more power-

**Gonset GR-212 Receiver**

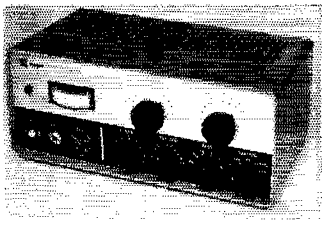
**Height:** 8 inches.
**Width:** 16¼ inches.
**Depth:** 10½ inches.
**Weight:** 20 pounds.
**Power requirements:** 117 volts a.c., 60 cycles.
**Price class:** $110.
**Manufacturer:** Gonset, Division of Young Spring & Wire Corp., 801 South Main St., Burbank, California.

supply hum in the audio output than we like to hear, especially on headphones.

As frequently happens with double conversion, there are birdies here and there throughout the frequency range of the receiver. The noticeable ones are harmonics of the 2105-kc. oscillator and the 455-kc. beat oscillator. The latter are really apparent only on the 2-5.7-Mc. range. The 2105-kc. harmonics for the most part do not fall in amateur bands, but one at 21.05 Mc. is quite noticeable and there is also an image at 7225 kc. from a harmonic at 10.525 Mc.

The instruction manual is a bit sketchy in some areas, and apparently much of the text was picked up from the earlier G-43 manual, with the result that a few statements may puzzle the GR-212 owner — e.g., that the dial is calibrated for 2- and 6-meter converters. It isn't. — *G. G.*

# Knight T-60 Transmitter Kit



WE'LL leave it to the figure hounds to come up with an exact comparison — and maybe prove us wrong — but from a quick check it seems that the T-60 is out in front in one way in the transmitter-kit field: it gives the most watts per cubic inch. But whether or not it takes the laurels, it's a neat-looking little package, with a modern shape factor and styling. It covers all bands between 80 and 6 meters.

Except for the choice of tubes and the to-be-expected variations in circuit details, kit transmitters in this general class seem to have settled on a standardized line-up. There is a crystal oscillator, a buffer-multiplier — often these stages use a dual tube — and a beam tetrode final amplifier (20-25 watts plate dissipation) with a pi-network tank. Along with it there is a controlled-carrier screen modulator for the final, having a total of four audio stages contained in two double triodes. The rating is generally around 60 watts c.w. input, and about that or possibly a little more *peak* input on a.m. phone. The T-60 follows the pattern, as shown by the block diagram in Fig. 1.

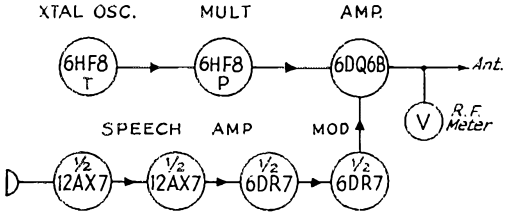



**Fig. 1—Block diagram of the T-60 transmitter. Power supply, not shown, uses silicon rectifiers.**

The crystal oscillator is a straight triode Pierce, with the crystal between the grid and plate. A socket is provided for introducing r.f. from an external v.f.o.; the connections here are simply between grid and ground, no switching being necessary since the cathode is already grounded. Untuned coupling is used between the oscillator and buffer-multiplier. Crystals in the 3.5-Mc. band are used for 80, of course, and for 7 through 28 Mc. the instruction book recommends 7-Mc. crystals. However, 3.5-Mc. crystals will work for 7- and 14-Mc. output. For 50-Mc. operation crystals in the 8.5-Mc. region are required.

The pentode section of the 6HF8 is used as a frequency multiplier or, when operating on the same frequency as the crystal oscillator, as a buffer amplifier. The plate circuit of this tube, shown in Fig. 2, is a bit out of the ordinary. The tank coil, $L_1$, consists of a number of coils connected in series (only one is shown in Fig. 2) with progressive shorting as the band switch is turned to higher-frequency bands. As the circuit is drawn in Fig. 2 it resembles a pi network, but whether it should be considered as that or as a "series-tuned" arrangement is a matter of viewpoint. In any event, the actual tuning capacitance across the coil is essentially the same — between 15 and 20 $\mu\mu$f. — on all bands.

The final amplifier has the usual pi-network tank with progressive shorting for the various bands. It works straight through on all bands except 50 Mc., where it doubles. With the exception of the 6-meter coil, a small-diameter spaced two-turn winding of heavy wire, the tank inductance is wound in sections on a ceramic form. The amplifier is not neutralized, which is rather surprising since the 6DQ6B is not noted for low grid-plate capacitance. One might expect that it would "take off" in the absence of excitation from the buffer. And in fact it did, on 3.5 and 7

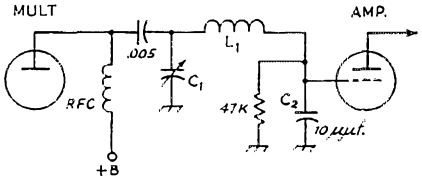
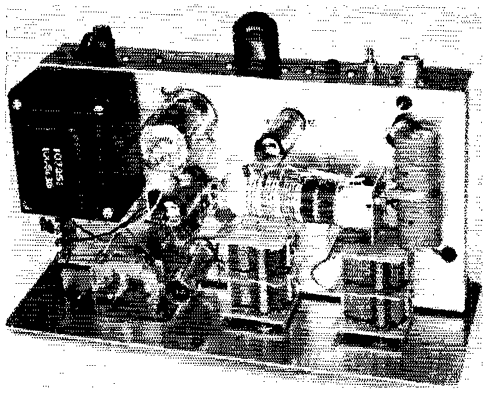



**Fig. 2—Coupling circuit between multiplier and amplifier. The actual tuning capacitance for $L_1$ is $C_1$ in series with $C_2$ (both have tube capacitances in parallel with them), plus stray capacitance.**

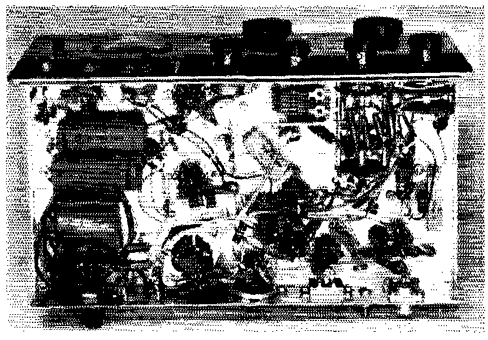


This top view of the chassis of the T-60 is from a dizzy camera angle, so don't be alarmed if it makes you feel dizzy to look at it. The tube to the right of the 6DQ6B final amplifier is the 6HF8 oscillator-multiplier. The speech tubes, a 12AX7 and a 6DR7, are between the 6DQ6B and the front panel. The two double-section capacitors are not used as such, but as single capacitors with paralleled sections. Tank tuning at the left, loading at the right.

Mc., in the sample set we tried. It would not do so on 14 Mc. and the higher bands. The 7-Mc. oscillation was only observed when the amplifier was lightly loaded and the crystal was pulled out, but on 3.5 Mc. the crystal had a hard job getting control under any condition of final-amplifier loading. However, stabilization was simple: a 22,000-ohm ½-watt resistor soldered across $L_2$, and a 4700-ohm across $L_1$ (these designations refer to the instruction-book circuit) completely stopped self-oscillation. These resistors did not otherwise affect the operation of the set.

The modulator circuit follows earlier practice in general, but seems to give a higher ratio of audio to d.c. screen voltage than most. It also incorporates a little negative feedback to help overcome the distortion caused by the control amplifier, which is the high-$\mu$ section of the 6DR7. The circuit is given in Fig. 3. It actually will modulate the r.f. output 100 per cent with a tone signal. The unmodulated carrier power drops to about 10 per cent of the c.w. output when the function switch is put in the a.m. position, but the peak-envelope output swings up to around 40 per cent more than the c.w. output power before reaching the flattening point.

There has been a tendency in recent years to include an r.f. output indicator as part of the metering setup in transmitters. The T-60 is an extreme case — relative r.f. output is the *only* meter indication incorporated. There is no provision for measuring plate and grid current of the final amplifier. Actually, a grid-current reading doesn't contribute anything if you can adjust drive for maximum r.f. output. And one argument for not including plate current is that with tetrodes the minimum-plate current point is very often not the one at which the tube runs coolest. The T-60 has a crystal diode and milliammeter connected to the r.f. output terminal to give a relative indication of r.f. voltage across the load. Two sensitivity ranges are available; a slide switch on the rear wall of the chassis allows choosing the one more suitable.



The band switch, controlled by the second knob from the right, has the multiplier tank coils (same general size and shape as resistors) mounted on it. The rear section of this switch selects the taps on the final-amplifier pi-network coil on top of the chassis. The variable capacitor (third knob from the right) is the multiplier tuning or "drive" control.

All three r.f. stages in the transmitter are keyed. There is a small slow "yoop" in the keying which seems to be caused principally by the large change in oscillator plate voltage on closing the key, plus a little crystal heating. This was cured by adding a 150-volt VR tube to the circuit to stabilize the oscillator voltage. The VR was connected across $C_4$, the oscillator plate bypass, and a 6000-ohm, 5-watt resistor was inserted in the line from $C_4$ to the junction of $R_4$ and $R_5$.

(*Continued on page 160*)

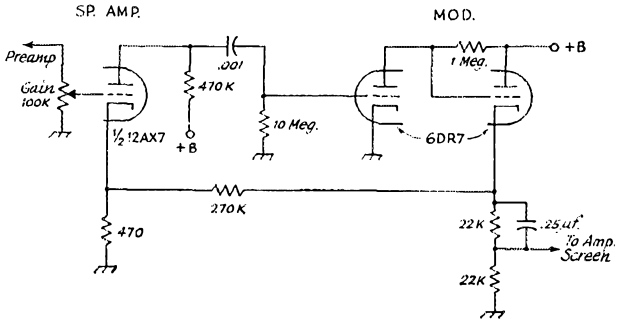



Fig. 3—Screen-modulator circuit has negative feedback to speech-amplifier cathode. Output to drive the amplifier screen is from the modulator cathode. The circuit supplies d.c. voltage for the screen and includes provision for 100 per cent modulation by the audio signal.

Some of the participating mobiles, L. to r., K3LUX, K3AKR, W3UTI, W3SYY, K3LVA and W3EWX.

# Hams Help to "Get Out the Vote"

BY AL BROGDON,* W4UWA K3KMO

The Nittany Amateur Radio Club at present consists of 60 members, fifty of whom are licensed amateurs, ranging from teen-age Novices to Old-Timers with 39 years in ham radio. This ARRL-affiliated club is engaged in a number of public service activities, including a code-and-theory class of 38 people conducted in conjunction with local adult recreation courses, and talks and demonstrations to groups such as Boy Scouts. The club station, K3HKK, has recently completed a move to new clubrooms, and is active on all bands eighty through two meters —s.s.b., a.m., and c.w.

The Nittany Amateur Radio Club of State College, Pennsylvania, performed a public service on election day a year ago that might have been the first of its kind, although we are not sure. The NARC provided free transportation for local voters to and from the polls on election day, on a non-partisan basis. Nine 6-meter mobiles covered the town of 23,000 and were dispatched by the club station, K3HKK, as telephoned requests for transportation were received.

This idea originated locally with W3SAY. Plans started two months in advance, and although they weren't extensive, put the operation on a smooth-running basis. Mobiles were assigned one to each voting precinct, with two mobiles each for the three largest precincts. K3HKK, serving as NCS, was located one mile west of town. NCS used a Ranger 6N2 running sixty watts to a five-element beam, and an HRO-60.

The mobiles consisted of five Heath Sixers, one Communicator III, and three homebrew rigs. All but two mobiles used halos, one of the others a vertical whip, and the last one used a horizontal center-fed wire dipole strung between bamboo poles fore and aft on his station wagon. Communication was solid between NCS and mobiles over the entire area covered. Tests prior to the election day had indicated a consistent range of at least ten miles, far more than needed for the Get Out The Vote campaign.

Since the working hours of all hams involved were until 1700, the campaign was limited to the hours of 1700–2000 (until the polls were closed). In State College, election day was a beautiful, sunny day, and most voters had cast their ballots by the time the NARC started rolling. Because of this, business wasn't as brisk as the club had hoped for, but all agreed that had they taken only one person to the polls, it would have been worth the effort. Since 88% of the registered voters cast their ballots, the NARC feels that their campaign may have helped generate local interest in voting, resulting in a higher percentage than usual going to the polls. In any event, the campaign resulted in a night of high activity on six meters, and all involved had a heck of a good time.

One of the club members operating mobile wasn't sure he could make it, since his wife had a sked with ST0RK aeronautical mobile for some time during election week. The new junior operator arrived two days early, so W3CDR was able to give us a hand after all. Seems as if the NARC often has this same problem. During the last major club activity, the wife of W3HCN presented him with a new boy on Field Day!

Another of the mobiles, K3KEM from Williamsport, Pennsylvania, isn't a member of the NARC. He just happened to be passing through town calling "CQ six," found out what was happening, borrowed a net crystal and stayed in town for the entire campaign.

The Pennsylvania State University is located

(*Continued on page 164*)

* Secretary, Nittany Amateur Radio Club. K3HKK; c/o HRB-Singer, Inc., State College, Pennsylvania

K3HKK, NCS of the "Get Out The Vote" campaign. W3SAY operates while K3KMO watches.

# Armed Forces Day—1962

*Saturday, May 19*

**Here's your chance to work AIR, NSS, and WAR, and to demonstrate your receiving ability. Check over the schedules below, not forgetting that this activity takes place on Saturday evening, May 19, but that the times given are GMT.**

EACH year, in continuation of a long-time policy of liaison with and support of amateur radio, the armed services sponsor a ham radio communications exercise as part of the nationwide Armed Forces Day activities. Each amateur who QSOs one or more of the three headquarters stations of the military (AIR, NSS, WAR) receives a special QSL card from each station worked. In addition, there is a c.w. copying contest and radioteletypewriter copying contest. The c.w. message is sent at about 25 w.p.m., while the RTTY goes out at the customary 60 per. Submit *perfect* copy of either or both, and you will receive handsome certificates bearing your name and signed by the Secretary of Defense.

Last year's ham-to-military QSO total reached an all-time high, with over 4000 contacts recorded between the three headquarters stations and hams all over the country. In addition, 1273 certificates of merit were mailed out to operators who had submitted perfect copy of the c.w. and RTTY messages. Let's see if we can top that this year — spread the word!

### *This Year's Receiving Contests*

Here's how you can participate in the receiving contests this year. Tune in one of the stations and frequencies listed below (barring transmitter trouble, all messages will be identical). At the indicated time, a 10-minute CQ will commence, to be followed immediately by the message from the Secretary of Defense. Transcriptions should be submitted "as received." No attempt should be made to correct possible transmission errors. Time, frequency, and call sign of the station copied should be indicated, as well as the name, call sign (if any), and address of the person submitting the copy.

Your copy should be submitted to the Armed Forces Day Contest, Room 5B960, The Pentagon, Washington 25, D.C., postmarked not later than May 31, 1962.

### *C.W. Receiving Contest*

| *Time* | *Transmitting Station* | *Frequency (kc.)* |
|---|---|---|
| (May 19, local time May 20, GMT) | | |
| 0300 GMT | WAR/AIR, Washington | 3347, 14,405, 20,994 |
| | NSS, Washington | 3319, 4010, 6970, 13,975.5 |
| | A6USA, San Francisco | 6997.5 |
| | NPG, San Francisco | 3319, 7595, 14,927.5 |
| | NPD, Seattle | 7455 |
| | AG6AIR, Hamilton AFB | 7832.5 |

### *RTTY Receiving Contest*

| | | |
|---|---|---|
| 0335 GMT | WAR, Washington | 3347, 14,405, 20,994 |
| | NSS, Washington | 3319, 7895, 14,480 |
| | AIR, Washington | 7915 |
| | A5USA, Ft. Sam Houston | 5395 |
| | NDS, Great Lakes | 7455 |
| | AG5FFR, Randolph AFB | 7305 |
| | AG6AIR, Hamilton AFB | 7832.5 |
| | A6USA, San Francisco | 6997.5 |
| 0345 GMT | NDF, New Orleans | 7380 |
| | NDW, San Francisco | 3319, 7375 |
| | NPD, Seattle | 7455 |

### *Military-to-Amateur QSOs*

WAR, AIR, and NSS will be on the air from 1500 GMT on the 19th until 0500 GMT, pausing only during the receiving competition from 0245 until 0400 GMT. Exchange QTHs and signal reports only — no other message traffic can be allowed. The military stations will operate on the frequencies listed below, and will tune the ham-band segments indicated.

| *Station* | *Operating On* | *Will Tune for Hams (Mc.)* |
|---|---|---|
| WAR | 4020 (a.m.) | 3.8 — 4.0 |
| | 4025 (c.w.) | 3.5 — 3.8 |
| | 6997.5 (c.w.) | 7.0 — 7.2 |
| | 20,994 (c.w.) | 21.1 — 21.25 |
| NSS | 4010 (c.w.) | 3.5 — 3.8 |
| | 6970 (c.w.) | 7.0 — 7.1 |
| | 7380 (c.w.) | 7.1 — 7.2 |
| | 13,975.5 (c.w.) | 14.0 — 14.2 |
| | | 21.1 — 21.25 (Answering Novice calls primarily) |
| | 4012.4 (a.m.) | 3.8 — 4.0 (answering both) |
| | | 7.2 — 7.3 (a.m. and s.s.b.) |
| | 14,385 (s.s.b.) | 14.2 — 14.35 |
| | 3319 (RTTY) | 3.5 — 3.8 |
| | 7895 (RTTY) | 7.0 — 7.2 |
| | 14,480 (RTTY) | 14.0 — 14.2 |
| AIR | 3397.5 (c.w.) | 3.5 — 3.8 |
| | 13,995 (c.w.) | 14.0 — 14.2 |
| | 20,873 (c.w.) | 21.0 — 21.25 |
| | 7305 (s.s.b.) | 7.2 — 7.3 (answering both) |
| | 14,405 (s.s.b.) | 14.2 — 14.35 (a.m. and s.s.b.) |
| | 7915 (RTTY) | 7.0 — 7.2 |

QST

## Strays

The Navy's National Naval Reserve Network has been reactivated, under the guidance of CDR Paul Lee, W3JHR. Listen for NCR1 on 4015 kc., NCR3 on 7080 kc., and NCR on 14,385 kc.

Wednesday evenings local time (0100 GMT). C.w. primary mode, but voice okay and the net control may use s.s.b. OinC will transmit general traffic, and then call the roll by naval districts. After you report in, you will be assigned a call in the block NØAAA-NØAZZ.

(Continued from page 9)

for each year of holding a ham ticket. Individual receipts so far have ranged from $1 to $500, and have come from all parts of the U.S. and Canada in a true cross-section of amateur radio — old timers with two-letter calls, Novices licensed less than a month, former hams, and SWLs working toward their tickets.

Use whatever yardstick you choose. Let's all get behind the Building Fund and put the drive over the top! Remember — it's *your* League and *your* building! Let us *all* be proud of the result! QST

In the interests of accuracy and completeness of records, please use only the subscription form — no postscripts on other League correspondence, please! Do not send cash. Make checks or money orders payable to the ARRL Building Fund. Do not include membership or publications remittances in your Building Fund check or money order. Thanks!

## Members Are Saying . . .

The League has done much for the amateur in its period of existence without asking anything in return. This, as you state, *is* a chance for us to do something for an organization which deserves our loyal support. Please count me in! — *W9SZD*.

It is obvious that new quarters are needed, no matter how financed. An additional one-year membership fee sounds fb to me. — *K6JSS*.

I feel that you have done a miraculous job in the old overcrowded location and that this expansion is long overdue. Add me to your list of those who are in favor of using the contributions method of procuring the funds. — *W5MOY*.

How about asking for a buck a year for as many years as one has been a ham? This would cost me $$ but would not hit the kids too hard. — *W0JHS*.

That our financial position is a comfortable one is as it should be, and I feel it would be foolhardy indeed to jeopardize our ability to immediately meet any contingency which might arise. From the consensus I have observed in this area, such a drive should be signally successful. — *K2BEV*.

The services and representation I receive through the League are worth far more than the few dollars I could afford to contribute, and I would be more than happy to help. — *K4WOL*.

With the amateur ranks growing at such a rate, it's surprising the League hasn't had to do this before. I feel it's a privilege to be part of the growing, expanding ARRL. — *WN9AYN*.

Please count me as one who would be proud to contribute to a fund for a new Hq. building. This is one tangible way of saying "thanks" for all the League is doing for all hams. — *K3CUI*.

Please count on my support. I honestly believe that membership in the League is cheap at twice the price. — *K0PUB*.

Although my ticket has lapsed, I hope to have the time to renew it eventually — but even if I shouldn't, I believe in the principles of freedom and strength for which the League stands and would want to support its Building Fund anyway. Let's get started and top it before construction is completed. — *Ex-W1NSS, KH6RF, W6RSP*.

I am a high school student, and the amount I can contribute is not large, but I am backing you with all the support I can give. — *K9ULW*.

Let's have the building! Contributions from members is most certainly the best way. — *W7VBH*.

You have my support as much as I can help. — *KN1VKE*.

I am in favour of such a fund-raising method. — *VE8AT/VE3*.

The radio amateurs of the world should be grateful for an opportunity to advance the art of radio by donating whatever is required to expand the facilities. — *W6RJC*.

Would be happy to contribute. Why not ask for an extra dollar or two on all 1962 memberships or renewals? — *WN5AFL*.

I believe every amateur would be glad to donate to the ARRL Building Fund whatever he may be able. Congratulations on your commonsense building plans. Everything appears practical. — *W3AMQ*.

The League exists for us — it *is* us. If we can not finance such a building, we do not deserve what we have. Responsibilities cost money and effort — I welcome the chance to take on a share to help in this project. — *W1JPJ*.

I am not a "ham" but I am a regular reader of *QST* and I would gladly help your building fund along. — *Michael W. Waite, Brighton, Michigan*.

ARRL Headquarters, being the center and

(Continued on 64B)

# League Headquarters – Then and Now

THE League's first office was the attic of the house in which Clarence Tuska, co-founder and first Secretary of the League, lived with his parents.

In 1919, the Board hired Kenneth B. Warner as Secretary, and rented a couple of rooms at 721 Main Street in Hartford for a headquarters.

In 1922, when the League staff had grown to 12 and the League had 7,400 members, headquarters was moved to larger space at 1045 Main Street.

Three years later, the office again was moved to an entire floor of 1711 Park Street; there were 25 staff members and 19,000 members at that time.

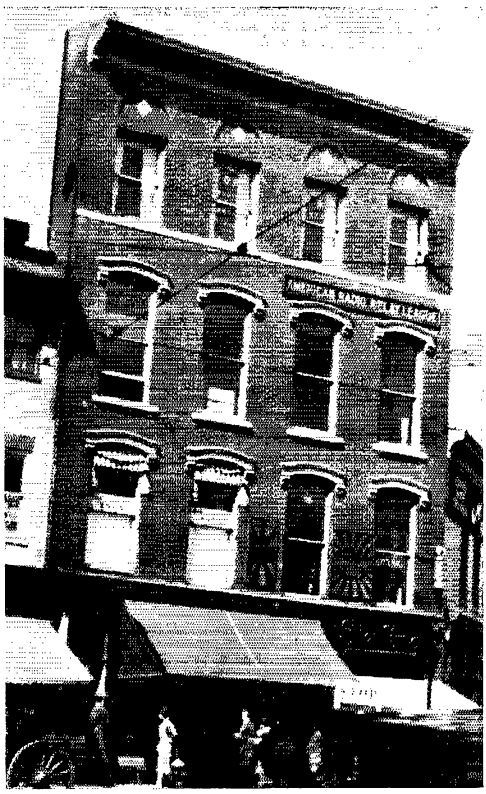
In 1931, the League occupied the second floor of 38 LaSalle Road, West Hartford. The building was brand-new, and the office space had been laid out by the League staff. The new office was referred to in the April, 1931 issue of *QST* as ". . . a quieter location . . ." — but there was a bowling alley in the basement and plans for an indoor miniature golf course on the first floor!

In 1937, the staff had grown to 36, the membership to 23,000, so we took over the ground floor for circulation and shipping operations.

The bowling alley moved out in the late thirties, and in 1945 the lab, mail-room and storage rooms were moved to the basement, completing our occupancy of the building. At that time, there were 47 employees and 42,000 members.

Since 1945, only minor rearrangements of the office have been made; no appreciable floor space has been added. Yet there are now 100,000 members being served by 65 full-time employees.

QST—

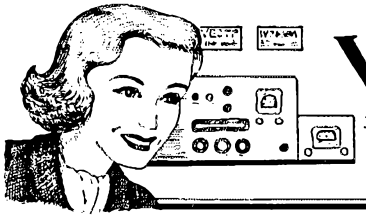


1045 Main Street, Hartford, four rooms on third floor, 1922 to 1925.

(Left) 1711 Park Street, Hartford, second floor, 1925 to 1931. (Right) 38 LaSalle Road, West Hartford, second floor, 1931 to 1937. First and second floors, 1937 to 1945. Basement, first and second floors, 1945 to 1962.

## Strays

Paul Herman, K8AXN, was named Amateur-of-the-Year by the Branch County Amateur Radio Club (Michigan) in recognition of his program of personal instruction for the physically handicapped. Through his efforts, several of these handicapped persons were able to obtain ham licenses, and K8AXN then made sure that they got stations on the air.



# YL NEWS AND VIEWS

CONDUCTED BY ELEANOR WILSON,* W1QON

## YLs ONLY, PLEASE READ

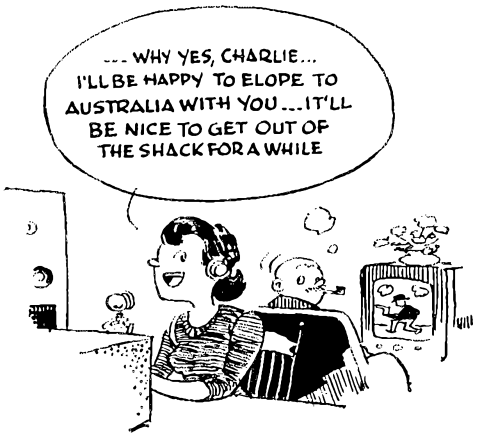
IT delights us how much interest is shown by OMs in this page about YLs. In the column's 10 year history there cannot have been a single month but that part of the material used was supplied or suggested by an OM. We've never kept count really, but it has seemed, almost anyway, that OMs have submitted more photos of YLs than the YLs have sent in themselves.

For example, in this May '62 column alone at least a third of the copy and pictures were submitted or suggested by OMs — unsolicited at that. Many times a modest YL is brought to the fore by a proud OM — a husband, father, brother, or a friend. The OM is interested in seeing a particular YL receive a bit of publicity for her ham accomplishments — often for as basic a reason as a YL just getting her amateur license. Wonderful! There's a proud and happy OM who sent in the information. Sometimes there is a request for secrecy about the whole thing — "My wife doesn't know anything about this but" — until, of course, his unsuspecting lady friend is startled to find herself adorning a page here one month.

As Mabel says, "The OMs, bless 'em — where would we be without them?" Shouldn't we be proud too — proud of the fact that our OMs are proud of us — interested in us?

The title of this little lead notwithstanding, our feminine intuition suggests that some male eyes may have roamed over these words (the thought tickles us!). If this is true, what better proof than how interested some OMs really are!

* YL Editor, *QST*: Please send all news notes to W1QON's home address: 318 Fisher St., Walpole, Mass.




### *Golden Jubilee of Sister Mary Emiliana, R.S.M., W1HUH*

We feel that anyone who has ever contacted or met Sister Mary Emiliana, R.S.M., W1HUH, would want to send her the very best of good wishes on the occasion of her Golden Jubilee of the Religious Profession. Sister Emiliana entered the religious life in 1911. She became the first religious Sister in the world to hold an amateur radio license when she joined our hobby in 1933. Now at Providence, R. I., she is a teacher, instructing boys in manual arts. W1HUH continues to be very active on the air, using a new sideband rig on 20 meters. A photograph of Sister operating from her hamshack at St. Xavier's Academy appeared in our Aug. 1960 column. A member of the Women Radio Operators of New England and the Rhode Island YL Club, Sister Emiliana travels all over New England whenever possible to attend club meetings, and we of the W1 area have felt it a great privilege and pleasure to have her with us at get-togethers and hamfests.

### *1st YL YLCC/10 00*

Katherine Johnson, W4SGD, is the first YL to make YLCC/1000 (confirmed contact with 1000 different YLs). OM W2QHH received his 1000 endorsement for the certificate in 1959. W4SGD also happens to be custodian of the YL Century Certificate. Nice going, Katherine and Howie — but you're just getting started, aren't you? YLCC/8000 is a possibility right now!

— • • • —

The saying goes that behind every successful man there is a woman who helps him to be successful. In the case of William Welsh, W1SAD/6, winner of the 1961 Edison Amateur Award, we know this to be a fact. Bill's wife, Marie, a licensed amateur herself since 1956, helped her husband a great deal with his "extraordinary work in conducting code and theory classes from 1951 through 1961, resulting in over 2800 becoming licensed amateurs" (ARRL bulletin #834). Marie graded examination papers and on occasion taught classes when her husband was away on business trips, in addition to normal duties as mother of five Welsh harmonies, including a one-year-old. The Welshes, formerly of Cambridge, Mass., have just recently moved to Burbank, California. Congratulations to both Mr. and Mrs.!

When OM K6ZZP submitted the photos of WA6GEZ and WA6FBD, he remarked that they were "pictures of two of the greatest OM confusers anyone ever saw." Contrary to popular belief, Jeanne, WA6GEZ, and Tena, WA6FBD, are not sisters at all, as they often lead others to believe. The girls reveal themselves to be a mother and daughter team only after sufficient good-natured kidding has transpired. The kibitzing takes place on 40 meters, and when they acquire a dreamed-of kw. rig, they'll be out to confuse DX, too.

### *Marshmallows in Potato Salad?*

The following epistle is reprinted from *Florida Skip*, Feb. 1962 issue, through the courtesy of W4IYT, Editor.

Dear Gladys:

Sorry to hear Homer went to the asylum after learning code, but don't worry. When he starts operating nobody will ever notice.

Listen, Gladys, this is just between us girls. I don't suppose they had Field Day at Chattachoochee, but I'm warning you in advance. When it comes up next year, don't go.



(Left) Mother WA6FBD? (Center) Daughter WA6GEZ? No,—it's the other way around. (Right) Thirteen year-old Shirley Harris, WA6PKL, joined her 11-year-old sister, WA6RHN, 16-year-old brother, WA6NJS, Mother WA6RDM, and Dad, WA6MXJ, when she became a ham too. Shirley was licensed as a Novice in Jan. '61, a Technician in July '61 and General Class in March this year. She gives credit for her licenses to OM W6QIE, who helped her with theory and code. The five Harris hams operate from South San Francisco.

The first I knew about it was when Clyde said it was coming up next week and he had told the club I'd make potato salad. He knows how proud I am of my recipe. (It's like what I make for the Bridge Club only for men I leave out the marshmallows and put in three onions.)

Clyde was supposed to stay out there all night, so I said I'd stay with him. This is what comes from reading *The Ladies Home Journal* and their articles on "Togetherness."

Gladys, we ended up in a shack ten miles from nothing, with mud, rain and flies and men climbing around stringing wires and carrying all kinds of funny-looking gear. They ran around like the Keystone Cops in silent movies. Why is it that a piece of equipment that has worked perfectly at home for two years decides to fade out in the wilderness on Field Day? (Gladys, dearie, you can stop figuring, I saw the Keystone Cops on a late, late show.)

By ten p.m. we were through eating and everyone had gone home except the six club members who were going to be there all night and Florella and me. Florella is an XYL too, and a real sweet girl. Before the night was over we knew each other like sisters, but she is not an ideal person to sit through the long hours with. She has never had a really major operation.

My gal'stones and two pots of coffee got us through until midnight, but all she has had is an appendectomy, and you can describe that only so long. She did have terrible gas pains the second day and she got to going real well on those, but after that we ran out of conversation. Wish we'd had somebody there with a slipped disc or a complete hysterectomy. The symptoms alone take about an hour. Fascinating!

From 3:00 until dawn all of us were going on coffee nerves alone except Clyde. His paper cup got soggy and the hot coffee fell out on his leg. Needless to add, it woke him up.

You know how in the movies the radio operators are always bright-eyed and eager? Ours looked like Creatures. All those bristles and little red eyes. When they wanted coffee they held up their cups and grunted.

I don't think I'll have the heart to go on Field Day again. My illusions are shattered. Those good-looking men looked so repulsive that night. Phooey on "Togetherness" and *The Ladies Home Journal*.

Love.

Mabel

Ed. — Say, come to think of it, Mabel dear, this is *bad* press for Field Day, isn't it? We couldn't resist though — besides, we know what a good scout you really are. Bet you a hankie by Balenciaga that you'll be in there pitching again next FD — June 23 and 24, 1962, to be exact!

### *Father of a Teen Ager Writes*

"I read with great interest of the two YLs, Kitt, KN7-QNN, and Charlyn, WN8AXM, whose photos appeared in February 1962 *QST* YL News and Views.

"In these days we hear of many teen-age capers leaning toward the negative side, and it is refreshing to hear of these girls who have a wonderful hobby like amateur radio. I bet the fellows they have attracted by their charm and technical knowledge are fine persons also. Very recently I have heard of young girls talking about the fact that the boys are not interested in them. Perhaps amateur radio would be the answer. I do know of cases where wives have reclaimed their OMs by becoming interested in the old boy's hobby, and it doesn't have to be ham radio necessarily."

— *W1JFF, Newport, R. I.*

### *LYL-MYL?*

K6SZT, Elaine, declares that she always refers to herself as an MYL, married young lady; a licensed single woman ham as YL; and an OM (including friend husband) as YM, young man. K9CCO, Lota, writes that years ago she became an XYL and in 1956 she became an LYL, licensed young lady. "It is very nice to be an XYL but it does not indicate the true picture, so to avoid confusion and the chance of being called the OW, would you please join me in promoting the LYL title?"

K4ZNK's certificate says that Betty received WAC/YL award #500. Barbie Houston, K5YIB, certificate custodian who arranged for K4ZNK's photo, says that she has averaged about 100 applications annually for the WAC/YL award for the past few years. The first certificate was issued in 1948 to OM W2QHH. (photo by K4DOL)

**The DXing Oberdoesters of Allentown, Pa.—OM Lou, W3FWD-200; XYL Elsie, W3ICQ-186; and son Ron W3HCO-165. DX is a family game, with pulled fuses, mysterious phone calls, and leaping scrambles to see who gets to use the rig the most. The first one to the mail box claims *QST* each month too, says W3FWD, who is fighting valiantly to keep his position as DX head of the household.**

Henry Meyer, of Brookfield, Wisconsin, OM of W9RUJ, advises that since Mary's paralyzing stroke in Dec. 1960, there have been many requests for the Grandmother's Certificate, of which his XYL is custodian. It appears that it will be a considerable time before Mary will be able to return to normal activity — meanwhile, Jack Doyle, W9GPI, and Henry will issue certificates. We are sure that Mary's many ham friends throughout the world send her best wishes for her complete recovery.

— • • • —

OM KØQVQ passed along a clipping from the *Atchison Sunday Globe* of March 11, 1962, concerning one of "our favorite hams in this area" — Rowena Ruhlman, KØANA, of Atchison, Kansas. The item read:

"Mrs. Al Ruhlman will be one of four women receiving the St. Anne award this afternoon from Archbishop Edward J. Hunkeler at St. Peter's Cathedral, Kansas City, Kansas, in recognition of her 25 years of Girl Scout service, 23 years as troop leader. She has also served as a volunteer trainer the past 11 years and is an avid ham radio fan."

KØQVQ added that KØANA is also a very good cook!

## COMING EVENTS

*WRONE Get-Together* — The annual spring luncheon of the Women Radio Operators of New England will be held May 5, 1962 at the Publick House, Sturbridge, Mass. Jean Pearce, K1IJV, is chairman.

*FLORIDORA Anniversary Party* — to be held in conjunction with the Orlando Hamfest, May 5 and 6 at the Cherry Plaza Hotel, Orlando, Fla. Ev Shea, K4UIZ, is Secy. of the Orlando RC.

*12 Midwest YL Convention* — May 18–19, Flint, Michigan. Esther Stuewe, W8ATB, Chairman. Details in previous columns.

*ARRL Southwestern Division Convention* — June 1–3 at Disneyland, Anaheim, Calif. Miss Amateur Radio of 1962, Marilyn Meyers, WV6RXU, will be crowned at the banquet (see March *QST*, p. 39, for Marilyn's photo). Vada, W6CEE, will conduct a YL operators session, and Gladys, W6DXI, will m.c. a SWOOP initiation for XYLs. The Lee DeForest Award will be presented at the banquet to the amateur (YL or OM) of the S.W. Division who has made the year's greatest contribution to amateur radio. Address registration and inquiries to S.W. Div. Convention P.O. Box 1685, Newport Beach, Calif.

*Field Day* — June 23 and 24. YLs and YL clubs who participate are invited to submit summaries of FD doings (pictures too, please) to THIS column for a special YL FD report.

*16th Annual AWTAR* — The 1962 All Woman Transcontinental Air Race will start at Long Beach, Calif., on July 7 and will end July 11 at Wilmington, Delaware. Carolyn Currens, W3GTC, will again serve as chairman for the amateur radio net.

*ARRL National Convention* — Aug. 31–Sept. 3 at Portland, Oregon. YL-XYL activities will be conducted by the Portland Roses.

*Howdy Days* — sponsored by the YLRL. Sept. 25–27.

*YLRL Anniversary Party* — C.w. Oct. 24–25; Phone Nov. 7–8.

*Ladies Day* — 2nd Monday of each month reserved for just plain ragchewing among the girls.

## CLUBS AND NETS

*Los Angeles YLRC* — The 10th annual Valentine Party was attended by 92 YLs and OMs on Feb. 3. Guests included Bernard H. Linden of the FCC and Roland d'Assignies, ex-FO8AD and his wife, of Tahiti. Club President WA6AOE presided at the banquet, assisted by K6JCL, K6OAI, W6VDP, and WA6EAF.

*TYLRUN* — K5GBX, custodian of the club YL-OM Certificate announces a change in the cost of mailing the certificate from 10 to 25 cents. Rules remain the same — work 25 full members of TYLRUN. For further details

(*Continued on page 138*)

**Twenty-six members of the new Buckeye Belles club met at Worthington, Ohio on March 4. By-laws were accepted and officers nominated. Shown in the photo are 1st row kneeling (l. to r.) K8RLS, K8WZF and her daughter, Amy, and K8GWF; 2nd row seated K8VJH, W8LGY, K8RPQ, KN8BXO, K8TFL, K8KKP; 3rd row seated K8MZT, KN8AOT, K8TLG, K8VWW, W8QIS; 4th row K8ZHP, K8TFG, K8ITF, K8RZH, K8WRH, K8CEN, K8RGY; 5th row K8USP, K8YVC, K8PSE, K8VBO, K8UKM. (Photo via W8LGY)**

# How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

**Phew!**

Long Hall rumbled and creaked with the usual noisy May get-together of the DX Hoggery & Poetry Depreciation Society. Foolhardy chairman Yul B. Sari ducked a well-aimed Rettysnitch while introducing Max R. Earsring, guest of honor for this, the tenth-anniversary DXHPDS workshop. We raised a rather threatening toast of Old Haywire in Max's direction and noted that his right arm was much more muscular than his left. He had, you see, achieved the first W/K DXCC ever scored solely by calling CQ DX.

Mr. Earsring acknowledged the crowd's acclaim by bowing graciously, just low enough to avoid the pair of whirring prop-pitch motors that went crashing through the wall behind him. Another round of fuming O.H., a ringing chorus of the Wouff Hong Song, our DXHPDS anthem, and we lay back on our psychiatric couches ready for the business meeting. O. Howie Splatters fearfully crept forward to start proceedings:

The noodle of Numbskull O'Shell
Is cracked like the Liberty Bell.
He always piles in-
To a pile-up's mad din
Just to say TNX QSL.

After they carried Howie away, Don E. Neversign recklessly faced the forum:

The pasteboards of G. Whizzo Gee
Are answered occasionally.
His average is down,
The lowest in town —
He simply abhors GMT.

The congregation's mood grew uglier. Several plumed attendants appeared on stage and began to place tree branches on the floor around Max R. Earsring as Houghton N. Halloran delivered:

The antics of Quibbler McTwist
Are funny, yet wouldn't be missed.
He cunningly fools
With certificate rules
And Utopian countries lists.

The stage crew busily added old pieces of twine and newspaper to the foliage surrounding our star visitor. Max was highly pleased by all this attention, and shouts of "The high edge, the high edge!" came from the audience. The rising tumult forced Will U. Nockitoff to howl his recitation S9-plus, a gem mailed in by W1TS whose insurance company forbade his attendance:

A *pfui!* on Itchy DuSchwein
Who gives me a pain in my spine.
He twiddles and twaddles
His gold-plated paddle
While waiting for DX to sign.

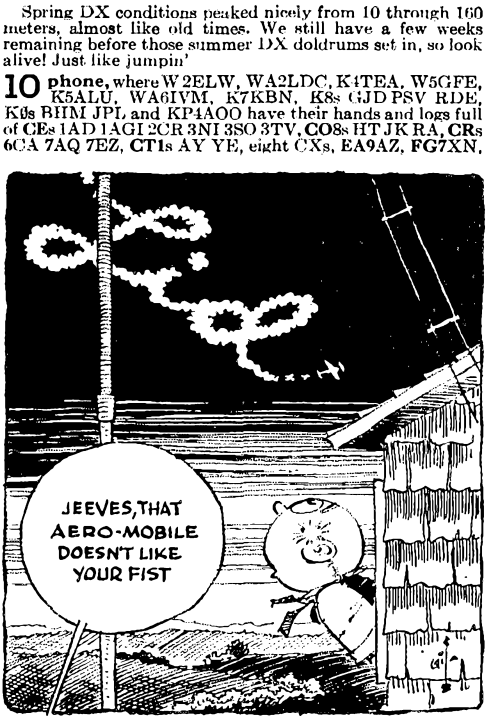
By now it was apparent that the peculiar construction on stage was actually a huge bird's nest. Max Earsring leered out from its crater like some transmuted vulture while the mob kept chanting, "The high edge! *Tune in the high edge!*" Sure enough, rising in volume over the p.a. system we heard sounds of 14,345 kc. with several delicious foreign accents calling CQ USA. This activated Max's conditioned reflexes causing him to leap up the side of his giant nest screaming, "CQ DX, CQ DX! CQCQCQCQ DX!!"

The remainder of the caucus is mercifully vague in our memory, but we recall that Max R. Earsring began to raise DX. First came a soft sprinkle of hummingbird X on stage, followed by splatterings of sparrow X and pigeon X. Then from the gallery came a barrage of chicken X and heavy duck X. Max, now sensing his danger, looked around for an avenue of escape but was blinded by a broadside of overripe goose X. He almost made it to safety over the rear rampart as a whizzing fusillade of huge ostrich X pinned him down. Two colossal fossilized dinosaur X administered the *coup de grace*, crashing into the mess on stage and collapsing the entire structure into abysmal depths below. The yolk was on Max — he was no longer getting out.

**What:**

Spring DX conditions peaked nicely from 10 through 160 meters, almost like old times. We still have a few weeks remaining before those summer DX doldrums set in, so look alive! Just like jumpin'

**10 phone,** where W2ELW, WA2LDC, K4TEA, W5GFE, K5ALU, WA6IVM, K7KBN, K8s GJD PSV RDE, KØs BHM JPI, and KP4AOO have their hands and logs full of **CE**s 1AD 1AGI 2CR 3NI 3SO 3TV, **CO**8s HT JK RA, **CR**s 6CA 7AQ 7EZ, **CT**1s AY YE, eight CXs, EA9AZ, **FG7XN**,




*7862-B West Lawrence Ave., Chicago 31, Ill.

UA9BZ of Chelyabinsk claims a 121/111 DX record and 44 United States confirmed on 15 through 40 meters with a homemade 100-watter, BC-312, 8-tube super and ground-planes. Igor began hamming in April, 1960. (Photo via W8KX)

FS7RT, nine HCs, HH2RS, HI8s DGC DGH, HK1ZU, HP1FQ, HR1s BB BG, JA8PC, KG4s AI AO, scads of LUs, OAs 1W 4BR 4CP 4HK 8B, PJs 2CR 3AD 3AO, PYs 1AQD 2CEN 7AEG 8MA, PZ1s BW CH, TGs 5HC 9BJ 9MO, TI2s HK OA PT, VK2s ADE FU, VPs 1RL 2GAQ 2LA 3HAG 5AH 5BB 5CH 6NW, VQs 2AT 4GX 4HX, W5JOK/VO1, XEs 1CG 1KE 1WG 2BC 2R 2RA, YNs 1RCM 1WW 4WLD 6HH, YS1LA, YVs 1AQ 3DV 4EH 5AGM 6ED, ZD6HK, ZEs 1AK 2JA 3JY 6JY 7JV 8JY, ZLs 1CA 1CO 1GJ 1JK 2HQ 2JK 2UD 3BL 3KA 3QK, ZSs 1AB 2AR 3R 4LH 5OA 6ARP 8I, 5H3PBD and 5N2JKO.

10 c.w.'s comeback entertained W1OPB, WA2s KSD LDC, K4TEA, K5ALU, K7KBN, K8PSV and KØBHM with signals from CE1BD (15) 19, CN8EU, CX2BT 18, HC1AGI (15) 20, HK7ZT, KV4CI, LUs 1DAB 5DDF 18, OA4HK (50) 18, PY2CCO, TI2CAH (110) 15, XE1PJ, ZP9AY (25) 19 and ZS2NG. If you're new to this routine, "ZP9AY (25) 19" means that ZP9AY was observed or worked 25 kilocycles above the lower band-limit around 1900 GMT. Same short-hand holds true in the following paragraphs. Now let's see what cooks on

15 phone, as adequately described by W1BPM, K1QYJ, W2MES, WA2s KWB LDC RQZ, K4s LRX TEA, K5ALU, WA6s IVM ORS, K7KBN, W8KML, K8YRO, W9NNC, K9JJR, KØs JPL RNQ YRQ and VE7BBB. The plunder: CEs 2AW 3XG, CO8RA, CR6JL (220) 20, CTs 1SQ 1YE 2AI, CX2s AX BT, DU1s AN GF, EA8BA, ELs 2Q 6E, FG7s XL XN, FS7RT, GC2TR, HCs 1JU 2CB 5HA, HHs 2R 2V 5DM, HI8s DGC DGH, HP1AP, JAs 1CWP 1DLN 1FSL 2BCE 3APL 4CI 4XW 6AFO 7AD 7VI 8UY ØAET, KA2HO, KB6BZ* (406) 23, KG4s AN* AO, KM6s BI* CE*, KW6BG* (417) 0, KX6s BU* DC*, KZ5SW* (446) 18, LZ1UF, OA4s GR HM, PJ2CR, PY5AM*, PZ1CI, TF2WGB, TG9SC, TI2s AB OA PT, TN8AA, VPs 1RL 2AP 2DQ 2GAB 2GE 3HAG 4LG 4TP 4VP 7MC 7NC 8DW, VQs 2AT* 4HX, XEs 1AW 1EV 1WG 2TF, YN6HH, ten YVs in six call areas, ZD1JWC, ZLs 1BE 2AX, ZP5CF, ZSs 3LW 4PB/ZS8/ZS9* 7S, 5A2TB (230) 15, 5H3PBD, 5N2JKO and 5T5AB (205) 16 — the asterisks representing single-sideband specimens.

15 c.w. is advantageously appropriated by W1OPB, K1s JFF QAQ QYJ, W2ECU, WA2s FIT HLH KSD KWB LDC MHH RQZ, K3JIQ, W4NJF, K4s LRX (109/84 countries worked/confirmed), TEA, W5EHY (121), K5ALU, W6RCV, WA6s DNM IVM ORS, W7s DJU LZF, K7KBN, W8s KX YGR, K8s GJD PSV (30), RDE YRQ, KØs BHM JPL OSV (91/61), OSW (94/62), RNK VSH YRQ, VEs 3PV 7BBB and ZS2U as indicated by this evidence: BV1USA, CEs 1AD 1BD 3RC 3RY 20, 3ZK, CN8s AE DJ (5) 19, CO8s RA RM (55) 0, CP3CN, CR6CA, CTs 1NT 2AI (100) 17, CX6CB, DMs 2AUO (20) 17, 2AVK (50) 16, 3PVL 3YFN (65) 18, DU7SV (10) 0, EL4A (8), FAs 2VV 3WW (45) 14, FO8AN, GC2FZC, HA5s AJ (35) 14, BI (50) 18, HCs 1AGI (25) 13, 1JU 5CN 21, HKs 5CR 7YC 14, 7ZT ØAI (38) of San Andre, HM1AP, IT1AGA (70) 15, twenty JA1s, six JA2s, five JA3s, JA4s AQR AQS, JA5FQ (55) 23, JA6AKW, four JA7s, five JA8s, JAØHC, KG4s AN AR CY, KM6CE, KR6s AR (73) 0, DG (30) 23, DO (70) 23, LJ (50) 23, KV4AQ, KW6s BF DG (30) 23, LX2XG (40) 15, LZs in quantity, OA4KF, OEs 3WB 6PN (60) 15, OHs 1OU 2LA, ON5BF, OX3s DL UD, PI1LS/mm (35) 17, PJ2ME (50) 15, PZ1s BH CJ, SPs 2GS (45) 16, 4JF 7HX 8KAF (30) 15, 9KJ, TF3MB, TI2CAH 16, TN8AU, UA2AK (40) 14–15, UAØs GF (75) 0, KCA KPA, UB5s CG 13–16, JX MZ (90) 14, UC2AD, UG6s DL GL 12, UP2NV (70) 16, UQ2KAE (50) 16, VKs 2AKB 3TX 4ZB, VPs 2AP 2LD 2SC 4TR (60) 19, 5GT 8BX, VQs 4IN 5IG 8BM, VRs 1B 2EB 4RS (80) 0, XE1s PJ (80) 16, VB, YN1AA (54) 21, YOs 2CD (23) 16, 6AW, YVs 1EM 4AU and lots of 5s, ZB1HC 12, ZC4FS, ZE2JC, ZK1BS, ZL4CK, ZP9AY (30) 15, ZSs 1O 5JK (30) 19, 3AE, 3V8CA (50) 18, 4X4s DH MJ (35) 15, KK, 5A3BC (95) 17, 5H3HD (25) 19, 5N2s JKO (70) 16, LKZ, 5T5AD (80) 23, 6W8s BQ (50) 15, DD DF (61) and 9Q5AAA.

15 Novice DX diggers KN1SMT, WN4CMW, KN5KWG and WV6SBO (59/48) extirpated CEs 1RC 3RD, CO8RA, DM3s FH RVL, more DJ/DLs, EA1BC, Fs 3IM 7AA, some G3s, GM3NIO, HA3BC, HB9SG, I1DFD, JAs 1EFE 1ISA 1ISB 8ABH, K8WKY/VO2, KH6s BGS IK, KZ5KGN, LU8FBH, OH2s DC YL, OK3MM, ONs 4TE 5BB, PJ3AI, PZ1BH, SMs 2COL/mm 7BHF 7ID 7TV, UA1DI, WP4s BAD BAF BBL BBN, YN3KM and ZL1RC.

20 phone keeps K1JFF, W2MES, K2s TDI (183/174 with 172/165 via s.s.b.), UYG, WA2RQZ, K4TEA K5ALU, W8KML, K8s GJD RDE, K9JJR, KØs BHM YRQ and VE3PV occupied with CN8IK* (299) 19, CP5EA*, CT1YE*, CX2CO* (345) 2, EL2s F G* (332) 21, Q, GI4RY* (327) 12, HHs 2RD 9DL* (331) 23, HI8DGC (190) 2, HP1AP, HV1CN*, K4PGL/VP9, KC4s USH* USS* USV*, KH6EEM/KB6, MP4BBW* (345) 14, OEs 1RZ* (303) 19, 8MI* (327) 13, OX3s AI* BZ*, OY7ML* (345) 13, PJs 2MC 3AR*, TF2s WFX WFP, UA2AW* (315) 19, VK6MK* (300), VPs 1RL 2DA* 2GAA* 5BP* 7BZ* (315), 9BO 9WB, XEs 1FFF* (341), 2LR, XW8AS* (313) 13, XZ2SY, YS1MS*, YVs 2CJ 5AKM* 5ALC, ZE1JT* (331) 19, ZS6PC/ZS8* (345) 18, 4X4DK* (346) 16, 5H3HH* (300), 5N2s JKO SMW and 9Q5AF* (331) 21, those asterisks going for s.s.b. boosters. Say, is "old-fashioned" carrier a.m. making a 14-Mc. comeback?

20 c.w. action expands now as the m.u.f. forsakes higher frequencies and QRN batters 40 and 80. "How's" reporters W1OPB, K1s JFF (100/92), QYJ, W2MES (176), K2s JUA UYG, WA2s FCC HLH (40/10), JIS KSD (134/97), KWB LDC (95/57), RQZ (26/8), K3MNJ, K4TEA (210/195), K5ALU, W6RCV, WA6s DNM (55/48), IVM ORS, W7s DJU LZF, K7KBN, W8s KX (222/208), YGR, K8s GJD RDE, KØs BHM JPL RNK VSH (89/76), YRQ, VEs 3PV 7BBB, KP4AOO and ZS2U fill us in on [illegible] manifestations of East Pakistan's scrumptious AP5CP 16, CE9s AF (30), AW 4, CN2BK, COs 2AP (8), 2EV 7AI, plenty of CXs, CR7IZ, CTs 1AU 1ID (12), 2AI (18) 19, 2BO 3AV, half a dozen East Germans, DU1OR (61), EA8CP (9), ELs 2AG 4A (20) 16, 4YL (20) 22, FAs 3CT 8RJ (25) 16, FB8XX, FO8AN of *Yasme III*, HAs 3BC 5BE (5) 20, 5KFR (40) 19, HBs 4FD 16, 9LN/ne 12, HCs 1AGI (15) 2, 2IU 5CN, four HH2s, HI8DGC 6, plenty of HKs, HM1AP (40), HP1s IE LM, HR1MM, HZ1AB, IT1AGA, JAs 1CG 1CLW 1CRR 1MJ 2JW 3CKI 5AI 5FQ (75) 1, 7AD 7FS, KC4s AAD (87) 1, USS, KGs 1BQ 6AIG 13, KR6s AR (50), KV 15, LJ (18) 1, KV4s AA (82) 21–22, AQ (20) 20, KW6DG, KX6BU, LA1s LG/p and L1/p (60) 22 of Jan Mayen, LUs 1NE 4XB and YL 7AU, LZ2KAD, MP4TAM 17, OAs 3AB 4FM 6, 4MJ 8D, OEs 1RZ 3EX 3NE (75) 17, 8SW (45) 21, OHØNF, ON5AK (3) 22 of the new breed, OX3s BZ KW ST (15) 0, UD (56) 17, PI1KMA (35) 21, PJ2ME (38) 1, many PJ3s, one PX1AA (50) 16, PZ1s BH CJ, SPs galore, SVØs WI WT/Crete, TF3AB, TI2s CAH DL PZ 19, TN8s AF (60) 21, AO (60) 21, TT8s AG (5) 19–20, AJ (10) 19, AL (75), UA9s KDL KOA, UAØs EQ (25), GM IK JU LJ KAR (36), KFG RK (60) 0, UB5s KAW KCC KJE KMA (11) 14, NM (21) 13, NP QT, UC2s AA BW KAA 15, KAO, UH8BI, UL7s JA KAA, UO5s KAA PK (42) 13, UP2s KBA KBC (61) 15, NM 15, NV NY, UQ2s CC 18, FF KDD (78), UR2s AT KAN 16, KCA, VEØs MC 3, NE 5, NR 3, VO1AW, VK9GP of Norfolk isle, VPs 2AB 2VI (75), 2VJ, 3YG 4TR (39) 0, 5BB (100) 22, 5TA (G3TA, now QRT), 6PJ 6PV (55) 23, 8CD (81), 8GB (61) 0, 8GQ, 9EP 9EU, VQs 2W 5IG 18, VRs 1B 2AB, VSs 6EN (66), 9AAC 9AFM (74) 20, 9AP (10), 9OC 16, W1EJT/KL7 3, W4WQQ/VP9, XEs 1OK (38), 2FJ, YNs 1AA 1ST (45) 3, YOs 2BB 3KPA 4KCA 9IA, a fistful of YVs, ZBs 1HC (30) 11, 1NZ 16, 2AD, ZC4IP, ZEs 7JV 8JO, ZKIs AB (75), AR, ZPs 5ML 9AY (10), ZSs 3EW 3HX (50) 21, 6APL/Antarctica, 7P (76), 4S7s EC 12, NE 12, RS, 4X4KK (15) 17, 5A1TW, 5N2s JFW (19) 1, JKO (75) 23, LKZ (61) 0, 5R8AB, 5T5AD (87) 21, 6Ols MT 20, ND, oodles of 6W8s, 9G1s DT (7) 20 and GN.

40 c.w. DX developments contract as OM QRN invades our latitudes. Nevertheless, K1QYJ, WA2s HLH KSD KWB LDC, W3MFW (130 on 7 Mc.), K3JIQ, K4TEA, WA4FJM, W5EHY, K5ALU, W6RCV, WA6s DNM IVM ORS, W7s DJU LZF, K9GSD, KØs JPL YRQ, VE7BBB and KP4AOO come through with CP5EZ, CTs 1ID 2AI, CX1FB, DU7SV, EA4CE, GC2FMV 5, HB9ZE (17) 2, HCs 1AGI 1DC 1JU 2AC, numerous HKs, HR1MM, IT1AGA, JA1s BNA BWA CG CO CVD CWM DCY

DDR DFN DID DOY FNH FOP FTQ HQT, JA2s ANS APZ, JA3s ALO AYU BXI CHD CRB DGE, no JA4s, JA5s ADR AID/mm PQ, JA6s BVJ AK, JA7s AGO AMK, JA8s BB LN, JA9YB JA0s RR SU, **KA2**s KS RP, **KG4**CY, **KP4**CC, **KR6**s AR QW, **KV4**s AA CI (8) 21–23, **KW6**DG, **KX6**AJ 12, **KZ5**MQ, **LA1LI/p**, **OH2**BZ, **PJ2**ME, ample PYs, **SP8**HV (15) 2, **TI2CAH/TI9** 19, **UA0**s KFG KKD KZA, **UM8**KAB, **UO5**KAA (40) 1, **UP2**MO, two dozen VKs, **VP**s **2AB** 2LD 2SH 2VI 3HAG **4TK** 6NG 6RG 6RQ, **VR**s 2DK (8) 6, 2EA 12, **4CV**, **VS4**RM, **WØVEH/VP9**, **ZC4**TX, several ZLs, **ZP9**AY, some ZSs and **5N2**JKO.

**40 phone** finds fearless W1APA, WA6DNM and KØJPL enjoying the companionship of single-sidebanders **CO8**RA (204), **FS7**RT (205), **Gs** 2PU (90), 3NBP (209), **KGs** 1FR (205), 6FAE (204), **KH6**DVA (231), **KP4**AWH (204), **KJ6**CA (205), **OA4**NOM (222), **VK**s 1SB (90), 4RZ (90), **VP**s 2DX (205) ,6KL (204). **XE1**CV (206) and **ZL3**ID (90). Submariner W4CSE/mm (203) aboard USS *Darter* is in there, too, as well as a.m. holdouts **KP4**AXU and **XE2**CN.

**75 phone** succumbs somewhat to atmospherics but K4TEA, VEs 3BQL/SU and 3PV get through satisfactorily to s.s.b. stalwarts **CN8**s FU IK, **EP2**AT, **ET2**US, G3FPQ, **HZ1**AB, **VPs** 2VI 5BP, **SVØ**WT, **ZS6**TE and 3V8CA. Twenty-meter quality!

**80 c.w.** goes back to the traffic men, generally speaking, but the generalization is flaunted by WA2s KWB LDC, W3MFW (63 on 3.5 Mc.), K3JIQ, K4TEA, K5ALU, WA6IVM, KØJPL, VE7BBB and KP4AOO who click with **DJs** 1FN 2RE 3FW, **EA4**CR 7, **EP2**BK (now QRT), seven Gs, **GD3**UB, **GI5**UR, **HB9**EO 6, **HC1**AGI, **HK1**QQ 5, **JAs** 1CSL 2BNE 3DCQ ØOP, **KV4**CI, **KW6**DG 10, **LA7**Y 7, **OE3**TL 5, **OH2**BZ 5, **OK2**s KGV KGZ LG, **SM5**WI 5–6, **UAØLN**, **VK3**DQ, VO1DX 10, **VP5**s BP MJ, **VS9**AAC, **XE**s 1AX 2FO, **YN1**AA, **YU**s 1KND 3CCD 3FS and **ZK1**AB.

**160 c.w.** comes to the post-mortem stage — *what* a season, eh? Before the lightning barrage took over from snow static WA2KWB worked **HC1**AGI, **HR3**HH, VO1FB and **WØVEH/VP9**; VE3BQL/**SU** clicked with some Gs, **SVØ**WZ and was heard by **EP2**BK; **VP3**AD chatted with **VP2**VL; SVØWZ and **EL4**A heard W1BB's tests; and **FB8**BX (W1RAN) ran off with EI G GI GW and five U.S. call areas on 40 watts and a 266-foot wire. Perusal of W1BB's comprehensive 1961–'62 *Bulletin* No. 4 reveals these additional items available for the discerning 1.8-Mc. connoisseur: **CN8**PZ, **EI9**J, **GD3**UB, **GI3**NZZ, **GM3**IAA **GWs** 3CBY 8PG, a dozen or more Gs, **HB9**T, **KH6**IJ, **OK1**s GT ZL, **UB5**WF, VO1DX, **VPs** 2ZA 5BH 5BP 5FH 8GQ, **XE2**OK, **YN1**AA, **ZC4**PB and **ZL3**RB. See what you missed? Better start *now* preparing for the 1962–'63 sessions on low band, OM. And who's to say that 160-meter DX developments won't transpire this summer, static notwithstanding?

## Where:

**Asia** — "Sorrowfully pulled the switch at HS1R December 2nd," writes W5OZI/3. "I think my QSL chores have been completed, but advise the gang I will be happy to re-QSL upon receipt of cards sent to [the address in the list to follow]. Self-addressed stamped envelopes will be appreciated." HS1X (W1FAX) also closes down, according to QSL aide WA2WCB who will continue to stand by for QSL inquiries. S.a.s.e. from W/Ks, International Reply Coupons from others, will rate direct reply . . . . . UA9BZ's QSL holdouts include BY1PK, EA3CY, KG6AJT, KX6BU, VS7EC and 9K2AD. Igor remarks to W8KX, "Sent my QSL to Washington for QSO with W8OLJ/PK and received a certificate but no QSL." . . . . . "I handle QSLs for VS9APH QSOs made after October, 1961," advises W3HQO, requiring the usual s.a.s.e. . . . . K9JJR does QSL honors for 4X4CW, and don't forget those containers . . . . . HM1AP, who celebrated his first on-the-air anniversary in January, ships a monthly log transcript to QSL manager K6QPG for U.S.A. contacts. Cho soon will work his 500th Yank, and serves as KARL DX editor and QSL chief . . . . . Florida *DX Report*'s YA-type synopsis: QSL YA1s AC via W7MQA, AO via DL6YI, BW via DL8AX, IW via W6DXI, PB via W6DXI or KH6OR, TD via W6DXI or K6UGH, and AW as indicated in the roster to follow . . . . . TA2AR, active late last year, is delinquent in liaison with PAØWWP. No logs, no QSLs, says VERON's *DX press* . . . . . New unbeatable record for fast QSLing? K1AQI, visiting MP4BBW, listened to Ian work his home station where K1UBJ was at the mike. Jack swapped QSLs with MP4BBW on the spot.

**Africa** — 5T5AD (FF8AD) assures W2ECU of 100-percent QSL on receipt . . . . . W8KX finds VQ5IG and countrymen expecting a new prefix by fall. Yanks will join the trend with WB-style labels (see p. 42, March *QST*) — we'll soon need computers to keep tabs on all these tricky tags . . . . . DARC (Germany) and VERON learn that 7G1A, now home in Czechoslovakia, turned over all logs to his QSL department. Unconfirmed 7G1A QSOs should gradually diminish . . . . . WGDXC's *DX Bulletin* has it that ex-ZD1GM, now in Nigeria, still is disinclined to confirm his Sierra Leone QSOs . . . . . VQ4IN and G3GPE/VS9K, same fellow . . . . . NNRC learns that ZD1JWC wants one IRC or a 7-cent airmail s.a.s.e. for direct QSL response . . . . . CR7IZ, awaiting a fresh QSL batch from Portugal, assures K2UYG of 100-per-cent output when they arrive . . . . . TL8AC tells W8KML that QSL debts will be liquidated when he returns from France around October.

**Oceania** — "I QSL only via bureau or under envelope," declares VS4RS to W8KX, "but I do QSL 100 per cent." Ron gives the green light for IRCs . . . . . From W8KWC: "Cards for my forthcoming Pago Pago operation can be sent with s.a.s.e. to my home QTH. All W8KWC/KS6 QSOs will be confirmed in September or October." . . . . . KØBHM understands that W7UXP/KH6 may be of assistance toward KM6CB verifications at 6181 Ibis Av., Ewa Beach, Oahu, Hawaii . . . . . WGDXC suggests consultation with WA6HOH regarding confirmation of 1958–'62 KJ6BV QSOs.

**Europe** — PBRC (SL3ZO) can supply U.S.S.R. prepaid airmail envelopes for your convenience, an approach to Russian QSLs that seems particularly effective . . . . . W8KX finds SM3YF/mm and SM8YF/mm of several years ago same feller . . . . . FEARL *News* reports an influx of IE1SMO pasteboards for IT1SMO's December Eolians field day . . . . . J. Synek, Gen. Svobody 2, Liberec, 13, Czechoslovakia, may be of assistance toward tardy OK QSLs, according to PBRC. EA1GZ, likewise, regarding reluctant Spanish items . . . . . Cards for next month's EI0AB Arans fling should go to EI6X who will respond on receipt. Only half of the stations worked in last year's EI0AB DXcursion applied for confirmation . . . . . OH2BAH found some skeptics in the '62 ARRL DX Test, according to W9WIO. Those new Finnish three-letter calls are further evidence of the current world-wide amateur radio boom . . . . . SVØWZ (W7FTU) saddened 7-Mc. DX hound W9NN by testifying that he wasn't on the air last December 26th, propagational evidence to the contrary notwithstanding. "Spend most of my time on 21 Mc. due to terrific QRM from Europe on 7 and 14 Mc.," explains Sarge . . . . . W2CTN accepts QSL responsibilities for DL9KP's LX3KP caper later this month, also for Paul's tentative July–August 3A2BZ business. Same goes for subsequent DL9KP/OE emanations — s.a.s.e. imperative . . . . . I1SVZ promises full and fast confirmation of recent s.s.b. QSOs by I1s SVZ/M1 and PGM/M1, proper address to follow.

**South America** — W8KX observes, "One fast CE9AW operator says QSL via W9VZL, but another slower op states QSL via CE2AA — take your pick." . . . . . "WA6SBO, QSL manager for PZ1BH, reports omission of s.a.s.e. by many applicants," informs WA6DNM. "No postage, no action." . . . . . VERON records that ex-PZ1AY welcomes Surinam QSL inquiries at his new PAØJDS address which follows . . . . . "I'm handling cards for PZ1CJ (ex-PZ1BT)," states KØYRQ, requesting the usual s.a.s.e. or IRC courtesies . . . . . WGDXC learns that VP8GB has accepted W5QK's offer of Stateside QSL representation. After the last seasonal mail, due soon, log transcripts will have to go via radio . . . . . FDXC mentions that HK1QQ now handles his own QSL matters via the address in the directory to follow . . . . . WGDXC suggests inquiry to PY4TK regarding lack of PY7AFN Fernando de Noronha wall paper.

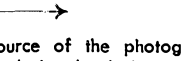
**Hereabouts** — Lots of "QSLers of the Month" this month: CE3RC, CO2QR, CTs 2AI 3AV, FA3CT, FO8AN, G8FC, KG6AKZ, KR6AR, KW6DF, KZ5TD, LU5DGA, OD5LX, SM5CCE, TN8AA, VPs 2VI 5GT, 5H3PBD, 5N2JKO, 5T5AD and 9Q5AAA, plus QSL aides Ws 2CTN


6O1MT, temporarily inactive while mending broken bones expects to resume full DX activity next month. Mauro is nearly DXCC and WAS, preferring 14 Mc. and above.
(Photo via W8KX)

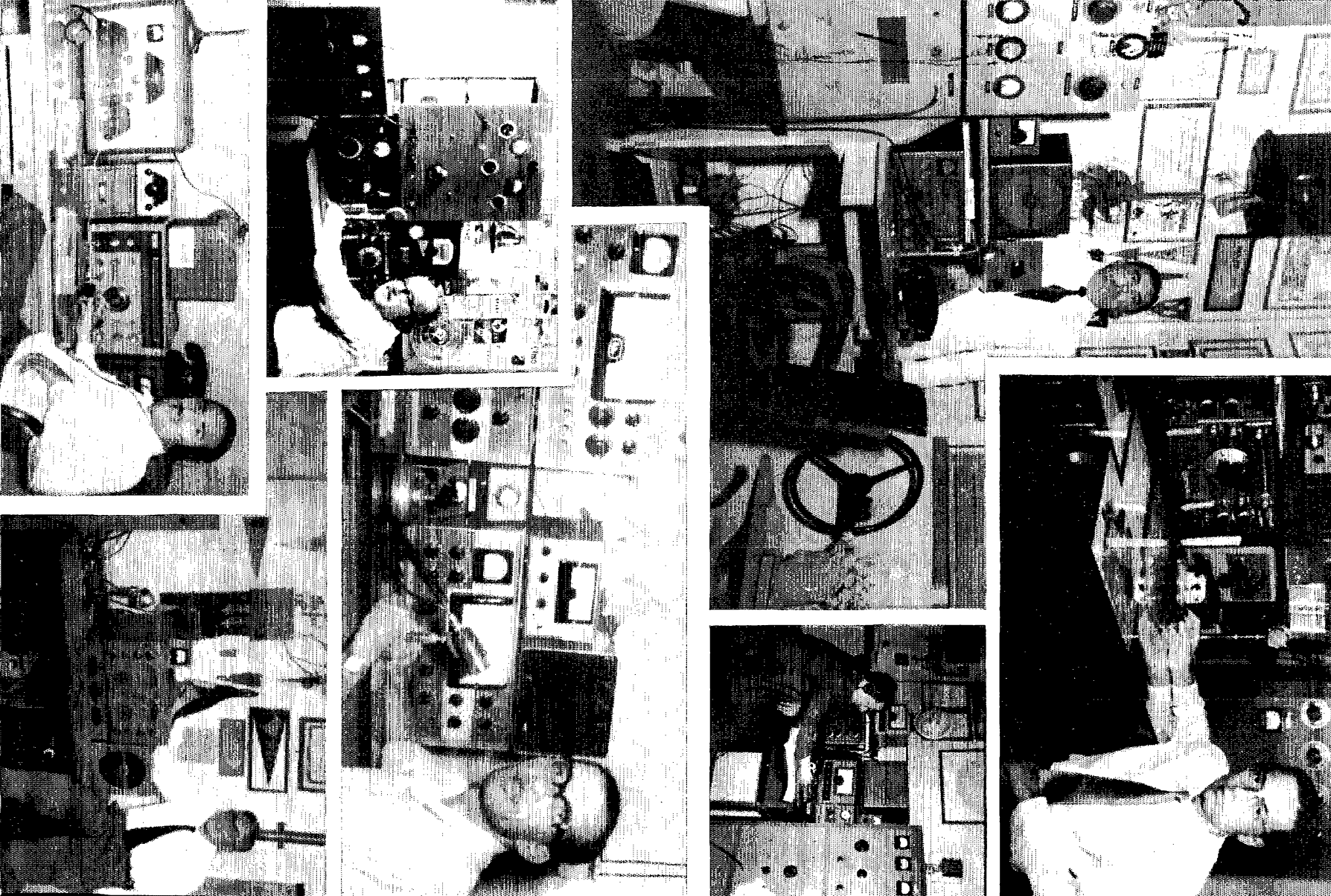
2HMJ 3KVQ 4MCM 8EWS and KØTYO. The QSL diligence of those gentlemen is commended by W1BPM, W2ECU, K2UYG, WA2FCC, W4NJF, WA4FJM, W5EHY, WA6ORS, W8KX, K8s GJD RDE and VE7BBB. Furthermore, W6RCV nominates the Federal Communications Commission as a topflight QSLer after receiving his license renewal only 17 days after applying. FB, Uncle! . . . . . Ks 4LRX 9GSD and 9VGE offer their services as QSL managers for deserving overseas DX operators . . . . . Help! WA2HLH wants a tip on the present whereabouts of HP3RL, K4TEA needs a tracer on the 1959 FF8BZ, W5PMK is frustrated by 9U5DS, WA6ORS can't seem to get through to PJ2CR, W8YGR desires a direct route to UA2AK, and VE7BBB yearns for FG7XL and KX6CG QSL cooperation. Any help? . . . . . Without s.a.s.e. VP5GT cards come *mighty* slow, warns KØBHM . . . . . VP2AB directions from K1AA (ex-W4CC): "QSL c.w. contacts to K1AA, single-sideband QSOs direct to VP2AB." . . . . . "Take along a batch of your QSLs when visiting foreign lands," recommends K1AQI (MP4BDR-YN1JS). "They're better than business cards. And don't forget to carry plenty of pertinent addresses from the *Call Book* or your QSL file if you want to make your overseas stay really interesting." . . . . . Starting with April QSOs, WA2FIT will endeavor to keep the FG7XC QSL situation tidy. The usual s.a.s.e. from W/K petitioners, please . . . . . LeRoy Waite of NNRC reports a growing response from s.w.l.s in his efforts to provide reliable clearance of incoming DX QSLs. Remember that Roy's routing is amateur-to-s.w.l., not s.w.l.-to-amateur. His address: 39 Hannum St., Ballston Spa, N.Y. . . . . WA2ODA reaffirms his lack of FP8 QSL arrangement in lines to WA4FJM (W8EXZ) . . . . . "All valid W/K contacts with HH2CE will be QSLd through me upon receipt of QSL and s.a.s.e.," notifies K8TBR. Bob receives a monthly shipment of HH2CE log data . . . . . W1TS relays W2CTN's disclaimer of VP2AB confirmational facilities . . . . . "VP2SY has accepted my offer to act as his QSL manager," writes K2MRB, specifying s.a.s.e. . . . . A. Leith of the Canadian DX Club, 846 George St., Sydney, N.S., understands that KG4AO is chief at the Gitmo QSL bureau. VE7BBB credits KG4AI as an exception to the lax Guantanamo QSL-ing rule . . . . . W4ECI is game to handle confirmations for W4BPD's world-wide swing; s.a.s.e. specific. Gus also forwarded his 1961 DXpeditionary logs to W4ECI in case there are those in need. W4s ARR and ZRZ will assist Ack with details. And now a few piecemeal possibilities for your pleasure:

**BY1CD/ZA,** c/o ZA2BAK, Box 28, Tirana, Albania
**CE3ZK** (via RCC)
**CT3AV** (via W3KVQ)
**CX9BA,** J. Bartley, P.O. Box 2214, Montevideo, Uruguay
**DJ1IM,** L. Schaefer, P.O. Box 107, Bruchsal, Germany
**DL3XS,** K. Holderer, P.O. Box 82, Bruchsal, Germany
**DL5CS,** J. Kadlec, U.S. Consulate General, APO 757, New York, N.Y.
**DL9KP/OE** (via W2CTN)
**EA8CG** (via K1DCL)
**EI0AB** (via EI6X)
**EP2BE,** A. Alseus, P.O. Box 1472, Tehran, Iran
**FA3CT** (via W2CTN)
**FG7XC,** P. Antenor-Habazac, Dos D'ane, Gourbeyre, Guadeloupe, F.W.I. (or via WA2FIT)
**FG7XE,** G. de Vipart, Box 387, Pointe-a-Pitre, Guadeloupe
**GB3COV** (via RSGB)
**HH2CE** (W/K via K8TBR)
**HK1QQ,** H. Olarte, Aerocondor, Box 162, Miami 48, Fla.
**HM1AP** (via K6QPG)
**ex-HS1R,** Capt. L. Rose, Hq. 31st Arty. Brigade (AD), Oakdale, Penna.
**HS1W,** c/o U.S. Embassy, Bangkok, Thailand
**I1S PGM/MI SVZ/M1,** G. Rustichelli, via F. Dall'Ongaro 81, Rome 8, Italy
**JA3AMM/mm** (via JARL)
**K5ZSV/VE8,** G. Ray, 926th AC&W Sqdn., via Montreal, P.Q., Canada
**KA2KS,** NavComFac, Box 18, Navy 830, FPO, San Francisco, Calif.
**KA7DR,** R. Randall, CMR 3, Box 8056, APO 929, San Francisco, Calif.
**KG4AR,** M. Davis, jr., USNS, Navy 115, Box 12, FPO, New York, N.Y.
**KG4CY,** Navy 115, Box 12, FPO, New York, N.Y.
**ex-KL7DIR** (to W2JQU)
**KM6CE,** Navy 3080, Box 23, FPO, San Francisco, Calif.
**KS4AZ** (via W3KA)
**KS4BF** (via W4DQS)
**LA1LI/p,** Jan Mayen (via NRRL)
**LX3KP** (via W2CTN)
**OA4NOM,** J. Batiesusky, Aptdo. 1737, Lima, Peru
**OA8D** (via W2CTN)
**OH2BAH,** J. Rouhiainen, Laurinkatu 32 a 17, Lohja, Finland
**OX3KL,** Station Nord, Greenland
**ex-PA0OTC,** H. Swienink, c/o Main, 27 Ballinstreet, Ellerslie, Auckland, N. Z.
**PX1IIX** (to F8HX or via REF)
**ex-PZ1AY,** J. Guilonard, PAØJDS, Bachlaan 14, Enschede, Netherlands
**PZ1CJ** (ex-PZ1BT; via KØYRQ)
**ST2AR,** Sudan Airways, P.O. Box 253, Khartoum, Sudan
**SV0WC** (via RSGB)
**SV0WN** (via W4WNY)
**SV0WT,** Box 808, Iraklion Air Stn., Iraklion, Crete
**ex-TL8AB** (to F2FP)
**TT8AG** (via W3KVQ)
**TT8AL,** Box 235, Ft. Lamy, Tchad
**UA9BZ,** I. Davydov, Schadrinskya 80, Chelyabinsk 42, U.S.S.R.
**UR2KAT,** Radio Club, TV Service, Tallinn, Estonian S.S.R., U.S.S.R.
**VE3BQL/SU,** WO/2 E. C. Veal, UNEF Base P.O., Beirut, Lebanon; or 56th Canadian Sig. Sqdn., CAPO 5049, Montreal, P.Q., Canada
**VE0MC** (via VE7HR)
**VK2AMA,** Dr. C. Maloof, c/o Dept. of Anesthesiology, American University Hospital, Beirut, Lebanon
**VP1WS** (via K8ONV)
**VP2AB,** J. Brown, jr., P.O. Box 340, Antigua, B.W.I.
**VP2AC** (to VE6BY)
**VP2DX** (via W8VDJ)
**VP2GAA** (via W4OPM)
**VP2LD** (via W4CKB)
**VP2SH,** S. Antrobus, P.O. Box 142, St. Vincent, W.I.
**VP2SY** (via K2MRB)
**VP2VL,** Box 45, Tortola, B.W.I.
**VP4TR,** R. Tibbits, Int. Aeradio Caribbean Ltd., 21 Edward St., Port-of-Spain, Trinidad
**ex-VP5LG,** R. Gleason, WA6CWM, Navy 505, FPO, New York, N.Y.
**VP7NQ** (via KØBLT)
**VP8GB** (via W5QK)
**VP8GN,** Carol Graves, P.O. Box 80, Port Stanley, Falkland Islands
**VQ1CJ,** C. Jay, P.O. Box 1283, Zanzibar, Zanzibar
**ex-VQ2IM** (to ZE1AF)
**VR1B** (via VK2EG)
**VS4RM,** R. Maule (G3OEF), Tanjong Lobang School, Miri, Sarawak
**VS9APH** (via W3HQO)
**W1TKL/VE8,** A. Neelans, 30 Franklin St., Thompsonville, Conn.
**W6YCW/KJ6,** W. Graves, P.O. Box 100, APO 105, San Francisco, Calif.
**W8KWC/KS6** (to W8KWC)
**YA1AW,** H. Hutchenson (WA6OOH), c/o MKIC, Chaman, W. Pakistan
**YN1RII,** F. Hernandez, P.O. Box 1171, Managua, Nicaragua
**YV5BLA,** Box 3735, Caracas, Venezuela
**ZD9AD,** P.O. Box 3449, Johannesburg, S. Africa
**ZK1BS** (via W7ZAS)
**ZK2AD** (via W9GFF)
**ZS4PB/ZS9** (North America via W8SMQ)
**3A2BZ** (via W2CTN)
**4X4CW** (via K9JJR)
**5A1TB,** C. Cox, APO 231, New York, N.Y.
**5A1TW,** E. Walsh, Republic Aviation Corp., Box 4154, 7272nd ABW, APO 231, New York, N.Y.
**5N2JFW** (via RSGB)
**5N2RSB** (via K3MNJ)
**9G1CY** (via K1EJO)
**ex-9M2DB,** S. Faulkner, GC3MLR, Income Tax Office, Guernsey, C.I., U.K.
**9M2GV** (via W7EMU)
**9Q5AF,** W. Harris, c/o U.S. Embassy, Leopoldville, R.C.
**9Q5US,** P.O. Box 697, U.S. Embassy, Leopoldville, R.C.

The preceding catalog comes courtesy W1s APA BB TS WPO, K1JFF, W2s ECU ELW JQU MES, K2s MRB TDI UYG, WA2s FCC FIT HLH KSD, K3MNJ, W4NJF, K4TEA, WN4CMW, W6WX, WA6s DNM ORS, W7s LZF UVR, W8s KML KX, K8s GJD ONV RDE, W9s NNC WIO, KØs BHM JPL VSH, G3HCM, VE3BQL/SU, VP8DW, DARC of Germany (DLs 3RK 9PF), Far East Auxiliary Radio League (KA2LL), Florida DX Club (W4CKB), International Short Wave League (P. Bysh, 12 Gladwell Rd., London N.8, England), Japan DX Radio Club (JA1DM), Newark News Radio Club (L. Waite, address preceding), Northern California DX Club (K6CQM), Polar Bears Radio Club (SL3ZO), VERON of Holland (PA0s FX LOU VDV), Western Washington DX Association (W7JPC) and West Gulf DX Club (W5ABY). No guarantee of exactitude, officiality or results, but you *could* be lucky.

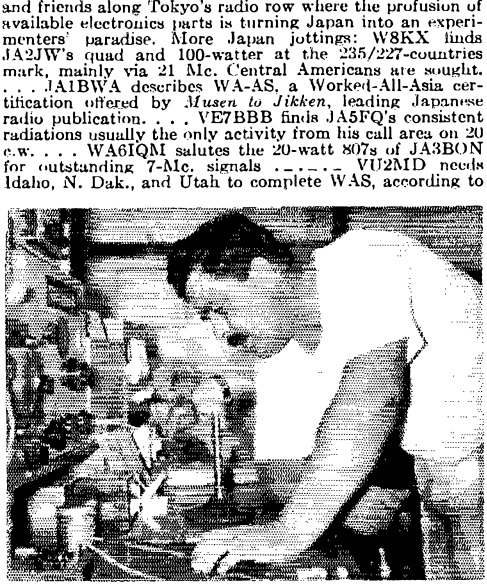


**Remarkable Brazil is the source of the photographic "How's" hamfest at right. Clockwise, beginning top left, are PYs 7YS 2AJK 5VN 7EC 7GC 4OD and 3FO, all DX enthusiasts. (Photos via Ws 1AW 1WPO 1WPR 6SFM 7DJU 7HTB 9JFT, K6s ALH SXA)**



## Whence:

**Asia** — Leading off on a negative, W/Ks and other FCC-licensed types are authorized to work no more HS stations until further notice. Thailand declares itself still on the ITU/FCC Banned-Countries List along with Cambodia, Indonesia and Vietnam (nix on FI8 PK XU XV YB-YH and 3W). _._._ MP4BDR (K1AQI) forwards impressions of a pleasant stopover in Bahrein where he worked 150 W/Ks and some 70 countries with the cooperation of MP4BBW. The latter, a fairly permanent fixture there, has had about 20,000 QSOs, has sent out over 5000 QSLs and now extends his s.s.b. activities to include 75 phone. MP4BCC's kw. linear 60-cycle power transformer folded up on Bahrein's 50-cycle mains but Bob has a lead on replacement. MP4BBE features a fine homebuilt a.m./c.w. installation. MP4BDE, a relative newcomer to Awali, likes 20 c.w. around 1300 GMT with an *HQ-170* and *British DX-40*. _._._ K1AQI also dropped in on VU2CQ whose elaborate homebuilt station works as high as 430 Mc., and then visited JA1ANG and friends along Tokyo's radio row where the profusion of available electronics parts is turning Japan into an experimenters' paradise. More Japan jottings: W8KX finds JA2JW's quad and 100-watter at the 235/227-countries mark, mainly via 21 Mc. Central Americans are sought. . . . JA1BWA describes WA-AS, a Worked-All-Asia certification offered by *Musen to Jikken*, leading Japanese radio publication. . . . VE7BBB finds JA5FQ's consistent radiations usually the only activity from his call area on 20 c.w. . . . WA6IQM salutes the 20-watt 807s of JA3BON for outstanding 7-Mc. signals. _._._ VU2MD needs Idaho, N. Dak., and Utah to complete WAS, according to



9M2GV is about to join the sideband set with a GSB-100 and cubical quad at Muar. John's QSL agent, W7EMU, provided this photo.

K2UYG. _._._ WA2WNC goes to Korea this month for possible HL9ing, but W0EFD can't seem to shake the license tree at his post in Trabzon, Turkey. _._._ VU2CQ tells VE3BQL/SU he still has the door open for more AC5CQ work. "All his Bhutan antennas are still up. It's just a matter of moving in and hooking on." _._._ HL9KT joins the 20-meter sideband ranks, K2LSX officiating, and he remarks: "There are plenty of DX stations operating s.s.b. in the far east if only you Statesiders would listen a little before calling CQ. We are installing a three-element beam for 21 Mc." John heads back to K2LSX in August. _._._ VK2AMA expects to be in Beirut till September, next England, then the U.S.A. in '63. "I have a list of stations worked during the past four years and I'll endeavor to convert them to eyeball QSOs at every opportunity." _._._ W8KX finds UA9BZ back on his ground-plane and dipoles after losing a 21/28-Mc. quad to high winds. _._._ HM1AP describes new Korean ham license classifications: *1st*, all bands, 100 watts maximum, c.w. or phone; *2nd*, all bands except 20 and 40 meters, 50 watts c.w. or phone; and *3rd*, c.w.-only below 7 Mc., c.w. or phone on 50 Mc., crystal-controlled. HM1AP regularly appears around 14,040 kc., 2330 GMT, with his 90-watt 6146 and SX-110 ensemble when not QRL with Seoul airlines duties. _._._ FDXC, NCDXC, PBRC, VERON and WGDXC Asian addenda: AC4NC-labeled c.w. signals on 14,018 kc. at 1600 GMT, and 14,004 at 2200, lately make the mob throb. . . . VU2JA is a 40-meter buff these days, lurking on 7007, 7012 or 7020 kc. at 1430-1530 GMT. W6s GTI and ULS have king-sized 7-Mc. signals over there. . . . YA1s AA, 14,058 kc., AN on 14,055, AW on 21-Mc. a.m., and AO are reported DXtant. . . . TA2BK withdrew after only two W/K QSOs but may be back in the pack later with more potent paraphernalia. . . . EP2BK knocked off after a whirlwind multiband DX career. . . . MP4TAO tried his MP4QBA luck for a few late-winter QSOs.

**Africa** — VQ1CJ, one of the Project Mercury team, is adding sideband facilities to his 14-Mc. phone outfit. VE3BQL/SU says Chuck may leave Zanzibar in July. _._._ Africa round-up courtesy K2UYG and W8KML: 5T5AD prefers c.w., some phone, between 14,070 and 14,090 kc. near 2200 GMT, and may omit his call for long periods to ease pile-up pressure. . . . CR7IZ readies a 20A and TT-21s for 150 watts of sideband. . . . F3NB gives hope of expanded FB8WW availability next year. . . . TL8AE, who hasn't much time for hamming, holds the C.A.R. DX fort after TL8AB's departure for France. Absent TL8AC isn't due back till October. . . . TN8s AF and AX represent C. R. reliably on 20 c.w., 1900-2200 GMT. . . . Likewise TT8s AA AC AE AG AJ and AL for Tchad. _._._ W8SMQ expects ZS4PB/ZS9 to continue active around 21,440 kc. until late this month if all goes well. _._._ Technical difficulties and horrid band conditions plagued EL4A in this year's *ARRL DX Test*. Ken finds 10 meters mostly blotto, 15 looking better, 20 the best, 40 slacking off, 80 spotty and 160 quite interesting. _._._ Commercials clobber VE3BQL/SU on 7 and 3.5 Mc. but Elvin's s.s.b. rolls up a good score nonetheless on 75 and 40. Central European DX hogs also abound. Twenty began coming to life in late winter, permitting VE3BQL/SU to work home into Canada regularly; same for 21 Mc., but 28 Mc. is fringy indeed. _._._ ST2AR expects to hit 3.5 through 28 Mc. again shortly. Eric writes W1WPO of DXtensive diplomacy required to renew his Sudan hamming authorization although he has been there nine years. _._._ W9NN says ZS1A's March vacation left a noticeable void on the low edge of 40. He usually rolls through like the V.O.A. — Voice of Africa. _._._ VQ2AT, on 28-Mc. sideband, wasn't interested in answering K7KBN's c.w. and a.m. calls until Pat mentioned "Nevada". _._._ PBRC and WGDXC Africa notes: Transitory ZD9AD ran 20-c.w. trials till late March. . . . ZD7SE's 14,180-kc. phone is heard around 2200 GMT. . . . 5N2AMS plans a rambling U.S.A. visit that should bring him to Houston by mid-June.

**Oceania** — "I will be operating as W8KWC in Pago Pago from about June 15th to September 1st," alerts W8KWC. "Operating is expected to be 75-per-cent c.w., 25-per-cent a.m., on 20, 40 and 80 meters. At present I'm W8KWC/KH6 with a 35-watt Bandmaster, HRO-5 and a ground-plane 600 feet above sea level." _._._ W1AGS finds 49 states among VK0VK's 3000 contacts with 131 countries. Mac wonders if there's a North Dakota Zero hiding in the bunch to round out Steve's antarctic WAS. _._._ Mitch of KM6CE tells VE7BBB he expects to remain on Midway till August, then dash to Detroit. _._._ As noted by K0BHM, the new 21-Mc. beam of VS4RS makes Ron extremely audible on 21,100 kc. around 2330 GMT. W8KX finds VS4RS more interested in WAS than DXCC although Ron captured 105 countries in his first three months on the air. He's a 28-year-old P&T engineer, anticipates a three-year Sarawak sojourn, and credits the W/K gang with topnotch operating savvy. _._._ NCDXC, PBRC, VERON and WGDXC Pacific gleanings: FO8AN (VP2VB/mm) may propagate from Malden and Starbuck isles. . . . Need VR6TC? Consult W5OLG. . . . VK3AHO devises FW8AS developments. . . . VK3CX finds Willis Island still DXpeditionarily off limits, and transportational shortcomings hamper moves toward Christmas isle. . . . VK8OW, CR9AI (CR10AB) and friends still think in terms of Timor. . . . OK7s HZ and ZH of the roving Czech scientific group can't use their KWM-1 in Indonesia, so they sent it back to OK1FF.

**Europe** — It's still DX contest time, by golly. EDR (Denmark) urges your single-operator participation in the *11th OZ-CCA Contest*, a DX man's affair slated for (c.w.) 1200 GMT, May 12th, to 2400, the 13th; and (phone) May 19th-20th, same times. CQ AW (CQ All World) is the password, everybody works everybody once per band, 3.5 through 28 Mc., and the serial exchange is the usual RST001, RST002, etc., the "T" omitted on phone. One earns 3 points for every completed QSO (6 points for each OX-OY-OZ contact), this total to be multiplied by the total number of ARRL DXCC Countries worked (each W/K VE/VO PY LU VK and ZL call area counts as a separaes country in this activity). To be eligible for certificates awarded to high scorers your entry log must be shipped to EDR Contest Committee, P.O. Box 335, Aalborg, Denmark, postmarked no later than June 15, 1962. Contest work must be reported per the sample log obtainable from the same address — hurry! _._._ Too late for the c.w. segment of the VERON (Holland) 1962 PACC DX Contest that transpired April 28th-29th, but you can still catch the phone half which runs from 1200 GMT, May 5th, to 2000 the 6th. As in the past, non-Netherlanders will work as many PA/PI persons as possible, once per band, 3.5 through 28 Mc., with the customary RS001, RS002, etc., serial swap. Scoring for non-PA/PIs: 3 points per consummated QSO, this total to be multiplied by the number of band-provinces accumulated, said provinces to be indicated by the letters DR FR GD GR LB NB NH OV UT ZH and ZL after PA/PI call signs. Working 'em all on five bands would give you the maximum multiplier, 55. To qualify for possible certificate recognition, file your results with PA0VB,

(*Continued on page 156*)

# "Youbetcha, Eddie . . . That's for Sure . . . Yeeeeeaaaaahhhhh . . .

BY JOHN G. TROSTER,* W6ISQ

SAY, Eddie, QRX-ray one there, the old XYL is a hollerin' at me, yeeeaaahhh."

". . . OK . . . OK, Marge. Be right there, just gotta tie the ribbons on it here."

". . . Well, Eddie, old friend, looks like the little lady here got the old cowburgers on the fire a little early tonight, sooooooo, I'm gonna hafta reach over and pull the big switch and shut 'er down for chow. Yessireee, by golly. That's the sitchiashun here, Eddie old pal.

". . . sure has been nice to meet up with ya, Eddie. Really a 100 per cent pleasure. Youbetchee, that's for sure. Yeeeeaaaahh.

"Sooooo, we're gonna hafta get along down the old road here, Eddie, and wrap her up in the old box. Youbetcha. Sure hate to break up a good one like this. Yeeeeaaahhh.

"But don't you worry, Eddie, old buddy, we'll be a hookin' up again one of these bright days before we get on down the old log too far and kick 'er around again. Want ya to be sure to give me a long chant any time ya hear me on and you know I'll do the same. Yeeeaaahhh, youbetcha we will, Eddie.

". . . so, we'll be lookin' forward to seein' ya down the old shady lane, Eddie. You just holler one of them nice CQ's and I'll come a flyin' outa the bushes, yeeeeaaahhh. Ya got a nice sig in here and I just know we'll be a QSOin' again real soon. That's for sure.

". . . supper ought to be about on the table about now, Eddie, so I gotta snap off the big one and put on the old feed bag. Yeeaaahhh. So here we go on down the old road, Eddie. Youbetcha."

"What did you say Marge? Now? Right now? . . . OK . . . OK."

". . . there goes the last call for chow, Eddie. Gotta get on down the old pavement here, yeeah, by golly. The XYL's a callin' for sure now. Can't keep the old girl a-waitin', ya know. Soooo, we're gonna hafta pull the big switch here, Eddie, and call this the whole ball of wax. That's the way the old crystal cracks sometimes, eh, Eddie? Yeeeaaahhh. Just get goin' on a good one and ya gotta chop 'er off. Yeeah, she happens, don't she, Eddie! Youbetcha. That's for sure.

". . . so, back to you for the old final there, Eddie. You take a short pass at 'er, but don't hold 'er too long. Gotta eat here, ya know. Yeeeaaahhh, youbetchee, Eddie. But sometimes ya get a little wound up in somethin' real interesting ya know, and time just keeps a runnin' along like they say, by golly, yeeaahh. Then the old XYL gets a-prancin' around pretty mad.

*45 Laurel Street, Atherton, California


But like I always say, Eddie, that's the way she resonates now and again. Yeeeaaahh . . . youbetcha, Eddie.

". . . soooo, over she comes, Eddie. We'll let you tie the old pink ones on 'er, yeeeaah. I gotta eat, ya know. So here she comes back to you, old buddy. W6CLZ from W6IS . . .

"Oh, by the way, Eddie, supper don't take too long here. I'll be back on the air in about ten minutes. That's for sure. So you take her easy, Eddie, hear? And be seein' ya down the old road — ahh, log, old buddy. Maybe in about ten minutes, huh? That's for sur . . . ahhh . . . youbetch . . . ahhh . . . yea . . . ahhh.

". . . W6CLZ from W6ISQ, dump 'er in, Eddie, ole buddy. Yeeeeaaahhh!" QST

## Strays

(With apologies to the spirit of Edgar Allan Poe)

### *The Raving*

Once upon a midnight dreary
As I brass-pounded, weak and weary,
Searching o'er the bands in hope of some forgotten lore,
Suddenly, I heard a tapping.
There was a tapping of someone gently tapping;
T'was a Novice tapping "CQ" (without signing),
Tapping "CQ CQ CQ CQ CQ CQ CQ CQ CQ CQ CQ CQ"
For now,
And forever more.

—*K3OKL*

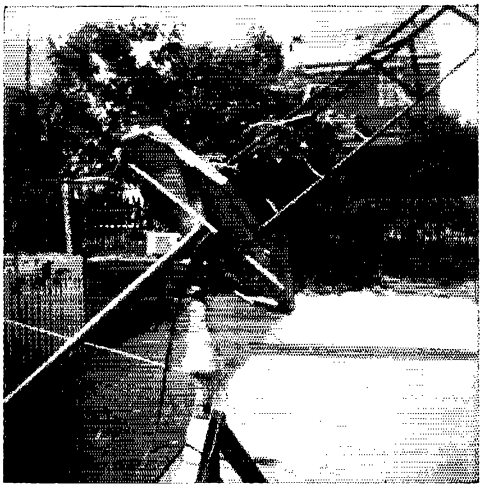
WA2WOP took the license exam on a Friday, and on Saturday, the word having spread through the neighborhood, a lady called him to say that he was interfering with her hi-fi set. WA2WOP finally convinced her that because he had not received the license yet, and because he did not own a transmitter, he was not the culprit!

# The World Above 50 Mc.

CONDUCTED BY SAM HARRIS,* W1FZJ

A CASUAL observer, after listening to the amateur bands for a period, might draw the conclusion that amateur radio operators are just that: people who operate radio equipment. He could, in fact, draw up a chart showing which manufacturers products were most popular. He would be very unlikely to discover any evidence of home-built gear. If he did, he would be likely to assume that the user was a beginner and hadn't had time to acquire the "accepted" commercial counterpart of his amateur efforts. ("I'm using a home-made four-element beam, but I have a Super Goliath 10-element yagi ordered.") In fact I am not so sure that this conclusion is wrong. Once in a while though, we get some evidence to the contrary. For instance, K1ISR and his 50-Mc. sideband converter. I tried out Eddie's little gem at W1BU and finally built one of my own. I liked the results and in the February column we printed the diagram and suggested that anyone interested should get in touch with K1ISR. By the first of March more than 100 people had written for further details. This response was really encouraging. (Eddie has another name for it.) If construction and design information are really that interesting to you how about letting us know what your interests are? And as a matter of fact, how about letting us know what little gems you have just built? I have to point out that the OES appointment was initiated to encourage just such an exchange of information. In general the OES appointees are not getting the full benefit of their appointment because they are not contributing sufficiently to the information pool.

*P. O. Box 334, Medfield, Mass.



Helical beam used by WA2GFP for 220-Mc. work.

If you think you can contribute to the common knowledge and are willing to do your part of the work, why not contact your local SCM (page 6, *QST*) and see if you can qualify for an OES (Official Experimental Station) appointment. This is the one and only appointment which is specifically designed for the v.h.f.-u.h.f. experimenters.

### *V.H.F. — Australia*

A letter received from VK3ZCG relates the interesting story of 144 Mc. during the past season. According to George, the excellent conditions on 50 Mc. alerted the two-meter boys and they were well repaid for their alertness. The opening occurred on the morning of December 27, 1961 and was the first recorded *Es* opening on two meters since the ones of December 30, 1950 (VK5GL to VK6BO), and September 2, 1952 (VK5QR to VK6BO), approximately 1321 miles. VK4ZAX and VK3ZCG both made tape recordings of the entire opening of December 27, which lasted from 1108 to 1930 AEST. The shortest QSO was 775 miles, the longest 1200 miles; many times the signals peaked S9+, and all contacts were a.m. Wish we could list all of the VKs active in the two-meter opening but space prevents; however, we will mention at least a few of them. We received our information from George, VK3ZCG, who worked VKVHF, VK4-ZAX and VK4BT; farthest contact 855 miles. VK4ZAX had the most QSOs, working VK5ZK/5, VK5BC, VK5ZMK, VK5ZDR, VK5ZK, VK5AW and VK3APF, VK3ZEA, VK3ZCG, VK3ZCW, VK3ZJQ, VK7ZAO, VK7ZAI and VK7ZAQ; farthest of these contacts approximately 1200 miles. On December 31 *Es* reared its beautiful head again on 144 Mc. and VK2ASZ/2 worked ZL3AQ, a distance of 1355 miles, the VK station running 12 watts, the ZL running 30 watts. (See fellas, that's what high power does for ya!) Several other VKs heard the contact but were unable to make contact. During this same opening VK2RX worked VK5ZK. On January 2, 1962 VK2ZVL on 50 Mc. worked ZL1AUM on 144 Mc., and on January 15 VK5ZK heard weak signals from VK2RX. The last of the two-meter sporadic *E* for the season!

The big opening on 50 Mc. occurred on December 27, 1961 and lasted until January 1, 1962. The band was open all day every day to most states and ZL, and was the best opening for several years according to George. "Late January to early February the skip lengthened out, enabling the Southern States (Australian) VK3, 4, 7 to work Northern Queensland, VK4; Northern Territory, VK8 and New Guinea, VK9." Final word from George, VK3ZCG, sez that the use of 50 to 52 Mc. for the Australian ham has been extended until December 31, 1962.

### *V.H.F. — Ireland*

Remember Harry, EI2W? Of course, everyone on 50 Mc. remembers Harry! Well, if you don't, it means that you missed the period of operating the band when the m.u.f. was high, a few years ago. We recently received a letter from Harry and are happy to say that he is still active on the v.h.f. bands, namely two and four meters and 70 centimeters. We'd like to reminisce a bit while we are on the subject of DX from countries overseas, and let some of you who weren't around 50 Mc. at the time in on a bit of Harry's history. He has so many "firsts" to his credit that you wonder how one man could do it. He made the first contact on 50 Mc. between Ireland and the United States; he made the first contact between Europe and California on 50 Mc.; during the period from October 27, 1957 to January 28, 1958, Harry worked thirty-five (35) states and two of the Canadian provinces, plus XE (the only Europe-to-Mexico contact on 50 Mc.), making contact with 190 different stations

on six meters. Harry is a professor at Dublin University and is presently President of IRTS.

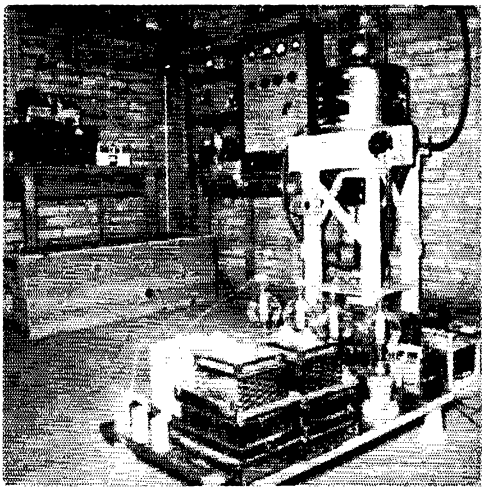
## 50 Mc.

Interest in six meters is picking up in Manitoba, Canada, according to Gordon, VE4KF, since the January 13 contact between VE4DQ at Brandon and VE4JX, VE4CV and VE4TL at Winnipeg, a distance of 140 air miles. As Gordon sez: "It isn't a record, but it is here in Manitoba." Apparently ground wave isn't very good in that area and the boys were happy to find out that the contact could be repeated one or two hours after the original contact, and are hoping to make it a constant contact. Interesting to note here that VE2AIO and K1IZM are keeping skeds on 50 Mc. about three nights a week. The contacts are almost always good ones at a distance of 270 miles.

We think we've had "weather" (with a capital W), but Pete, VE8BY, sez that he's been keeping his beams mostly to the south east 'cause when they're pointed north at KL7FLC the rotor usually freezes up. Can't understand it, particularly when Pete mentions the temperature has only been down to 40 and 50 degrees below zero. During February the only 50-Mc. contact made was with KL7FLC on February 24, although Pete also heard them on February 7 and 14.

John, VE7IR, tells us that in the Vancouver area there are ten stations on six meters, a.m.; about seven stations on 50.2 f.m. and that these boys have a Sunday morning roundtable. No set frequency, they're liable to be anywhere from 50.01 to 50.4. Ground wave to Seattle is usually good for these boys and a few weeks ago VE7OE and VE7IR worked several K7's. John sez: "We would appreciate it if some of the fellows would turn their beams our way." Plans are being made for a trip through W3, 4, 5, 7, 8, 9, and VE6 lands this summer by John and he'll be 50-Mc. mobile all the way, running about 40 watts.

Tropospheric propagation conditions were excellent February 12 through the 14th sez George, W5UQR in Louisiana. On the 12th he worked K5YAW, K5UDU, W5FZK and K5AKY, all in Texas, besides working Alabama and Florida also. K8BGZ reports that it's too cold in Lansing for a six-meter signal to get out of the back yard; however, we're happy to hear from Dave that local c.w. activity is picking up in that area. K4IMF reports conditions on 50 Mc. generally good, and that on February 25 ground wave conditions were exceptionally good with many signals coming in from Richmond, Virginia and Maryland. W6IEY "caught no openings during February, although the grapevine reports an opening on the 22nd into Arizona and Northern California." K3LLR is working on an omni-directional six-meter antenna; using the single turnstile and feeding it with 300-ohm line instead of the 150-ohm line that is required. He is getting favorable results with it set up in the basement and will transfer it to the great outdoors as soon as the weather lets up. From Pennsylvania we hear that K3SHY is building a ten-element beam and maybe a twenty-four-element collinear array for six and is going to high power; and Dave, K3GAU sez there were several short band openings and an auroral session during February, all of which he missed. New York City reports an opening on 50 Mc. on February 22, when the band was open to 4's and 5's. (We heard 'em, too, but awfully weak, and very few of 'em.) Along with this item, Norm, WA2TQT, also mentions that conditions were normal for the first part of February in his area but that ground wave was good during the latter part of the month. Detroit, Michigan seems to be another of these "all night" cities on 50 Mc. During the period from 3:00 to 6:00 A.M. you can usually contact K8QFK, K8AIZ, K8YAV K8IAA and K8ZGL. W8MBII of that city seems to have had a busy month on six meters, reporting good ground wave to Ohio and Pennsylvania almost every night during February and skip sessions on February 11, 15, 16 and 22. Skip dates reported by Les, K4RNG, were February 18 when Ohio and Indiana were heard, February 21 with Puerto Rico coming in, February 23 when Maryland, Pennsylvania, Michigan and New York stations were copied. Later that same day Ohio and Texas took turns getting into Miami. During this same opening WA5DDM reports having worked Cuba and Argentina. Nothing much heard in Overland, Missouri, sez Clarence, W0CMI. He is looking for skeds with anyone, anywhere, after 2000 CST. Another schedule keeper is Bob, W0ENC, who has been keeping skeds each Saturday and Sunday morning with W6YX (operator W7QDJ). Bursts are strong, but short and far between say the boys. Because of school work Mike, K7CIHI, has not had too much time to spend on the new design for his six-meter transmitter. It's to run 100 watts to a 15E triode, and will probably use n.b.f.m. And over in Massapequa, New York, August, K2PQY, is working on a crystal controlled oscillator for n.f.m. use. Only two reports received concerning 50-Mc. aurora for the month of February; one from Jerry, K9GBT, who had contacts in Michigan and Iowa on February 11; the other from Jim, W0PFP, who worked W9HGE and K9WUI on February 12. Jim is a schedule keeper and out of nineteen "tries" during February with W9HGE, sixteen of them were successful on s.s.b. No details on the sked, but another s.s.b. sked is being kept weekly by K3ADS and W3FMI (Pennsylvania and Washington, D.C.). Larry, K3ADS, had an opening on February 18 to Alabama and Louisiana. D.s.b. activity is low on 50 Mc. in the Philadelphia area, according to Don, K3MLL. He's working on a 50-watt rig for mobile use on six and is thinking of making it capable of d.s.b.



**Moonbounce transmitting and receiving installation at K9KEH, as mentioned in column.**

## Clubs and Nets

The Casper V.H.F. Society (Casper, Wyoming) has been experimenting for some time with ground-wave signals, and are in an excellent location for this type of work. The area consists of all types of terrain; long distance with large amounts of relief, as well as large basins with gentle rolling upland grass country, all tending to make this phase most interesting. All types of paths are being examined, long and short ones, clear and obstructed ones. These boys are really digging into this type of propagation on the v.h.f. bands and although they've learned a lot, they admit that they "have a long way to go."

## 1962 March of Dimes Telethon

The seventeen-hour telethon of Channel 6, WLUC-TV, started at 2300 on January 27 and ended at 1600 January 28, and was a huge success. A good percentage of the monetary increase over the 1961 Telethon can be attributed to the help that the hams of the Upper Peninsula gave in communications. The ham station, set up in a mobile home near the TV studio, logged over 1500 pledges; while ham stations in other areas logged well over 1000 pledges and relayed them to the TV station via land line, two meters, ten meters and a "dog team." Strong signals came through that night on two meters from Alger and Houghton counties, and relays were used from Baraga through Houghton on two meters.

## Clubs and Nets

The Cleveland 50 Mc. DX Club will hold its first annual banquet on May 12 at the Town-N-Country Restaurant in Strongsville, Ohio. There will be a smorgasbord, music, dancing, an ice show, plus chatter and so on. Dinner at 7:30 P.M. — Donation, $3.25. Anyone interested in attend-

ing send check to Don Hasek, K8NUE, 3318 Ralph Ave., Cleveland 9, Ohio. The club also offers a certificate for working six members of the club to those living 75 miles or more from Cleveland.

The Hy-Ranger Net of Fort Worth, Texas, meets every Thursday and Sunday night at 2000. Net frequency is 51.150 and anyone working five members will receive a certificate (if he lives over 100 miles away). QSLs must be exchanged for contacts showing them to be made above 51 Mc., and information sent to Box 5115, Fort Worth, Texas.

The Capital Area Radio Emergency Net has recently been formed and is open to anyone, although most stations are in the Albany, Schenectady, Troy area. W2AWF is net control from Albany on the net frequency, 145.35, every Sunday afternoon at 1500.

The Dover (Delaware) Six Meter Net has not missed its weekly session for almost three years; Wednesdays, 50.3 Mc. at 2000 EST. Visitors always welcome.

### *144 Mc. and Up*

W5UQR found himself in the middle of a large static type pressure system covering the majority of the Gulf States on the 12th, 13th and 14th of February. 13th of February W4GJO, Sarasota, Florida, and W4RDO Bradenton, Florida, were worked to the east and K5SDM Houston, Texas, to the southwest. The band was still open from Louisiana to Florida on the 14th of February and W4DPD managed to

**RECORDS**

**Two-Way Work**

**50 Mc.: LU3EX — JA6FR**
**12,000 Miles — March 24, 1956**
**144 Mc.: W6NLZ — KH6UK**
**2510 Miles — July 8, 1957**
**220 Mc.: W6NLZ — KH6UK**
**2510 Miles — June 22, 1959**
**420 Mc.: SM6ANR — G3JHM**
**686 Miles — August 31, 1961**
**1215 Mc.: W1BU — W6HB**
**2700 Miles — July 21, 1960**
**2300 Mc.: W6IFE/6 — W6ET/6**
**150 Miles — October 5, 1947**
***3300 Mc.: W6IFE/6 — W6VIX/6**
**190 Miles — June 9, 1956**
**5650 Mc.: W6VIX/6 — K6MBL**
**34 Miles — October 12, 1957**
**10,000 Mc.: W7JIP/7 — W7LHL/7**
**265 Miles — July 31, 1960**
**21,000 Mc.: W2UKL/2 — W2RDL/2**
**14 Miles — Oct. 18, 1958**
**Above 30,000 Mc.: W6NSV/6 — K6YYF/6**
**500 Feet — July 17, 1957**
***Band now 3500–3700 Mc.**

contact W5UQR. Florida stations, including W4BFC and W4ZGS, were hearing and working stations as far west as Louisiana. WA4BMC managed a contact with W8QOH mobile marine, 250 miles out in the Gulf Stream. Alabama was represented in the opening by K4SFH, and K4IQU. K4IQU heard as far north as Collierville, Tennessee where the old stand-by W4HKK was putting out his usual good signal. Two auroral openings were reported, one on the 8th of February and the 2nd on the eleventh of February. Aurora covered from 2-land to 9-land, but was in fact a rather desultory opening without any good strong signals forming up. The same aurora on the 11th provided extremely good six-meter conditions but failed to really produce on two meters. W4VHH of Charlotte, North Carolina, reports hearing W2ESX (500 miles) on the night of February 22, indicating a small coastal tropospheric opening. W4FJ of Richmond, Virginia, was also active but the general complaint on this opening was lack of activity. W3TFA was the only 3 heard in Virginia on this opening. Apparently the high winter fogs lying in the valleys for weeks at a time in than San Jaquin Valley area of California provides some very interesting winter conditions. W6PIV reports two- and three-hundred mile low-power tropo work on two meters in his area. General comment during the month of February on 144 Mc. is, "Activity growing steadily, many refugees from low frequencies experimenting with low power. More mobiles. Little serious DX efforts." I'm sure that comments like these are enough to sadden the heart of the serious 144 Mc. DX operators, but they are in essence true. It looks like all the old timers are lying in wait for one or two states and are not maintaining activity type schedules, and all the ambitious young timers are busy being educated. Let's hope that Ned Conklin, K1HMU, and his like get back from school soon and start some activity going on the good old 144-Mc. band. The west coast at least has been very active in maintaining two-meter schedules up and down the west coast. West coast scatter sessions are mostly north-south with occasional signals from Denver, Phoenix and elsewhere. Active weekend mornings, 0730 to 0900 PST are DK7TH, W7ZQX, K7BBO, K7AAD, W7MAH, W6YX, W6GRX, K6HCP, W6FZA and W6NLZ. All are fighting for that one more db. that will make everything O.K. Comment from Alan, W6FZA: "After working at this business for more than four years, you get the feeling that no distance less than 1500 miles is impossible with the right stations and operators at each end."

### *Scatter Signal Reporting System*

The following quotation is from Alan W6FZA, in reference to a proposed system for reporting scatter signals. He would be very interested if any other parts of the country have any other suggestions on methods of reporting scatter type signals. W1LUN and W4RMU, for instance, have been holding scatter schedules for some time and have been, to the best of my knowledge, using the standard RST reports. However, the following suggestion seems to me to make some considerable sense and apparently has the blessings of the aforementioned west coast scatter group.

"I think it is highly desirable to know the percentage of time your signal is discernable in the noise. It gives you at least an inkling of how much more signal you'd need to reach that goal, 90% copy or better. Of course it's necessary to know the percentage of time your signal is readable. If discernibility were assigned D, and readability R, percentages could be expressed as follows: 1. 0 to 20%, 2. 20 to 40%, 3. 40 to 60%, 4. 60 to 80%, 5. 80 to 100%. Thus a good average ionospheric scatter signal that was discernible 70% of the time, and readable 50% of the time would call for a report of DRT 439. If an operator got a report of DRT 549, which can happen on good days, he would know he could make fewer repeats and go on to get more information across. On the other hand, if he received a DRT 219, he would know he should concentrate on the bare essentials. A signal of DRT 559 or better might rate an RST report. This idea appears to be working fine and is gaining acceptance in scatter work. It can raise about as much information as can be put into three digits. Estimating percentages of time is a new mental gymnastic to most but if you try to tit the signal to an odd percentage (3 — 50%, etc.) you can be allowed an error of ±10% and still give a meaningful report. After starting to think in these terms the most interesting thing that shows up is the large, tantalizing percentage of time the signal spends in that twilight zone, discernible but not readible." If anyone interested in scatter has any comments on this reporting system, we would certainly be pleased to hear from you. Meanwhile, if you get a DRT report at least you may know what it means.

### *220 Mc. and Up*

Stan, WA2BAH, of Albany, New York, reports 220 activity on the upswing in the tri-city area. W2TMB, K2BSB, K2CBA are all active and looking for schedules in all directions. Interested parties please address WA2BAH. W2HF/2 at West Point, New York, is operating 220 with a 44-element beam and is also looking for schedules. In general the 220-Mc. activity is fairly heavy from the Mississippi eastward, but unfortunately the areas of activity are more or less isolated with not too much communication between groups. According to Henry, W1OOP, Boston area 220 activity is on Tuesday evenings (anytime from 1900 EST on); about a dozen stations in three states *can* show up — three to six stations *do*. 432 night is Wednesdays around 2100 EST, and W1PZA/Mobile, W1EHF, W1YWQ, K1JIX, and W1AJR may show up. K1CHY has recently shown up on 432 Mc. but a three-element indoor beam seems to be inadequate. W1PZA gets one or two watts out of a 6939 modulated by

*(Continued on page 150)*

# Correspondence From Members-

**The publishers of *QST* assume no responsibility for statements made herein by correspondents.**

## MAN IN SPACE

¶ The Radio Club Uruguayo wish to congratulate the United States for the success in "Project Mercury," which culminated in space journey of Colonel Glenn. Therefore, we are sending you our heartiest congratulations, outspread to electronics and communications men, especially the radio amateurs which are among them, which greatly contributed to the complete success of the event. — *J. E. Salsamendi Carlevaro, CX1BT, President, Raul Schwartzmann, CX9AW, Secretary, Montevideo, Uruguayo.*

¶ Let me say that I have been enjoying the recent articles in *QST* dealing with the aspects of space-age radio as it pertains to the ham. I am still an "earth-locked" operator myself, preferring 160 meters to the super-high-frequencies, but the success of Oscar I, and the impending launch of Oscar II, have almost convinced me that I should dust off the old two-meter converter, and start listening around up there.

Along these same lines, may I advance a theory concerning the much publicized "Glenn Effect?" I realize that I surely do not qualify as an expert on such matters, but in thinking through the statements Col. Glenn has made concerning this effect (the glowing particles he observed in his orbital travels just at sunrise), I wonder if someone has considered the possibility that these may have been ionized particles of the upper reaches of the atmosphere?

Anyone who has ever worked the lower frequencies is aware of a rather hefty increase in signal strength, particularly on DX signals, for a short period at sunrise. This effect is particularly noticeable on 160 and 80 meters, as well as on the broadcast band. We have assumed, through the years, that this was caused by an intense ionization which occurs as the rays of the sun begin to strike these upper layers. Could it not be possible that Col. Glenn was flying through one of the upper layers as it began to be ionized, and that the particles became luminescent just as the aurora borealis does?

I have hesitated in writing this because there is one fallacy to my argument: this increase in signal strength is also noted at sunset, and the astronaut saw no such effect at that time. However, I do think it is worth investigating further by our space scientists, as well as by our propagation experts. — *Drayton Cooper, K4KSY, Southport, North Carolina.*

## "BK"

¶ In more recent years, the signal "BK" has been used in amateur radio work as an indication to the distant station to come back, without going through the formality of repeating the call letters of both stations.

In the telegraph business, this signal was necessarily used on the duplex circuits of the country for "Break," or in other words, to stop sending, although the same signal was used on the press circuits in lieu of a question mark, when a fall-down in the sending had occurred. "BK" was also used in the spark gap days in circumstances involving a slip in distress and, it means "Keep out," or words to that effect.

In the interests of clarity of meaning, I've often wondered why the signal "K," which is definitely an invitation to transmit, is not used instead of "BK," which to the old time telegraph operator means stop sending. Seems to me that this would simplify matters without disturbing anyone's sensibilities and, as for the phone man, it's just as easy to say "Go ahead," as it is to say "Break." — *William G. Gerlach, W6BG, Oakland, Calif.*

## IN ORIGINAL CARTON

¶ After giving weighty consideration to W7ALH's letter in March *QST*, we went through our treasure chest, and have the following to offer: 1. Rotary spark gap xmitter — MINT CONDX. 2. Branley Coherer — used only once in 1901. 3. Poulson Arc with original varicoupler and spare electrodes, thanks to Eveready Battery Co. 4. 50-kc. Alexanderson Alternator, like new, with hand crank. — All the above IN ORIGINAL CARTONS.

All inquiries must be received by April First. — *Bob and Lea Hall, WA6JBM/WA6JBN, La Canada, California.*

## THE "NEW" *HANDBOOK*

¶ The 1962 *Handbook* is the best yet! The paper and the print . . . are wonderful and make for easier reading. — *John M. Hemphill, WA5AFV, Dallas, Texas.*

¶ It really cuts down on the glare and I believe it will stand up better than the old. My 1960 *Handbook* is coming apart at the seams.

You have added a lot of new material and have done a good job. — *I. V. Mastons, WGWIE, La Mesa, Calif.*

¶ I believe that the best improvement was in the method of binding. I also noticed a decrease in weight plus sharper photographs. I trust this year's *Handbook* will be even more successful than those of previous years. — *Adam Macek, WA2HAW, Houston, Texas.*

¶ You have done a tremendous job. The no-gloss paper is the best idea yet. It sure is a strain trying to study with the high gloss paper . . . — *J. T. Beck, W4YZW, Tampa, Florida.*

¶ . . . Kudos on the new format. It is much easier reading, and seems to be better organized. Keep it up! . . . — *James L. Weeks, Colonel, USAF, (retired), WGFNG, Wrightwood, Calif.*

¶ I find that the paper in the '62 *Handbook* is inferior to the 1961 issue. You can see the printing on the other side! It is confusing when one schematic is superimposed on another. I can foresee thousands of hams complaining about this. I recommend that in future issues the same paper used in the 1961 issue be used. — *Gerald L. Chassman, W8DQO, Detroit, Michigan.*

¶ Truly appreciate the new low-gloss paper. Keep up the good work. — *Edward J. Dromgoole, WA2SFJ, Chatham, New York.*

¶ The contents are excellent, per usual, but I violently object to the texture of the paper and the printing process.

One of the features I admire in *QST* and in old *Handbooks* is the high quality used in printing. It is definitely a slick magazine of the same excellent printing qualities as *New Yorker* or *Vogue*. The reproduction qualities and the layouts in these are excellent. In my opinion, the new *Handbook* has neither. The lithographing screens appear to be much coarser such as those found in newsprint.

The 1962 *Handbook* portrays cheapness in its feel, texture and appearance. This is not in keeping with the high quality of ARRL publications.

I sincerely hope that the same process used in the 1962 *Handbook* will never be used in *QST*. Let's keep high quality in *QST* and in future *Handbooks*. — *Dana B. Wood, K8AHM/0, Aurora, Colorado.*

¶ Congratulations on '62 *Handbook*. It's getting better all the time! Like new paper much better — hope you use it in *QST*. — *Robert E. Franck, W8AWN, Detroit, Michigan.*

¶ . . . It's so easy on the eyes. — *Theodore M. Hannah, K3CUI, Silver Spring, Maryland.*

¶ . . . Our customers have been enthusiastic particularly over the greater clarity of the pictures . . . — *Melvin Leibowitz, W3KET, Manager, Delaware Electronics Supply Co., Wilmington, Delaware.*

¶ I like the new paper stock (no more shiny surface) and the excellent halftones, especially those detailed, under-chassis photos. — *Arthur W. Rogerson, W1UXK, Sprague Products Company, North Adams, Massachusetts.*

¶ . . . I like very much the paper upon which the current volume is printed. There is certainly an awful lot less glare which eases the reflection in my elderly eyes. — *John Clayton, General Radio Co., West Concord, Mass.*

(*Continued on page 140*)

# Operating News

F. E. HANDY, W1BDI, Communications Mgr.
GEORGE HART, W1NJM, Natl. Emerg. Coordinator
JOHN F. LINDHOLM, W1DGL, Ass't. Comm. Mgr., C.W.
ROBERT L. WHITE, W1WPO, DXCC Awards
LILLIAN M. SALTER, W1ZJE, Administrative Aide
ELLEN WHITE, W1YYM, Ass't. Comm. Mgr., Phone

**Earning CP Endorsement Stickers.** If there's any reader or amateur who has not yet been certified or endorsed all the way up to the top of this ARRL Code Proficiency program, we cordially invite him to follow W1AW or W6OWP monthly qualifying runs until he *has* that honor. Initial certification starts at 10 w.p.m. and may be at any level in the 10-to-35 w.p.m. speed range. Endorsement stickers are not given initially, but to go on certificates to indicate *an increase from the initial qualifying speed*. Thousands of operators now have been certified in this popular program. Go after that endorsement sticker, if you hold certification at any speed less than 35. Go after them all the way up to 35.

It's a *sure* way to qualify for FCC ticket, insofar as code is concerned, to follow this League program, which starts at 5 and 7½ w.p.m. Continue to practice and follow the tape-sent W1AW practice until you are ARRL certified at one (or preferably two) speeds above the FCC exam speed you will take. Using code a great deal is the best way to make code your own language, so all nervousness about the fact you are taking an exam can be set aside.

When sending in Code Proficiency Program copy to be checked, please mark the particular one minute of solid copy that you believe is qualifying. You can try copy at several speeds; in such cases we certify only the highest speed which you took perfectly.

Each month in *QST* we give certain dates when certain selected *QST* material will be sent. To send in step with the tape helps make for a perfect "fist." Also it extends receiving ability faster to get in some sending practice. Your ultimate results in terms of DX and traffic will have a lot to do with how well you can use code!

**Learning the Code.** The St. Paul Radio Club's bulletin, *Ground Wave*, recently carried a most fascinating story of WØOPA's 1932 exploits in setting up a neighborhood telegraph wire for learning the code. The fun-and-progress that go hand in hand when learning the code together are as applicable here now as they were then. We wish space would permit a full reproduction but the following excerpts should be of interest.

**The Whoopen Holler Telephone & Telegraph Co.**

This story might be called "How to Learn the Code." . . . Ours was an effective way because all five of us got our coveted "tickets" on the first try. Not the easy Novice kind either. . . . We all got the Class B, now known as the General.

I don't remember who first suggested a telegraph line for code practice, but the idea caught on. We all had keys, buzzers, and earphones for our "stations." Four of us lived on Bald Eagle Lake within a half mile or less. . . . We had little money to spend but I happened to have some telephone "drop" line. . . . Much of the wire was hopelessly weathered and frayed, but a lot was usable, for we weren't fussy. . . . So we started to splice our lengths of wire together. The lengths varied from fifteen feet to over a hundred. We began to put up our line. . . .

Because I could send a little better and faster than the others, it was my duty to send most of the code practice. I first sent code in plain English, but then as the others grew more proficient in receiving I made up 5-letter groups. I finally discovered that the simplest source of 5-letter groups, and the easiest to check, was to divide straight text into 5-letter groups regardless of words. It's surprising how hard it is to detect the original text. Forin stanc ehowa boutr eadin gthis sente nceal oud. At first all communication was by code. We had to copy well to know what the others were trying to get over. . . .

But one evening when I was batting out code practice and had speeded up a bit, I heard a few words in my phones and it dawned on me that it was Bud's voice, picked up by his very efficient "Baldwin" headphones! We had inadvertantly hooked up what is now called a "sound-powered" telephone line. . . . We had to yell pretty loud into our earphones to be heard by the others. When our Telephone Co. friends heard of our "telephone" accomplishment, they called our group the "Whoopen Holler Telephone & Telegraph Co., a name we immediately adopted. . . .

Our phone communications slowed down our progress in achieving the desired 13 w.p.m., but we persevered, delaying our visit to the "R.I." until we were sure we could pass that fateful code test. Spring came. In April we decided we were ready. The first week in May we all went to St. Paul to take the test. Oh, that test! I, for one, still think there was something wrong with that tape puller. Thirteen w.p.m. sounded much *slower*. I had the impression that the test was run at five w.p.m. instead of 13. . . .

Our code practice line had cost practically nothing but our labor, and was a 100% success in getting us our ham tickets, a fond memory.

— *Harvey, WØOPA*

A "ham's ham" is WØIA, manager of the Colorado Weather Net and winner of a special citation in the 1961 Edison Award. Above, Gene relaxes at the controls of his station, from which he has directed CWXN for the past six years, seldom missing a session.

**Does Your Club Issue a Directory?** Several clubs report getting up a list of local amateurs or members for their area. In some cases local radio stores help the cause; in others the club is serving its community service and growth plans by such a publication. The *El Paso Amateur Radio Club* issues a Membership Directory that seems to us outstanding for its format and useful information. A 5½ by 8½ inch offset-process is used. The covers of heavier stock provide a complete club activities calendar and emergency telephone numbers on the inside rear cover. The following indexed features each take a page or more: ARRL officials for the area; appointments of club members (OPS, OO, OBS etc.); past presidents; club members by call and name; "workshop" (technical); Net Directory giving time and frequencies for Texas, New Mexico, Arizona, and West Gulf nets; WWV-WWVH schedules and forecast code; club history and FCC data; club certificates; county list; call letter license plate data; QSL Bureau information; list of amateur frequencies; MST to GMT conversion.

The listing by call shows personal information, nickname, awards held, date of first license, year member joined club, home and business telephone numbers. This club built itself up after WW-II through conducting code and theory classes and adherence to an objective program. It has its own clubhouse. A building fund, started in 1949, grew from money made through club auctions and raffles. A 3-kw. gas-driven generator is used for portable Field Day and emergency drills. All this was accomplished by teamwork!

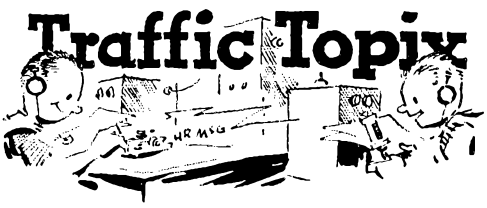
**Request Your Field Day Forms Now!** With over one thousand groups of amateurs having their hearts set on operating afield in the June 23-24 ARRL Field Day, there are bound to be some bottle-necks in meeting requests for those who wait 'til the last minute to ask for our convenient FD report forms. You *can*, of course, make a reasonable facsimile of the Field Day summary, copying from the June *QST* announcement, but who wants to do that when there's a free set of forms to be had?

We strongly urge giving that emergency power source a workout *today* and every three of four weeks during the year, so such provisions will not fail on a field emergency test, or in a *real* emergency. Advance planning, building, and testing can be combined with pleasurable club and family picnics and dry runs too. Preparedness is easily come by and something one never regrets.

We send all Field Day forms free of charge but naturally by deferred mail rates. This is to ask for your early action in requesting Field Day forms so we can give our best service. A radiogram or post card simply asking for June Field Day forms *now* will put you in line to receive them in time. BCNU in the Field Day, come June.

—*F. E. H.*

# Traffic Topix



What do you think of messages with operator's notes calling for some specialized procedure? Recently we received a message advertising some exposition or other in which an operator's note was attached requesting that each relaying station attach his call at the end and that the message be returned intact to the originator as quickly as possible after

## BRASS POUNDERS LEAGUE

Winners of BPL Certificate for February Traffic:

| *Call* | *Orig.* | *Recd.* | *Rel.* | *Del.* | *Total* |
|---|---|---|---|---|---|
| W3CUL | 229 | 2216 | 1791 | 387 | 4623 |
| K6BPI | 90 | 1025 | 914 | 111 | 2140 |
| W9LGG | 230 | 779 | 744 | 35 | 1778 |
| K4AKP | 45 | 834 | 747 | 87 | 1713 |
| K3IMP | 5 | 668 | 629 | 35 | 1337 |
| K2UAT | 174 | 592 | 507 | 27 | 1300 |
| K4SJH | 51 | 632 | 514 | 3 | 1200 |
| W9JOZ | 14 | 578 | 592 | 3 | 1187 |
| W8DAE | 42 | 591 | 435 | 115 | 1183 |
| W3IVS | 6 | 562 | 534 | 17 | 1119 |
| W9OHJ | 3 | 514 | 499 | 15 | 1031 |
| W3EML | 23 | 508 | 458 | 27 | 1016 |
| W7BA | 8 | 452 | 421 | 30 | 911 |
| W1PEX | 44 | 439 | 395 | 32 | 910 |
| W8UPH | 11 | 447 | 370 | 74 | 902 |
| K4MCL | 34 | 445 | 384 | 23 | 886 |
| W9SCA | 20 | 407 | 403 | 1 | 831 |
| W4WHK | 16 | 389 | 373 | 11 | 789 |
| W6GYH | 95 | 345 | 325 | 13 | 778 |
| W3WRE | 46 | 359 | 357 | 11 | 773 |
| W4TUH | 1 | 390 | 382 | 6 | 759 |
| K6EPT | 10 | 360 | 245 | 115 | 730 |
| W7DZX | 15 | 356 | 307 | 29 | 707 |
| W9ZWL | 6 | 508 | 10 | 183 | 707 |
| WA2OPG | 19 | 350 | 323 | 8 | 700 |
| W1SMU | 12 | 362 | 311 | 11 | 696 |
| WA2GPT | 47 | 294 | 233 | 18 | 622 |
| K4EHY | 130 | 257 | 160 | 56 | 603 |
| WA2VAT | 52 | 287 | 248 | 11 | 598 |
| W4FOR | 143 | 222 | 169 | 46 | 580 |
| W3VR | 46 | 271 | 244 | 11 | 572 |
| K1GGG | 101 | 235 | 133 | 101 | 570 |
| K9ONK | 120 | 236 | 204 | 10 | 570 |
| W9DYG | 42 | 277 | 187 | 51 | 557 |
| W4PL | 8 | 282 | 249 | 17 | 556 |
| WA2JHQ | 15 | 273 | 256 | 11 | 555 |
| K4PQL | 11 | 272 | 258 | 14 | 555 |
| W1TXL | 84 | 230 | 197 | 33 | 544 |
| K2UBG | 9 | 283 | 236 | 5 | 533 |
| K8SQK | 15 | 263 | 210 | 45 | 533 |
| W2EZB | 7 | 268 | 233 | 14 | 522 |
| WA4BMC | 217 | 142 | 133 | 27 | 519 |
| W9VAY | 4 | 266 | 243 | 2 | 515 |
| W6EOT | 4 | 261 | 238 | 8 | 511 |
| W9ZYK | 29 | 226 | 227 | 26 | 508 |
| K8JJC | 157 | 174 | 109 | 65 | 505 |
| W9NQW | 15 | 245 | 242 | 3 | 505 |
| Late Report: | | | | | |
| W9ZYK (Jan.) | 32 | 415 | 354 | 70 | 871 |

**More-Than-One-Operator Stations**

| *Call* | *Orig.* | *Recd.* | *Rel.* | *Del.* | *Total* |
|---|---|---|---|---|---|
| W6YDK | 1330 | 264 | 214 | 50 | 1858 |
| W4PFC | 28 | 583 | 567 | 10 | 1188 |
| W4LEV | 833 | 77 | 58 | 44 | 1012 |
| KR6GF | 283 | 229 | 226 | 3 | 741 |
| K6FCT | 150 | 205 | 123 | 82 | 560 |

BPL for 100 or more *originations-plus-deliveries*

| | | | | | |
|---|---|---|---|---|---|
| K0LTJ | 189 | W3TN | 118 | W9TT | 104 |
| K8KMQ | 159 | W0ANT | 118 | WA2CCF | 103 |
| W2EW | 156 | WA2TQT | 117 | K3WBJ | 103 |
| VE3CFR | 152 | K9EHS/ KR6AR | 114 | K1IVR | 101 |
| K1RI | 149 | K4FSS | 113 | K4RNH | 100 |
| W3RV | 149 | K4WUG | 113 | Late Reports: | |
| W2GKZ | 142 | W3KUN | 112 | W4PNM (Jan.) | 120 |
| W4PNM | 137 | K4HOE | 110 | W6MMC /7 (Dec.) | 114 |
| | | | | K9CIL (Jan.) | 110 |

**More-Than-One-Operator Stations**

W9YC 143 W1AW 103

BPL medallions awarded for May *QST* listing have been awarded to the following amateurs since last month's listing: W1HJG, W2GKZ, W3NEM, W4FOR, K4FSS, WA6ROF, K6ZYZ

The BPL is open to all amateurs in the United States, Canada, and U. S. Possessions who report to their SCM a message total of 500 or more or 100 or more originations plus deliveries for any calendar month. All messages must be handled on amateur frequencies within 48 hours of receipt, in standard ARRL form.

reaching its destination. Along with this was a separate message addressed to "all stations handling message number one," conveying additional instructions — this, of course, to be relayed along with the original message.

Perhaps such things are useful and worth while publicity gimmicks. Perhaps, but we doubt it. More often than not, the relaying station will be annoyed about it (the station relaying it to us said "HR QTC 2 JUNK") but will pass it along anyway. Occasionally you will run into a relaying station who will decide that this message shouldn't be on the air and will throw it in the wastebasket, maybe at the same time originating a service message telling the originator what a slob he is. (We could get along without this, too.) Personally, we're inclined to be rather liberal about such things, even though we might be as annoyed about it as anyone else. Once the message has left the originating station, it's too late to do much about it except to get it to its destination as soon as possible. If it's possible to handle it, we ought to handle it.

The question is, how to stop such originations at the source. There are a few other questions, too, such as the proper place and procedure for additional instructions, if any, the propriety of handling such traffic at all, and the precedence to be given it aside from the usual high precedence given it by the originator.

Some traffic men may feel that it's refreshing to handle a message that is different, once in a while — different from the usual run of greetings and other inanities. Most traffic men, however, are only slightly interested in the content (and this mostly as to whether it's correct or not) and a great deal more in the efficiency and rapidity with which it is handled, and *how many* are handled. Thus, traffic that is long, slow, beset with difficulties or requiring special handling is just a pain in the neck. The boys will look with jaundiced eye at the originator of the odd-ball message, especially if the purpose being served doesn't seem to be worthy.

As for "operator's notes," it may be that a few regularly-used pro-signs could be devised that would serve the same purpose. KH6DVD comes up with a suggestion that we adopt some such sign indicating that a report of delivery is desired. Another need might be for the addition of the calls of the relaying stations after the call of the originating station, so the recipient will know what route the message followed. Still another might be a signal to ask each relaying operator to *report* time of receipt and time of relay.

Of course, too frequent or capricious use of such procedure signals could become a dad-blamed nuisance, resulting at least in their not being complied with. But their availability for use when and as required might fulfill a need. What do you think?

— *W1NJM*

*February net reports.*

| *Net* | *Sessions* | *Check-ins* | *Traffic* |
|---|---|---|---|
| 20-Meter Interstate SSB. | 21 | 674 | 1210 |
| Early Bird Transcon..... | 28 | ... | 321 |
| Fourth Region Day.... | 28 | 246 | 508 |
| Eastern Area Slow..... | 28 | 109 | 29 |
| North East Teen..... | 12 | 50 | 19 |
| Northeast Area Barnyard | .. | 851 | 2 |
| All Service..... | 4 | 43 | 42 |
| 7290..... | 40 | 1408 | 631 |
| Early Bird..... | .. | 282 | 45 |
| East Coast Traffic..... | 27 | 143 | 964 |

*National Traffic System.* Quite a few years ago, NTSers on the West Coast decided that something ought to be done about the deteriorating organizational situation in the system in that part of the country. So, the Pacific Area Staff of NTS was formed. This is a group of eight NTS traffic men who have the responsibility for advising the headquarters on all NTS Pacific Area matters in general. The Staff consists of the PAN manager, the Pacific Area TCC Director, the three region net managers and three members "at large" selected from the Area's prominent NTS traffic men. The "at large" members are permanent until resignation or inactivity; the others are members only so long as they are appointees. One of the Staff members is elected chairman by the other members, also for an indefinite period or until his membership on the Staff is terminated.

One of the principal functions of the PAS is to recommend candidates to headquarters for appointment to vacated managership or TCC directorship posts in the Pacific Area. So far, without exception we have followed their recommendations. The PAS has also performed an invaluable function in resolving many procedural and organizational problems in that Area.

It cannot be said that the PAS has been an unqualified success, but it has resulted in better centralization of control of NTS traffic fortunes in the Pacific Area than otherwise would have been possible, in all probability. It has, in effect, put control of Pacific Area NTS destinies in the hands of amateurs on the scene who have a far better grasp and understanding of the problems in that Area than do we here at headquarters.

*February report.*

| *Net* | *Sessions* | *Traffic* | *Rate* | *Average* | *Representation (%)* |
|---|---|---|---|---|---|
| EAN..... | 28 | 1334 | .899 | 47.6 | 97.6 |
| CAN..... | 28 | 1289 | .837 | 46.0 | 100.0 |
| PAN..... | 28 | 896 | .528 | 32.0 | 100.0 |
| 1RN..... | 51 | 557 | .356 | 10.9 | 65.3 |
| 2RN..... | 56 | 487 | .467 | 8.7 | 94.2 |
| 3RN..... | 28 | 590 | .590 | 21.1 | 100.0[1] |
| 4RN..... | 50 | 729 | .428 | 14.6 | 94.3 |
| RN5..... | 56 | 580 | .367 | 10.3 | 73.7 |
| RN6..... | 44 | 449 | .282 | 10.2 | 72.7 |
| RN7..... | 46 | 289 | .209 | 6.3 | 49.5 |
| 8RN..... | 78 | 521 | .241 | 6.7 | 72.8 |
| 9RN..... | 48 | 1076 | .686 | 22.4 | 64.1 |
| TEN..... | 76 | 827 | .411 | 10.9 | 50.9 |
| ECN..... | 19 | 66 | .164 | 3.5 | 84.2[1] |
| TWN..... | 28 | 350 | .416 | 12.5 | 79.2[1] |
| Sections[2]..... | 1087 | 6908 | | 6.4 | |
| TCC Eastern. | 112[3] | 521 | | | |
| TCC Central. | 84[3] | 751 | | | |
| TCC Pacific.. | 103[3] | 648 | | | |
| Summary.... | 1751 | 18868 | EAN | 9.7 | CAN/PAN/3RN |
| Record..... | 1802 | 28659 | 1.187 | 19.1 | 100.0 |

[1] Region net representation based on one session per day. Others are based on two or more sessions per day.

[2] Section nets reporting: MSN, MJN, MSPN Noon, MSPN Eve (Minn.); Texas CW; TN (Tenn.); VN & VFN (Va.); CCW (Colo.); AENP, AEND, AENO, AENT, AENB & AENM (Ala.); OQN (Ont.-Que.); MDD & MDDS (Md.-Del.-D.C.); WSN (Wash.); SCN & NCN (Calif.); QMN (2 Mich.); Wolverine (Mich.); GEM (Idaho); WSB, WSSN & WIN (Wis.); NJN (N.J.); SCN (S.C.); ILN (Ill.); NCSN & NCN (N.C.); QKS (Kans.); RICE (Hawaii); BUN (Utah); NEB (Nebr.); GSN (Ga.); CPN (Conn.); RISPN (R.I.).

[3] TCC functions reported, not counted as net sessions.

Erratic operating conditions really made a shambles of our traffic total in February. We have to go all the way back to 1957 to find a February total lower than this month's. With the coming of better conditions in March, as the sun gets higher in the southern horizon and the days grow longer, we should show some improvement — that is, provided too many of the boys haven't been scared away by the rough winter we've had. Let's hope so, anyway.

CAN certificates have been issued to WØBYV and W9NQW. WA6ROF says that conditions were better in Feb. but traffic was low; KØRTI has been awarded a PAN certificate for outstanding TWN liaison. W1BVR has issued 1RN certificates to *K1s* IFJ GUP NEF PQS, W1PEX and K4BSS/1; Perce has issued 169 1RN certificates since this net's inception in 1949. Late sessions on 3RN, which had been informal during bad conditions, were resumed formally on April 1. W4SHJ has issued 4RN certificates to K4OCU, *W4s* WHK and WUG. RN6 certificates were issued to K6YZU, *W6s* OXJ QAE FNE, *KH6s* ARL and DVD; the latter two have been consistent into RN6's late sked. RN7 has moved its first session to 0330Z with better results, but second session is still a problem; Acting Net Manager W7DZX has his hands full with both the RN7 and TCC-P jobs in tow. Under the skillful ram-rodding of Manager W8DAE, 8RN continues to show improvement; W8CHT has received his 8RN certificate.

*Transcontinental Corps.* K6DYX had to drop TCC-P, and so now W7DZX has two jobs. He is officially director of TCC-Pacific (K6DYX was acting) and acting RN7 manager until the Pacific Area Staff can recommend a successor to W7BDU, resigned. How about some cooperation from you

traffic men in the northwest? Someone step forward and pick up the reins on RN7.

*February reports:*

| Area | Functions | % Successful | Traffic | Out-of-Net Traffic |
|---|---|---|---|---|
| Eastern..... | 112 | 86.6 | 1647 | 521 |
| Central..... | 84 | 90.5 | 1644 | 751 |
| Pacific..... | 112 | 83.9 | 1264 | 648 |
| Summary.... | 308 | 86.7 | 4555 | 1920 |

The TCC roster: Eastern area (W1SMU, Dir.) — *W1s* AW EMG NJM OBR SMU, K2UAT, *W2s* APY OPG, *W3s* EML FAF WRE, *K3s* IMP RXQ, *W4s* DLA FOR, *W8s* CHT ELW UPH. Central Area (K4AKP, acting Dir.) — *W9s* JOZ DYG CXY NQW ZYK, *W0s* DUA SCA, K4AKP. Pacific Area (K6DYX, acting Dir.) — W5ZHN, *K6s* ZYZ LKD GHD KCB, *W6s* EOT HC, WA6ROF, *K7s* NWP NHV, *W7s* GMC DZX ZB, *K0s* EDH DTK EDK, *W0s* WME KQD WHE.

# DX CENTURY CLUB AWARDS

## Honor Roll

The DXCC Honor Roll consists of the top ten numerical totals in the DXCC. Position in the Honor Roll is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total DXCC credits given, including deleted countries. Positions in cases of ties are determined by date of receipt. All totals shown represent submissions received as of the end of the last day of the month of February, 1962.

| | | | | | |
|---|---|---|---|---|---|
| PY2CK.....306/318 | W8DMD....305/315 | W6AM.....301/314 | W5MMK...300/311 | W8JBI.....298/308 |
| W2AGW....306/318 | W8BF.....304/315 | W8BKP....301/312 | 4X4DK....300/310 | VE7ZM.....298/309 |
| W4DQH....306/318 | W9RBI.....304/317 | W0QVZ....301/311 | W6EBG....300/313 | W1JYH.....298/310 |
| W8BRA....306/318 | W5ADZ.....304/317 | W1CLX....301/312 | W8KML....300/311 | W6GPB.....298/309 |
| KV4AA.....306/319 | W9YFV.....303/315 | W2HMJ....301/312 | W5ASG....300/312 | W1BIH.....298/310 |
| W6GUO....306/319 | W8UAS.....303/314 | W9NDA....300/313 | W9HUZ....299/310 | W4OCW....298/308 |
| W2HUQ....306/318 | W7GUV.....303/315 | W1ME.....300/312 | CX2CO....299/311 | W9LNM....298/311 |
| W4JNN....305/317 | W3KT.....303/315 | W2BXA....300/312 | W7GBW....299/311 | G2PL.....298/310 |
| W3GHD....305/317 | LU6DJX....302/314 | W8KIA....300/312 | W2LPE....299/311 | WØEIA....297/308 |
| W1GKK....305/318 | CE3AG.....302/314 | W7PHO....300/310 | G4CP.....298/310 | ZL1HY....297/309 |
| W8JIN.....305/318 | | | | W4TM.....297/309 |

## Radiotelephone

| | | | | |
|---|---|---|---|---|
| PY2CK.....306/318 | W9RBI.....301/312 | W7PHO....300/309 | W3JNN.....298/309 | W6YY.....296/307 |
| W8GZ.....303/314 | W8PQO.....300/310 | W4DQH....299/309 | 4X4DK.....298/308 | W6AM.....290/302 |
| W8BF.....303/314 | VQ4ERR...300/312 | CX2CO.....298/310 | W8KML....297/308 | W2ZX.....289/300 |

From February 1, to March 1, 1962, DXCC Certificates and Endorsements based on contacts with 100-or-more countries have been issued by the ARRL Communications Department to the amateurs listed below.

## New Members

| | | | | | |
|---|---|---|---|---|---|
| W1BAN....251 | VE3UC.....118 | K8VSL.....109 | HP1IE.....105 | K5TFG.....101 | K6CNB.....100 |
| VU2JA.....160 | W8ZDF.....117 | DL9OL.....109 | 6O1MT.....105 | VE1TG.....101 | WA6MWG..100 |
| WØRJV.....159 | W4VCB/ | HC4IM.....109 | K1OOJ.....103 | EP2AT.....101 | K9AMD.....100 |
| WA6DUG....124 | KL7.....113 | ON4SB.....108 | K5WTB....103 | HB9RK.....101 | K9ASF.....100 |
| W2JKN.....123 | VE1JX.....113 | DJ5IO.....106 | DJ5FZ.....103 | K2INQ.....100 | K9JWU.....100 |
| W4CYA....121 | DL3OK....112 | OK1KSO....106 | YU1AHI....102 | W3EAI.....100 | K9QHV.....100 |
| OH2SB.....121 | HC1IE.....112 | OH1VA.....105 | K4LIQ.....101 | W3KID.....100 | UAØGF.....100 |
| KL7AL.....120 | HB9UD....110 | | | K4LYX.....100 | ZL2AYJ....100 |

## Radiotelephone

| | | | | | |
|---|---|---|---|---|---|
| W4LZT.....163 | W8ZDF.....110 | W4NNH....104 | K5QWZ.....103 | W4NJF.....100 | WØIJY.....100 |
| K2UTC.....135 | SM5MC....109 | JA2JW.....104 | W9KXK....103 | K9VRV/4...100 | CN8CW....100 |
| CN8HX....117 | K4VQP.....107 | W1BHP.....103 | W7KHU....101 | W7QPK.....100 | VQ2AT.....100 |
| W4VCB/ | KP4AQQ...107 | W3GRS.....103 | W1OGU....100 | W8NCV....100 | YV5DA.....100 |
| KL7.....111 | DJ2UU.....105 | | | W8QZA.....100 | 5R8BZ.....100 |

## Endorsements

| | | | | | |
|---|---|---|---|---|---|
| K2DCA.....301 | W5IGJ.....255 | VE2WA....220 | W6WX.....185 | W9KXZ.....151 | WA2EGK...131 |
| W6CYV....300 | K6RWO....253 | G6LX.....213 | DL1HA.....184 | F8PM.....151 | WA2HXC...130 |
| WØQDF....300 | DL3RK.....252 | W2RGV.....210 | W3MQC....180 | W1CSC.....150 | K4MWB....131 |
| GM3ENT...300 | W5QK.....251 | W9TKD....210 | W6ZMW....180 | WA2ELS...150 | WA2AEI...131 |
| VK3KB.....300 | WØAIH/ | WØOAQ....210 | W7UVR....180 | K2UVV....150 | K6EXO....130 |
| W2SUC.....296 | VE3.....251 | DL1DX.....210 | SP6FZ.....180 | K4BVD....150 | W7IYW....130 |
| W2UVE.....292 | G2BVN....251 | W4IKL.....207 | K8OHG....173 | K9DJN....150 | W7MH.....130 |
| K4RID.....292 | W8WT.....250 | VK5RX....203 | SM6AMR...172 | W2UA.....146 | VE7KX....130 |
| W2AYJ.....291 | K4HRG....244 | W8YCP....202 | W8QQH....171 | W4OEP....146 | CE1AD....126 |
| W4IMI.....291 | W2TP.....241 | W4NO.....201 | W4HTV....170 | W9YHE....144 | K4GXK....124 |
| W4LVV.....291 | W4LRN....241 | WA6AMZ...201 | UQ2AN....168 | W6ZZC....143 | K9WTS....123 |
| G3AAE.....291 | W1OOA....240 | HB9KU.....201 | K2MM8....164 | K2ZYR....142 | K8ANX....121 |
| LA7Y.....290 | W6HYB....240 | W9LI.....200 | W1DGJ....161 | W8KSR....142 | WØHNA....121 |
| W2NUT....283 | WØMCX....240 | VK5QR....200 | EA1GZ....161 | K9UHH....142 | W2LJF....120 |
| W4AZK....282 | K8LSG....238 | VE3CIO....200 | K3DCP....160 | K5FKD....141 | K9OYD....120 |
| W3OP.....281 | DL1KB....235 | KH6DLF....196 | W3YZI....160 | K8PUU....141 | K0GJE....120 |
| W6KZL.....281 | W2KIR....230 | K7GCM....195 | WA2AYM...160 | K5UYF....140 | W4NJF....114 |
| W4PLL.....280 | K9IYW....230 | W2WMG....193 | KP4AQQ....160 | W6ISQ.....140 | VK3BG....111 |
| W5PM.....274 | W9VP.....230 | W5QN.....193 | W2IDX....157 | W9FKH....140 | WA2FQG...110 |
| W9HCR....272 | W9SWR....225 | UC2AA....192 | KH6DLD...157 | K5UYE....139 | W4MF.....110 |
| W2FBS....271 | K2QHL....222 | W4HUE....191 | K8QJH....157 | W2KHT....135 | W4QVJ....110 |
| W4CXA....270 | W6RBA....221 | W9VZP....191 | W8MFW....156 | DL6QW....135 | WA6IPY....110 |
| KL7PI.....270 | W4JJI.....220 | VE7EH....190 | VE1DB.....152 | TG9AZ.....133 | W6LRD....110 |
| K2PG.....267 | W6AGO....220 | PAØZL.....190 | K1MOD....151 | SM5MC....132 | K6UFX.....110 |
| W5PSB.....260 | | | | | |

## Radiotelephone

| | | | | | |
|---|---|---|---|---|---|
| HAMU.....284 | W8TMA....241 | W2RGV....194 | DJ3VM.....164 | W9YHE....144 | W4HUE....129 |
| G2PL.....280 | W4AZD....231 | WØAIH/ | K4HRG....163 | K8LSG....143 | W6ZZC....127 |
| W4ANE....268 | K8RTW....225 | VE3.....190 | W1DGJ....160 | VK5QR....140 | KH6DLD...126 |
| W9JJF.....267 | G3AAE....224 | W2SUC....189 | DL3RK....160 | K8PUU....140 | VE3BIF....121 |
| WØQVZ....261 | W2VCZ....220 | W9ILW....182 | UQ2AN....156 | KH6DLF....136 | F9YN.....121 |
| OZ7BG....260 | K1EJO....214 | F8XP.....181 | HB9KU....155 | K8ONV....132 | WØMRJ....120 |
| W2PTE....251 | W5IYU....213 | W3HCO....175 | VO1DX....150 | WØWMA....130 | DJ2MM....120 |
| W1BAN....251 | W9HB.....201 | VE1WL....174 | CN8EU....146 | K1JNE.....130 | YV5EF.....120 |
| LA7Y.....241 | K8CFU....200 | W4MB.....171 | W8GMF....145 | TG9AZ.....130 | |

On Feb. 19, at a dinner attended by 103 amateurs and their families, Mr. J. D. Worrell (third from left) presented a Certificate of Appreciation to the amateurs of the Lake Charles (La.) area on behalf of the Chief of the U. S. Weather Bureau. Southwest Louisiana EC W5SKW accepted the certificate for the group. Others in the picture (l. to r.) are W5FMO (SCM), E. D. Coburn of FCC and (far right) W5BSR, former ARRL Director. (*Photo by W5TVH*)

## SUPPLEMENT TO NET DIRECTORY

The following list of nets will supplement and correct the listings on page 101, Nov. *QST*; page 86, Jan. *QST*; and page 77, Mar. *QST*. It also supplements and corrects the printed cross-indexed net directory now in distribution. This brings the record up to date as of Mar. 20, 1962, and is the last *QST* supplement for the present operating season.

The listing that follows is subject to the same provisions notations and instructions specified on page 101, Nov. *QST*.

| *Name of Net* | *Freq.* | *GMT* | *Days* |
|---|---|---|---|
| Ala. Emerg. Net "V" (AENV) | 145,350 | 0200 | T |
| Boy Scouts of America Emerg. Service 2 Mtr. Net | 146,300 | 2400 | W |
| Chautauqua Co. RACES Net — 6 Meters | 50,580 | 1400 | Sn |
| Chautauqua Co. RACES Net — 2 meters | 145,350 | 0200 | M |
| Cootowl Net | 3920 | 0430 | Dy |
| Delta Co. (Colo.) Net | 29,493 | 0130 | M |
| Georgia SSB Net [1] | 3975 | 0100 | Dy |
| Indiana Phone Net | 3910 | 2300 | M-F |
| | | 1330 | Dy |
| Jefferson Co. (Tex.) AREC Emergency Net | 7235 | 0130 | T-Th |
| Jersey City Radio Club Net | 146,500 | 0100 | T |
| Kansas Weather Net [1] | 3840 | 2400 | M-S |
| Mich. Post Office Net [1] | 3645 | 0030 | F |
| | 3860 | 2300 | T |
| New York State CW Net (NYS) [1, 2] | 3670 | 2400 | Dy |
| N. Y. State Phone Tfc & Emerg. Net [1] | 3925 | 2300 | Dy |
| Salvation Army Disaster Communication Net | 50,250 | 0330 | Th |
| Santa Clara Valley Section Net [2] | 146,700 | 0400 | T-S |
| S.A.R.A. AREC Net (75 Meter) (Mich.) | 3885 | 1430 | Sn |
| S.A.R.A. 6 Meter Net | 50,400 | 0230 | W |
| Satellite Data Link Net (SDL) [1] | 3830 | 2300 | T |
| The St. Lawrence Seaway (2) Meter Net | 145,260 | 0200 | T |
| Story Co. Emerg. CW Net (Iowa) | 3708 | 0000 | S |
| Story Co. Emerg. 10 Meter Net | 29,600 | 0100 | S |
| 2-4-6 Traffic Net (Mt. Div.) | 145,080 | 0245 | Dy |
| (Calif.) (Valley Div.) | | 0330 | |
| VHF Traffic Net (Fla.) | 50,550 | 0230 | T-Sn |
| Wash. Section Net [1, 2] | 3535 | 0200 | T-S |
| Western Colorado Net | 3895 | 1400 | Sn |

[1] Correction from previous listing in *QST* or net directory.
[2] Part of ARRL National Traffic System.


We are getting a lot of suggestions, these days, for the betterment of the League's Public Service Program, all the way from hiring a battery of assistants and secretaries to firing the National Emergency Coordinator. Some of them are downright practical, too — especially that last one! Although we have acknowledged and briefly commented on most of them, we want to say here that we appreciate all such suggestions and that we read and re-read them carefully. To those who are irked that we do not immediately adopt their suggestions, we can only say we hope you will bear with us and consider some of the limitations we have to contend with at this level.

The first thing you should consider is the possibility (remote, perhaps, but still a possibility) that you are dead wrong, that your scheme is not feasible, and that almost nobody agrees with you. Once this is removed, then, there are still some hurdles. Can we sell it to our superiors? (Oh yes, we *do* have superiors!) What sort of printing changes will it require? How will it be administered personnel-wise? How much cost will be involved, and are there sufficient funds available to underwrite this? Does the proposal have enough support to put it into effect and make it worthwhile? Does it involve *QST* space, and is such space available?

So you see, there are many things to consider other than whether or not something is a "good idea." We would like nothing better than to be able to consider ideas strictly on their merits without worrying about other considerations. And we have had some good ideas proposed by some mighty good people. To name a few: (1) W8AEU made a

### A.R.R.L. ACTIVITIES CALENDAR

(*Dates shown are per GMT*)

**May 4: CP Qualifying Run — W6OWP**
**May 18: CP Qualifying Run — W1AW**
**June 7: CP Qualifying Run — W6OWP**
**June 9–10: V.H.F. QSO Party**
**June 16: CP Qualifying Run — W1AW**
**June 23–24: Field Day**

### OTHER ACTIVITIES

The following lists date, name, sponsor, and page reference of *QST* issue in which more details appear.

**May 4–6: West Virginia QSO Party, Mountaineer ARA (p. 124, this issue).**

**May 5–6: International Telegraphic Contest, USSR Federation of Radio Sport (p. 25, last month).**

**May 5–7: Connecticut QSO Party, Candlewood Amateur Radio Club (p. 112, last month).**

**May 5–6: SJRA QSO Party, South Jersey Radio Assn. (p. 88, this issue).**

**May 12–14: Georgia QSO Party, Columbus Amateur Radio Club (p. 128, this issue).**

**May 12–27: Bermuda Amateur Radio Contest, Radio Society of Bermuda (p. 158, this issue).**

**May 12–13: 11th OZ-CCA Contest (c.w.), EDR (p. 74, this issue).**

**May 19–20: 11th OZ-CCA Contest (phone), EDR (p. 74, this issue).**

**June 1–4: CHC/HTH 1962 World-Wide QSO Party (p. 17, this issue).**

W4MFK, EC for Hillsboro, N.C., equipped this van with a complete mobile station to be used for emergency work and just traveling about.

number of proposals which we printed in an Emergency and Traffic Bulletin a couple of issues back — all good ones, we thought. (2) W6RIL made some mighty cogent suggestions for NCEFs which were detailed in this column (July, 1960, p. 81), but no majority approval was received. This seems to have been the fate of most NCEF proposals. The latest one is from W4MLE, whom we consider a great deal smarter than ourselves on these matters. (3) WA2GCH has given us fits about our policies regarding issuance of Public Service Awards, and wants to broaden and liberalize this part of the program.

There is a great deal more to considering a proposal than just to say, "That's a good idea, we'll do it." We want the ideas to keep coming, and we expect to implement the best of them. Without implementation of new ideas, we cannot progress. But there is a difference between progressing and plunging blindly forward. Our progress in AREC has been slow, but deliberate and therefore healthy. We have endeavored in the past to keep it this way and shall continue to resist impulse in the future, even though to the exasperation of our impatient brethren in the field who would, having decided on a course, "pull out the stops" and proceed at top speed. There is nothing spectacular or heroic about cautious procedure, but it represents steady, satisfying accomplishment rather than fleetingly phenomenal growth. — *WINJM.*

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ARRL Southwestern Division Director W6MLZ is establishing a net of handicapped amateurs to monitor the NCE frequencies in case of emergency. This net will be called the "Handicappers Net" and it is planned that certificates will be issued to participating members. W6MLZ requests that all amateurs furnish him with names, calls and details of amateurs who may be handicapped.

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Those new AREC reporting forms (Form 35) are really working. Trouble is, some of the ECs, having received a copy of the form, seem to feel obligated to report something on it, and once in a while the very purpose of the form is defeated by omissions. The bonanza on reports received during January and early February was largely a result of the new form. We hope you'll keep on using them, but please fill in the blanks, *especially the date of the activity.*

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On Jan. 10 a 10-year old child was lost in zero weather in Delmar, N. Y. The AREC unit was called out to supplement police radio in serving the needs of 1500 citizens constituting search teams. The boy was found ten hours after his disappearance but only 45 minutes after the amateurs went into action. Those participating were *K2s* FOO EIC AYH CUF, *W2s* ANB AWF FQP GTI, WV2RFC. — *W2GTI, EC Delmar, N. Y.*

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The AREC at Lawrence, Kans., was called out on Jan. 30th to watch an ice jam that had formed on the Kansas River west of Lawrence, causing a flood threat. Amateurs were on watch from 1600 Jan. 30 until 2000 Feb. 1 when the ice jam broke and moved downstream, bringing flood levels to Lawrence; however, the levee system contained the high water and by 2330 the danger had passed and the amateurs were allowed to go home for some much-needed sleep. Those mentioned as having taken part: *K0s* KSC EDM EDZ HBV POU TLQ HBJ, *W0s* OBH NSB EWS QJU YRE FFJ AVZ — *K0BXF, SEC Kansas.*

Shortly after 0600 on Mar. 8 a series of explosions apparently coming from underground gas leaks destroyed two homes and created an emergency in the Lake Cable area, just north of Canton, Ohio, which called Canton Amateur Radio Club mobiles and other members into action as officials searched for the leak. At 0715 the scene of two explosions was declared a disaster area and sealed off, while families were evacuated. By 0730 two mobiles were on hand. K8JZN stationed himself at the search site while K8IIUI was stationed at the church where evacuees were being received. K8MZS activated club station W8RTR at Red Cross headquarters and K8MZT manned her home station, thus setting up a nearly complete communications network for all concerned. The leak was isolated by 0900, but it was nearly noon when the need for further communication by the amateurs no longer existed. Many additional mobiles and home stations were standing by in case they should be needed.

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During the tornado at Ravenna, Ky., on June 10, 1961, over 24 amateurs were involved as telephone lines were out until 1430 CST. W4SZB reports that the Morning Kentucky Phone Net on 3960 held up until 0744, and after the net many members continued to monitor the frequency until afternoon, when telephone service was restored. W4YYI was NCS on MKPN.

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On Oct. 27 two policeman of Jackson, Mich., were captured and forced to drive out of town in their patrol car. K8IKI, a deputy sheriff and assistant EC, called EC K8JKK and within a half hour twelve mobiles were at the police station, awaiting instructions. Each car was assigned at least one special policeman; some had three or four, and a search was set up. K8MUS operated the control station inside the police station, with K8KMC assisting. The missing patrolmen were found about midnight, the missing car the following morning, at which time the amateurs were released after a hectic night. The amateur mobiles were particularly valuable because while the fugitives could monitor the police frequencies from the stolen patrol car, they could not monitor the amateur transmissions on six meters. Mobiles were *K8s* SPD IUZ TCA PZZ CIN UVY SFM KMK LIM KMC JKI and JKK. Standing by to relay as necessary were *K8s* QMX VTU YZR and JRT. Also mentioned as having participated were *K8s* HZH TCD MPG and TFV. — *K8JRT.*

This is KØQFM/4 at Homestead AFB, Fla., who was instrumental in relaying valuable information from Lima, Peru, to the U.S. State Department in Washington during a recent avalanche disaster in that country.

Clinton County (N.Y.) AREC participated in "Operation Good Cheer on Dec. 14, 1961, assisting the Salvation Army in collecting clothing and toys for the poor and needy. Seated, l. to r.: WA2JOG, WA2GCH (EC) and an SWL. Standing, WA2JOH, WA2QWY, WA2WEI, K2GJJ, K1BVI, Major Holmburg (S.A.), WA2SNW and a helper.

On Jan. 15 a B-47 crashed in Essex County, N. Y., and a widespread search was set by the Air Force. AREC assisted the CAP, which was involved. Two meters was monitored, with 10 meters set up as a traffic link into CAP headquarters in Plattsburgh. Maintaining the 10-meter link were K1BVI/2, *WA2s GCH* HSB and *THZ*. Working at CAP headquarters were W7FHA/2 and WA2RLW. WA2JKC teamed with WA2JOI in one aircraft and WA2GPY teamed with WA2RCA in another, both operating on two meters. WA2FYG operated portable in the crash area. Other stations maintaining watch on two meters were K2FDW and WA2UHS, with WA2JOH and WV2YKT relaying traffic. — *WA2GCH, EC Clinton County, N. Y.*

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On Jan. 28, amateurs in the Okla. City area were called on to assist in the search for a missing mental patient who had wandered off into the woods. Eighteen amateurs responded with fixed and mobile stations. *W5s* VCJ TKT and K5TKT operated fixed on six meters. Thirteen amateurs went to the search area in mobile units: *K5s* RRQ BKZ LDI HQP IRO OHU VRL YVN PBE, *W5s* HUJ EWZ VAX UYQ. W5VCJ operated on both 6 and 75 meters and W5DRE monitored 3835 kc. Many miles of wooded area southeast of Okla. City were combed for the missing man, who was found the following morning near Shawnee.

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On Sunday, Nov. 5, the Cuyahoga County (Ohio) AREC sponsored a weiner roast outing at Big Creek Parkway in Parma. A total of 35 amateurs and 37 visitors attended. *K8s* LMF and ONA set up portables on 10 and 6 meters to talk mobiles in during the afternoon. K2HQE was there with his ham shack installation in his 1960 Cadillac. Other features of the afternoon included mobile judging (both commercial and home-assembled gear), and a transmitter hunt for both 10 and 6 meters.

Try something like this for your own AREC group, some time. It breaks the monotony of drills and tests and roll calls.

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On Dec. 23, the Thurston County (Wash.) AREC was asked to assist the Salvation Army in delivering parcels of food and toys to needy families. Four mobiles visited 107 homes as directed by a base station on six meters. The operation lasted four hours, without a hitch. — *W7HMQ, SEC Washington.*

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On Jan. 12 and 13, the Salt Lake City AREC was asked to assist in making collections in a March of Dimes telethon sponsored by KCPX (TV). K7HVE took control and nine 2-meter mobiles made collections, each covering a different section of the city. After a so-smooth operation, the 26 amateurs got together and themselves made a donation of fifty dollars. — *K7BLR, SEC Utah.*

On Jan. 6 the Norfolk, Princess Anne County and Hampton Peninsula of Va. were alerted for AREC standby for a tornado threat that existed from 1100 to 1700. ECs *W4s* QDY FOR and VMA coordinated their activities during this alert.

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The South Carolina Emergency Net was alerted at 0703 January 6 because of a tornado in the eastern part of the state, at the request of the U.S. Weather Bureau. Net control was alternated between K4JPT and K4WJU, and the net stayed in operation until 1646. At about 0830 a small twister struck near Plum Branch in McCormick County. W4UQO/mobile and K4BYC/mobile were dispatched to the area, and after surveying and reporting on the damage they returned. W4CSP was on frequency during the entire alert and served as liaison with the Weather Bureau at Charleston, both supplying and receiving information. W9QIN/4 worked closely with the NCS in maintaining a list of stations having generators and on the positions of the various mobiles in the net. W1AFY/mobile on Highway 301 near Florence supplied many valuable weather reports. W4CE, state e.d. radio officer, was on frequency during most of the alert. The following stations checked in with emergency generators available: *K4s* JXZ GBH AQB. W4AAY, W9QNI/4. During the alert, approximately 130 S. C. stations checked in, and cooperation from stations in North Carolina and Georgia was excellent. — *K4PJE, SEC South Carolina.*

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On Jan. 22, starting at 1900, WA2GCH went on the air from WIRY in Plattsburgh, N. Y. in control of mobiles on an organized operation with the Plattsburgh Junior Chamber of Commerce to collect clothing for the Salvation Army. The radio station broadcast frequent announcements that the AREC was collecting and waiting for addresses for pick-ups. Eight mobiles, one portable and seven additional amateurs were active in this exercise. — *WA2GCH, EC Clinton County, N. Y.*

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On Jan. 30, the Oklahoma Central VHF Club participated in a March of Dimes drive by picking up collections in the outlying areas of Okla. City and taking them to the bank. The operation was conducted on six meters with EC W5ORH as NCS and W5PPE the "dispatcher." Mobile units were assigned districts and were dispatched to the pick-up location in a district by the NCS. Because mobiles sometimes carried large sums of money, each mobile carried an extra person and when in remote locations kept in touch with headquarters frequently. Over 30 amateurs took part. — *W5VCJ, PAM Okla.*

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Still another March of Dimes collection is reported by W4CTU/9, EC for Steuben County, Ind. This one was on Jan. 26. AREC members were stationed at four collection points to stop cars entering and leaving the city of Angola, Ind. Communication was maintained between the check points by hand-carried units on 52.525 Mc. K9YDC was in charge of this successful operation, in which eleven other amateurs assisted.

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We start out the new year with *thirty* SEC reports representing 13,757 AREC members. This is not the greatest number of reports ever received in January (31 in 1960, 28 last year), but *is* the highest number of AREC members *ever* represented that month. It's a good start. Now, let's maintain the pace. Sections reporting: E. Mass., Mich., Ariz., S.N.J., Alberta, W. Fla., Wash., Ind., NYC-LI, N.C., Ala., Utah, Ore., Iowa, N. Tex., Los A., S. Tex., Minn., N. Dak., Tenn., Colo., E. Fla., Nevada, W. Va., Ohio, W. Pa., E. Pa., Okla., S.C.V., Sac. V., S. Dak.

## *RACES News*

RACES operators of Lee County, Iowa, conducted their first drill using brand new municipal-owned mobile equipment on Jan. 24. The exercise, in which nine amateurs participated, got under way at 2000 with WØYWP at the control station and the other eight in mobile units. A number of simulated emergency messages were exchanged between Fort Madison and Keokuk. The eight transceivers were purchased in kit form and assembled by WØCJS, WØRWW and WØRZT.

## NATIONAL CALLING AND EMERGENCY FREQUENCIES (KC.)

| | | | |
|---|---|---|---|
| 3550 | 3875 | 7100 | 7250 |
| 14,050 | 14,225 | 21,050 | 21,400 |
| 28,100 | 29,640 | 50,550 | 145,350 |

During periods of communications emergency these channels will be monitored for emergency traffic. At other times, these frequencies can be used as general calling frequencies to expedite general traffic movement between amateur stations. Emergency traffic has precedence. After contact has been made the frequency should be *vacated immediately* to accommodate other callers.

The following are the National Calling and Emergency Frequencies for Canada: *c.w.* — 3535, 7050, 14,060; *phone* — 3765, 14,160, 28,250 kc.

## SUGGESTED RTTY OPERATING FREQUENCIES

3620, 7040, 14,090, 21,090 kc.

## GMT CONVERSION

*To convert to local times subtract the following hours:*

ADST −3, AST −4, EDST −4, EST −5, CDST −5, CST −6, MDST −6, MST −7, PDST −7, PST −8, Honolulu −10, Central Alaska −10.

## CODE PROFICIENCY PROGRAM

Twice each month special transmissions are made to enable you to qualify for the ARRL Code Proficiency Certificate. The next qualifying run from W1AW will be made May 18 at 0130 GMT. Identical tests will be sent simultaneously by automatic transmitters on 3555, 7080, 14,100, 21,075, 28,080, 50,700, and 145,800 kc. The next qualifying run from W6OWP only will be transmitted May 5 at 0400 Greenwich Mean Time on 3590 and 7129 kc. *CAUTION:* Note that since the dates are given per Greenwich Mean Time, Code Proficiency Qualifying Runs in the United States and Canada actually fall on the evening previous to the date given. *Example:* In converting, 0130 GMT May 18 becomes 2130 EDST May 17.

Any person can apply. Neither ARRL membership nor an amateur license is required. Send copies of all qualifying runs to ARRL for grading, stating the call of the station you copied. If you qualify at one of the six speeds transmitted, 10 through 35 w.p.m., you will receive a certificate. If your initial qualification is for a speed below 35 w.p.m you may try later for endorsement stickers.

W1AW conducts code practice daily at 0130 GMT on all frequencies listed above with speeds of 15, 20, 30, and 35 w.p.m. on Tuesday, Thursday, and Saturday, and at 5, 7½, 10, and 13 w.p.m. on other days. Approximately 10 minutes' practice is given at each speed. To check your copy, the texts used on several transmissions are listed below. The order of words in each line of *QST* text is sometimes reversed. To improve your fist, try to send in step with W1AW.

Date Subject of Practice Text from March *QST*

May 2: *Hurricane SET*, p. 20
May 11: *New League Headquarters Building*, p. 47
May 15: *Selective Signaling Device*, p. 43
May 16: *The Trap Vertical*, p. 48
May 23: *Looking Forward to Oscar II*, p. 51
May 26: *Five Watts at 432 Mc.* . . . , p. 36
May 30: *Transistor Types Recommended* . . . , p. 50

## W1AW SCHEDULES

(Effective April 29)

### *Operating-Visiting Hours*

Monday through Friday: 1 P.M.-1 A.M. EDST.
Saturday: 7 P.M.-2.30 A.M. EDST.
Sunday: 3 P.M.-10:30 P.M. EDST.

The ARRL Maxim Memorial Station welcomes visitors. The station address is 225 Main St., Newington, Conn., about 4 miles south of West Hartford. A map showing local street detail will be sent on request. The station will be closed May 30, Memorial Day.

### *Operating Frequencies*

**C.w.:** 1820, 3555, 7080, 14,100, 21,075, 28,080, 50,700, 145,800 kc.
**Voice:** 1820, 3945, 7255, 14,280 (s.s.b.), 21,330, 29,000, 50,700, 145,800 kc.

Frequencies may vary slightly from round figures given; they are to assist in finding the W1AW signal, not for exact calibrating purposes. Amateurs are respectfully requested to refrain from transmitting on the above frequencies during W1AW bulletins and code practice.

### *Official Bulletins*

Bulletins containing latest information on matters of general amateur interest are transmitted on the above frequencies according to the following schedule in Greenwich Mean Time.

**C.w.:** Monday through Saturday, 0000; Tuesday through Sunday, 0400.
**Voice:** Monday through Saturday, 0100; Tuesday through Sunday, 0330.

*Caution.* Note that in the U. S. and Canada, because times are GMT, bulletin hours actually fall on the evening of the previous day.

## W1AW CONTACT SCHEDULE

Would you like to work W1AW? W1AW welcomes calls from *any* amateur station in accordance with the following schedule:

| *Time (GMT)* | *Sunday* | *Monday* | *Tuesday* | *Wednesday* | *Thursday* | *Friday* | *Saturday* |
|---|---|---|---|---|---|---|---|
| 0000-0030[1] | ..... | 14,280 | 3555[3] | 14,100 | 14,100 | 7080[3] | 14,100 |
| 0030-0100 | ..... | 14,280 | 3555 | 14,100 | 14,100 | 7080 | ..... |
| 0100-0130[1] | ..... | 145.8 Mc. | 21,330 | 145.8 Mc. | 50.7 Mc. | 21,330 | ..... |
| 0230-0300 | ..... | ..... | ..... | 1820 | ..... | 1820 | ..... |
| 0300-0330 | ..... | ..... | ..... | 3555 | ..... | 3945 | ..... |
| 0330-0400[1] | ..... | ..... | 3945 | 7255 | 3945 | 7255 | 3945 |
| 0400-0500[1] | ..... | ..... | 3555[3] | ..... | 3945 | 7080[3] | ..... |
| 1700-1800[2] | ..... | 21/28 Mc. | 21/28 Mc. | 21/28 Mc. | 21/28 Mc. | 21/28 Mc. | ..... |
| 1900-2000 | ..... | 7080 | 14,100 | 7255 | 14,100 | 7080 | ..... |
| 2000-2100 | ..... | 14,280 | 7080 | 14,100 | 14,280 | 14,100 | ..... |
| 2200-2300 | ..... | 14,280 | 14,280 | 14,280 | 14,100 | 7255 | ..... |
| 2300-2330 | ..... | 7255 | ..... | 21,075[3] | ..... | 14,280 | ..... |
| 2330-2400 | ..... | 14,100 | ..... | 3555 | ..... | 14,280 | ..... |

[1] Starting time is approximate. General-contact period on stated frequency begins immediately following transmission of Official Bulletin, on c.w. at 0000 and 0400, on phone at 0100 and 0330.
[2] Operation will be on 21,075, 21,330, 28,080 or 29,000, depending on band and other conditions.
[3] W1AW will listen for Novice Class licensees on the Novice portion of this band before looking for other contacts.

# Station Activities

**• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.**

## ATLANTIC DIVISION

**EASTERN PENNSYLVANIA**—SCM, Allen R. Breiner, W3ZRQ—SEC: W3DUI. PAM: IVS. RM: EML. V.H.F. PAM: SAO. MQU is now an ORS from the Sudbury Area. BFF, an OO, has been a League member for over 30 years and has been quite active in Frequency Measuring Tests. AXA gave his receiver its regular annual check-up. HTZ completed his kever but a few bugs are not permitting it to key. MVO has finished commuting to Cleveland and has settled down to regular traffic skeds. EML received his RACES ticket and is NCS for the Eastern Area Civil Defense C.W. Net on Sun. mornings. RV made BPL three times around and earned the medallion. IMP added an HA-4 keyer and reports the new Heath linear is working FB. CUL and VR are Florida bound and won't return till the roses bloom. MNT added a monitor to the shack and worked HKØQQ. Hurricane force winds took down the 80-meter antenna of EEN and snapped the steel mast belonging to the six-element 6-meter beam of NZD. The Professional Freeloaders are holding their annual Convention at Three Rivers, N. Y. BHU is secretary. GJA has given up the 75-meter mobile project and has taken up knitting. Starting Apr. 14 NLW has been operating mobile in Up-state New York. GOF completed an Apache and your SCM was one of his first QSOs. MLP is on 6 meters with a Lafayette HE-35 and a three element beam. MRE is having fuse-blowing trouble which has kept him off the air. ID has converted an SCR-522 for 2 meters. LKQ, Lehigh County EC, reports AREC plans are coming along fine and cooperating with RACES. EU is looking for the wild geese heading for VE-Land so that he knows it's safe to come out of hibernation. The Havertown Emergency Radio Net is looking for members. Contact JJJ for time and frequency. KJI is the call of the Temple University ARC. These are a number of unanswered letters at this office because no address or call letters were placed in the letter. Better check to see if your reply is past due and write me again. Traffic: W3CUL 4623, K3IMP 1337, W3IVS 1119, EML 1016, VR 572, RV 247, HNK 183, UIU 159, JKX 115, K3MVO 110, W3FAF 100, K3JSX 53, W3MJM 53, K3NBU 51, W3ZRQ 50, K3BHU 48, NLW 48, KTC 41, HWX 34, KJI 32, CAH 30, HTZ 28, W3AXA 26, ITI 26, K3LKQ 20, W3OY 18, GJA 14, MKA 13, BFF 12, BUR 12, K3GAU 12, KN3PLI 11, RFH 8, JHT 6, W3EEN 5, K3ETS 4, JHF 4, KNL 3, ALD 2, W3ELI 2, K3GOF 2, W3ID 2, K3JJJ 2, MDG 2, MNT 2, AKN 1, W3DUI 1, K3MRE 1.

**MARYLAND-DELAWARE-DISTRICT OF COLUMBIA**—SCM, Andrew H. Abraham, W3JZY—Asst. SCM Delaware: M. F. Nelson, K3GKF. SEC: CVE. MDD Traffic Net meets on 3650 kc. at 0015Z daily; MDDS (slow) Net on 3650 and 1814 kc. at 0130Z daily; MEPN on 3820 kc. at 2300Z week days and 1800Z Sat. and Sun.; Del. Emg. Net on 3905 kc. at 2330Z Sat. QNI your favorite nets. K3AXW has good turnouts for the Del. Emg. Net. K3AXW is awaiting results of the Feb. EMT. K3BBR is sending OBs on 3585 kc. instead of 3880 where he was QRMing the Ohio Net. BKE had a good time at the QCWA meeting of the Washington Chapter. Look for TOM on 160 meters. CVE reports that all hurricane emergency traffic has been centered on 7042 and 3521 kc. and the TCRN on 7042 kc. is active at 0215Z daily with K4PQL as NCS. EEB is taking a cruise and will visit KV4, VP4, VP6, FM7, VP2 (St. Lucia). ECP reports that our Director (YA) visited the Washington Radio Club and gave a report on various League matters. K3EWK acts as liaison between the traffic nets. 4EXM/3 enjoyed the meeting of the Washington Chapter of the QCWA. Dr. Hiesing of the Bell Laboratory was guest speaker. K3GKF is looking for DX on 3.5 Mc. Skip reports an excellent turnout for the Kent County auction. A code and theory class is being formed by K3AXH, K3BBR, EEB and IYE. A large group has taken advantage of this class. HQE has moved from the basement so that he could be closer to the coffee pot. JDG says the Harford Amateur Radio Club started a new code and theory class with 30 students. IEW is on 1215 Mc. K3KDI is on 6 and 2 meters with 150 watts each band. The Havre De Grace Radio Club turned out three new Novices and the club is making plans for F.D. K3JYZ has a home-brew Panoramic Scope in operation so he can watch the MDD Net as well as hear it. K3LLR has received the coveted official AREC decal emblem from the SEC, CVE. K3MDL is busy with school work. K3MZY is working DX and is working on 160 meters. He made about ten thousand points in the recent 160-meter contest. K3-NCM is busy handling traffic on the phone nets. K3NPA is busy taking care of a new harmonic (a boy). NO has worked his 50th state for WAS and has 52 DX countries worked in less than a year. TN makes BPL on originations and deliveries. Dave reports that AAY was on the MDD. K3WBJ made the BPL. YZI took part in the EMT and is handling traffic for the boys at the South Pole. JNN will be back on the air again. ZAQ says that his new ground-plane antenna is working fine and working DX on 40 meters. ZNW reports that the MDDS has changed frequency from 3650 to 1814 kc. at the same times. John has worked 200 DX countries at the new QTH. The Frederick County Net meets Tue. at 8 P.M. EST on 145.32 Mc. The Carrol County Net meets Mon. at 9 P.M. EST on 29.3 Mc. Traffic: K3WBJ 360, W3TN 220, K3JYZ 130, LFD 113, EWK 49, W3ECP 46, K3NCM 41, W3EEB 40, ZNW 38, BKE 34, HQE 28, YZI 20, K3AXW 2.

**SOUTHERN NEW JERSEY**—SCM, Herbert C. Brooks, K2BG—SEC: K2ARY; RMs: W2HDW, WA2-VAT, W2ZI. With regret we report the passing of W2BUI, Camden. Hal was a member of the SJRA, Frankford RC and RSBG. WA2VAT, Haddon Heights, did an outstanding job of handling traffic in February. The Haddon Heights ARC's officers are WA2VAT, pres.; WA2KWS, vice-pres.; WA2MES, secy.-treas. NJ Phone and Tfc. Net totals for Feb.: Sessions 28, QNI 511, traffic 145. W2ZI worked 50 stations in 19 states in the recent CQ 160-meter QSO party. WA2KWB, Yardville, placed 1st in Mercer Co. and 3rd in the state in the recent N.J. QSO Party. W2JQU, Ft. Dix, received the KKK-3 Award from the SAWRC, also a CP-35 sticker from the League. W2BZJ, Pennington, expects to start traffic-handling again soon. WA2GQZ, NJN mgr., reports 28 sessions, QNI 477, traffic 379. WA2OZQ, Atlantic Co. EC, is doing a fine job in the shore area. W2EBW, Moorestown, took part in the recent YLRL Anniversary Party. The SJRA has started a 50-Mc. net Mon. nights at 2100 EST. K2KTS reports 16 new Novices as a result of the Delaware Twp. High School training class. WA2JCF and WA2QWZ have been giving 14-Mc. s.s.b. a fling. W2BLV, SJRA'S *Harmonics News* and libel contributor keeps the area well

*(Continued on page 96)*

### 3rd SJRA QSO PARTY

*May 5-6*

The South Jersey Radio Association announces its 3rd QSO Party to aid all amateurs in pursuit of their SJRA Achievement Certificate.

*Rules*: (1) *Contest Period*: Participants may operate any or all of the 29 hour period from 1700 GMT May 5 to 2200 GMT May 6 on any amateur bands. (2) *Contacts:* Stations outside the continental limits of the U. S. must QSO 25 SJRA members; stations within the country (including Alaska and Hawaii) must make contact with 35 SJRA members. Contacts do not have to be limited to any one band. General call "CQ SJRA." The exchange must consist of the QSO number, report, QTH and name of the operator. (3) *Logs*: Logs must be postmarked not later than June 6, 1962 and sent to: SJRA, c/o Awards Chairman, Chris Davis, W2ADA, 807 Lincoln Ave., Palmyra, N.J. (4) *Awards*: An achievement certificate will be awarded to those who meet the scoring requirements in Rule 2. Endorsements will be made to indicate single band operation.

# 293,000 DX QSL CARDS
## All Waiting at Your ARRL QSL Bureau

AMONG the many unsung devoted amateurs are the district QSL managers. These hard-working members of ARRL need your help. Why not help them clear their files?

IT'S EASY. All you have to do is send them a stamped, self-addressed envelope. Place your call in ¼" high letters in the upper left hand corner. The envelope should be 4" x 9½". This is stationery store size #10. Uncle Sam's post offices call their prestamped versions #8's.

IF YOU have worked a DX station in the last few years, you probably have QSLs at your bureau. The bureaus are required to keep the cards for only one year; however, the people who handle the cards are hams too and hate to do away with rare DX cards. A recent survey shows 293,000 cards waiting.

THE following is a list of your district QSL bureaus.

**W1GKK**
**George L. De Grenier**
109 Gallup Street
North Adams, Massachusetts

**North Jersey DX Association**
P.O. Box 303
Bradley Beach, New Jersey

**W3KT**
**Jesse Bieberman**
P.O. Box 400
Bala-Cynwyd, Pennsylvania

**W4HYW**
**Thomas M. Moss**
Box 20644
Municipal Airport Branch
Atlanta 20, Georgia

**W5ADZ**
**Brad A. Beard**
P.O. Box 25172
Houston 5, Texas

**San Diego DX Club**
Box 6029
San Diego 6, California

**Salem Amateur Radio Club**
P.O. Box 61
Salem, Oregon

**W8NGW**
**Walter E. Musgrave**
1245 East 187th Street
Cleveland 10, Ohio

**W9MSG**
**Ray P. Birren**
702 Spring Road
Elmhurst, Illinois

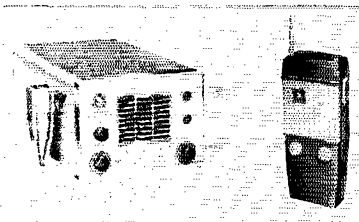
**WØDMA**
**Alva A. Smith**
238 East Main Street
Caledonia, Minnesota

BE SURE you have a self-addressed envelope at your QSL bureau at all times. This will make it easier on the bureaus, and insure that *you* get your DX QSL cards. — R. W. Drobish, W9QVA

Lewis Marshall K9EBE  W. J. Hallgren W9AC  for hallicrafters

# VIKING TRANSMITTERS YOUR BEST BUY... AND HERE'S THE REASON WHY!

Excellent dollar value . . . solid power . . . dozens of convenience features—just a few of the many good reasons why you get much more with a Viking! Yes, dollar for dollar, a Viking is your best buy . . . and that's why Viking transmitters are "first" choice among the nation's amateurs!



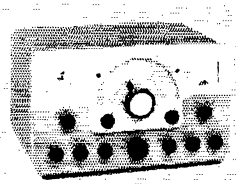
**10 METER "MESSENGER"**—For base station or mobile use! Instant selection of five crystal frequencies in range of 29.4 to 29.7 mcs., within a 300 kc segment of 10-meter band. 10 watts AM input—10 tubes (including rectifier). Super-heterodyne receiver—excellent sensitivity and selectivity! ANL, AVC, and "Squelch". With tubes, microphone and pair of 29,640 kc. crystals. 115 VAC; 115VAC/6VDC; or 115VAC/12VDC models.

**Cat. No. 242-201; -202; -203**
Amateur Net ..... From **$129.75**

**10 METER "PERSONAL" MESSENGER**—1 watt for extended range or 100 milliwatts for shorter range. 11 transistors, 4 diodes. Super-heterodyne receiver—two-stage transmitter. ANL, AVC, and "Squelch". Rechargeable nickel cadmium battery and other accessories available.

**Cat. No. 242-103** 100 milliwatt (less penlight cells) Amateur Net ..... **$109.50**

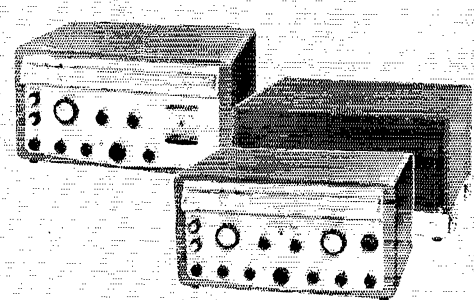
**Cat. No. 242-104** 1 watt (less penlight cells) Amateur Net ..... **$129.50**



**RANGER II**—Now!—A new version of the popular 75 watt CW or 65 watt AM "Ranger"! Also serves as an RF/audio exciter for high power equipment. Self-contained—instant bandswitching 160 thru 6! Built-in VFO or crystal control—high gain audio-timed sequence keying—TVI suppressed! Pi-network antenna load matching from 50 to 500 ohms. With tubes, less crystals.

**Cat. No. 240-162-1** Kit Amateur Net ..... **$249.50**

**Cat. No. 240-162-2** Wired, tested Amateur Net ..... **$359.50**



**INVADER**—More exclusive features than any other Transmitter/Exciter on the market today! Specially developed high frequency symmetrical, multi-section band-pass crystal filter for more than 60 db sideband suppression—more than 55 db carrier suppression! Instant bandswitching 80 thru 10 meters—no extra crystals to buy—no re-aligning necessary. Delivers solid 200 watts CW and P.E.P. SSB input; 90 watts AM (25 to 30 watts output—upper sideband and carrier). Built-in VFO—exclusive RF controlled audio speech power. Wide range pi-network output circuit—extremely smooth VOX and anti-trip circuits. Fully TVI suppressed. Self-contained heavy-duty power supply. Wired and tested, with tubes and crystals.

**Cat. No. 240-302-2** Amateur Net ..... **$619.50**

**INVADER 2000**—Here are all of the fine features of the "Invader", plus the added power and flexibility of an integral linear amplifier and remote controlled power supply. Rated a solid 2000 watts P.E.P. (twice average DC) input on SSB; 1000 watts CW; and 800 watts AM (250 to 300 watts output—upper sideband and carrier). Wide range output circuit (40 to 600 ohms adjustable). Final amplifier provides exceptionally uniform "Q". Exclusive "push-pull" cooling system. Heavy-duty multi-section power supply. Wired and tested, with power supply, tubes and crystals.

**Cat. No. 240-304-2** Amateur Net ..... **$1229.00**

**HIGH POWER CONVERSION**—Take the features and performance of your "Invader" . . . add the power and flexibility of this unique Viking "Hi-Power Conversion" system—and you're "on the air" with the "Invader 2000". Completely wired and tested, includes everything you need—no soldering necessary—complete the entire conversion in one evening.

**Cat. No. 240-303-2** Amateur Net ..... **$619.50**

**"6N2" TRANSMITTER** — This compact VHF transmitter offers instant bandswitching coverage of both 6 and 2 meters. Completely shielded and effectively TVI suppressed, the "6N2" may be used with the Viking "Ranger II", Viking "Valiant", or similar power supply-modulator combinations capable of at least 6.3 VAC at 3.5 amp., 250 VDC at 70 ma., 300 to 750 VDC at 200 ma. and 20 to 30 watts of audio. Power input is rated at 150 watts CW and 100 watts AM phone . . . shaped keying results in excellent wave-form. May be operated by external VFO or built-in crystal control. 8 to 9 mc. crystals are used in a pentode oscillator which doubles in plate circuit. Silver-plated balanced tank circuit with parallel lines provides maximum efficiency on 2 meters. With tubes.

**Cat. No. 240-201-1** Kit Amateur Net.....**$129.50**
**Cat. No. 240-201-2** Wired, tested Amateur Net.**$169.50**

**"6N2" THUNDERBOLT AMPLIFIER**—Rated at 1200 watts P.E.P.* (with an auxiliary SSB exciter) input SSB and DSB, Class $AB_1$; 1000 watts CW input Class C; and 700 watts input AM linear, Class $AB_1$. Drive requirements approximately 5 watts in Class $AB_1$ linear or 6 watts Class C continuous wave. Continuous bandswitched coverage on 6 and 2 meters—effectively TVI suppressed and filtered—wide range pi-network output. Outstanding efficiency—losses on 2 meters held to approximately 5%, instead of common 25% losses experienced in some other 2 meter circuitry! This is possible due to the unique silverplated Hi-Q coaxial line; silver-plated inductors; capacitors; and switch! With tubes.

**Cat. No. 240-362-1** Kit Amateur Net.....**$524.50**
**Cat. No. 240-362-2** Wired, tested Amateur Net.**$589.50**

**"6N2" VFO**—Exceptionally stable and compact—designed to replace 8 to 9 mc. crystals in frequency multiplying 6 and 2 meter transmitters, including types using overtone oscillators. Temperature compensated and voltage regulated for minimum drift and high stability. Plexiglas dial calibrated from 144 to 148 mc., 50 to 51.5 mc., 51.5 to 53 mc., and 53 to 54 mc. With tubes and pre-calibrated dial.

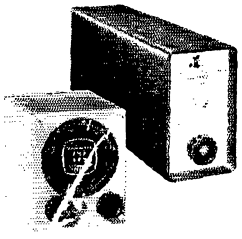
**Cat. No. 240-133-1** Kit Amateur Net.....**$34.95** **Cat. No. 240-133-2** Wired, tested Amateur Net..**$54.95**

**"6N2" CONVERTER**—This compact Viking "6N2" Converter provides instant front panel switching from normal receiver operation to either 6 or 2 meters. Maximum sensitivity and low noise figure . . . excellent image and I.F. rejection. With tubes. Available kit or wired in either 26 to 30 mcs., 28 to 30 mcs., 14 to 18 mcs., or 30.5 to 34.5 mcs. ranges. Specify range desired.

**Kits** Amateur Net.....**$59.95** **Wired, tested** Amateur Net.....**$89.95**

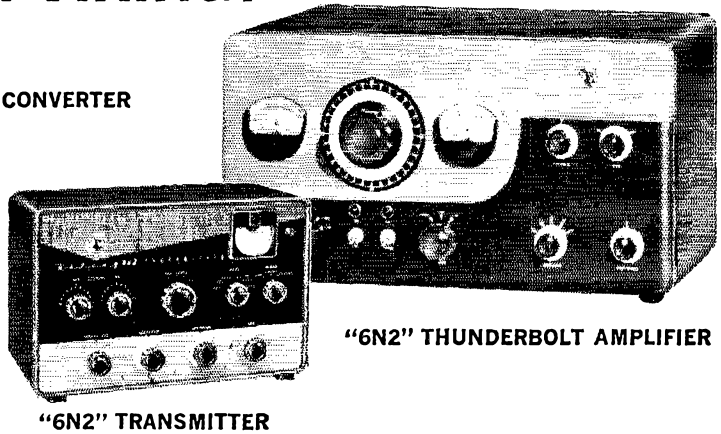
* twice average DC

# for 6 and 2 meters ...nothing outperforms a VIKING!



"6N2" CONVERTER

"6N2" VFO



"6N2" THUNDERBOLT AMPLIFIER

"6N2" TRANSMITTER

## New Catalog

*In addition to the equipment described above—E. F. Johnson Company also manufactures a complete line of higher power transmitters; SSB equipment; amplifiers; station accessories; keys and practice sets . . . all described in detail in our newest amateur catalog. Write for your copy today!*

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# 3 new value packed Heathkits for

## SUPERB HEATHKIT SSB MARAUDER TRANSMITTER COMPARES FEATURE FOR FEATURE . . . WITH GEAR SELLING AT TWICE THE PRICE

First complete filter-type SSB transmitter in kit form . . . over two years in development. An outstanding array of features, combine with neat, functional styling, clean open circuit layout. Quality construction and materials bring you performance, convenience and dependability unheard of in this low price range! Special features include: Precision gear-drive tuning assembly with approximately 10 kc per turn for precise frequency settings . . . smooth action; a full-function accessory socket provides for receiver muting, amplifier cutoff bias, 117 vac antenna relay power, etc.; A switched 117 vac outlet powers monitor scope or other accessories; "Spot" control; Voice control (VOX); Drive level control and many, many more! All control functions are located on the front panel for convenience and ease of operation . . . no doors or hatches to open . . . no equipment to move! Here is a transmitter you will be proud to own and use for years to come! Allow 60 hours for assembly. Complete details available on request. 92 lbs.

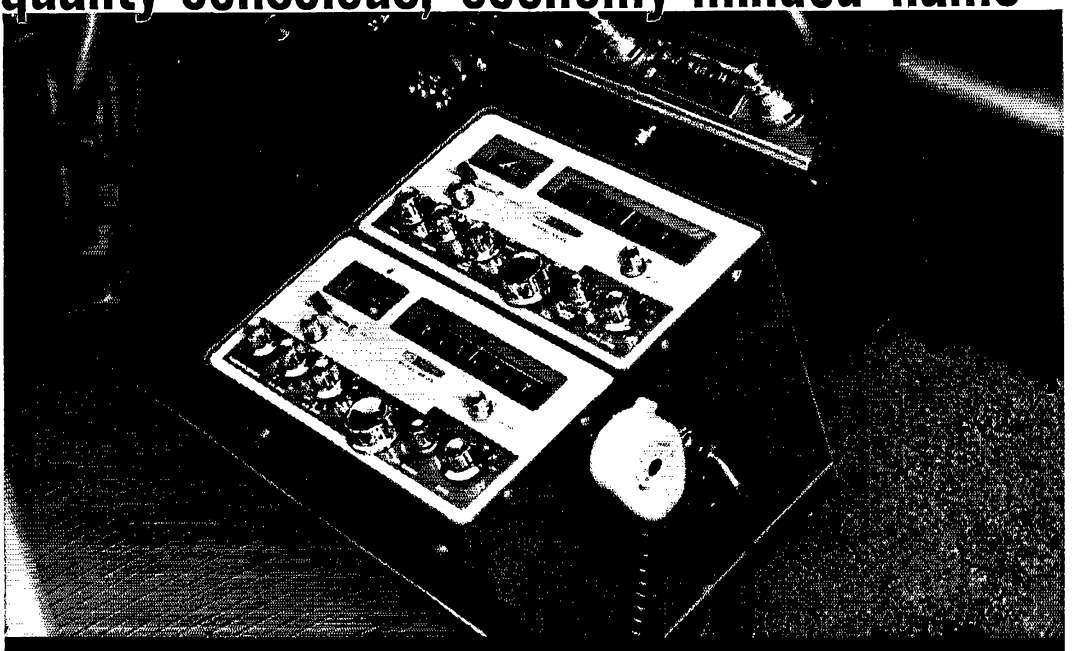
**Kit HX-10 . . .** no money down, as low as $22 mo. . . . **$334.95**

**SPECIFICATIONS—Emission:** SSB (upper or lower sideband), CW, AM and FSK. **Power input:** 180 watts PEP—SSB and CW, 75 watts AM. **Output impedance:** 50 to 75 ohms with not more than approximately 2:1 SWR. **Frequency range: (MC:)** 3.5 to 4.1; 6.9 to 7.5; 13.9 to 14.5; 20.9 to 21.5; 27.9 to 28.5; 28.5 to 29.1; 29.1 to 29.7. **Frequency stability:** within 100 cps, overall. **Carrier suppression:** 50 db below peak output. **Unwanted sideband suppression:** 55 db below peak output. **Keying characteristics:** Break-in CW provided by operating VOX from a keyed tone using grid-block keying. **Audio output:** High impedance microphone. **Audio frequency response:** 400 to 3000 cps at ±3 db. **Power requirements:** OFF 4 watts; STANDBY—200 watts; KEY DOWN—400 watts at 117 volts, 50/60 cycles AC. **Cabinet size:** 19" W x 11¾" H x 16" D.

### A FEW OF THE 32 FEATURES THAT MAKE THE MARAUDER AN AMAZING BUY!

- All crystals furnished for 80 through 10 meters
- Operates SSB (upper or lower sideband), AM, CW & FSK
- VOX controlled break-in CW operation
- Multi-section hermetically sealed crystal band-pass filter
- Dual conversion; crystal controlled heterodyne oscillator
- Preheated, temperature compensated VFO
- VFO or crystal frequency control
- Automatic level control for higher talk power
- 165 to 1 gear drive tuning assembly
- Air-cooled, shielded final amplifier

# quality-conscious, economy-minded hams



## GREAT NEW HEATHKIT COMBO . . . MOBILE AND PORTABLE SSB TRANSMITTER AND RECEIVER . . . AT THE LOWEST PRICE EVER

**SPECIFICATIONS AND SCHEMATICS AVAILABLE FREE ON REQUEST**

### Heathkit HX-20 SSB MOBILE TRANSMITTER

• Same basic circuitry as Heathkit HX-10 • Complete bandswitching—80 through 10 meters • Hermetically sealed crystal bandpass filter • Crystal controlled dual conversion heterodyne circuitry • Automatic level control for maximum talk power, low distortion • Fixed 50 ohm loading for easy tuneup • VOX or PTT operation • Switch selection of USB, LSB & CW

**Kit HX-20**, 19 lbs., no money down, $19 mo. . . **$199.95**

**GH-12:** Microphone illustrated . . . . . **$6.95**

**SPECIFICATIONS—Types of emission:** SSB (Upper or lower) and CW. **Power input:** 90 watts PEP, SSB and CW. **Output impedance:** 50 to 75 ohms with not more than approx. 2:1 SWR. **Frequency range** (MC): 3.5 to 4; 7.0 to 7.5; 14.0 to 14.5; 21.0 to 21.5; 28.0 to 29.5 (using crystals furnished; extra crystal required for 29.5 to 29.7 MC). **Frequency stability:** Overall frequency stability within 100 CPS after warmup. **Carrier suppression:** 50 DB below peak output. **Unwanted sideband suppression:** 55 DB below peak output. **Keying characteristics:** Grid block keying throughout. **Audio input:** High impedance microphone. **Power requirements:** 6.3 V at 8 amps. or 12.6 V at 4 amps.; —125 volts 20 milliamps; 300 volts 100 milliamps; 600 volts 130 milliamps (uses Heath HP-20 or HP-10 power supplies). **Cabinet size:** 12¼" W x 6¼" H x 9¾" D.

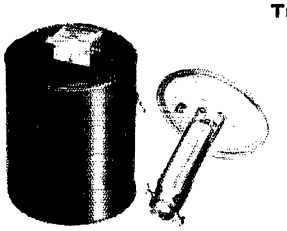
### Heathkit HR-20 SSB MOBILE RECEIVER

• Modern 8-tube superhet circuit • Tunes SSB, AM & CW signals—80 through 10 meters • Crystal I. F. bandpass filter • Crystal controlled BFO's for selectable sideband reception • Built-in calibrated "S" meter • 30-1 gear drive tuning • Fast or slow AVC selection • Series noise limiter

**Kit HR-20** . . . 17 lbs.

no money down, $13 mo. . . . . **$134.50**

**SPECIFICATIONS—Frequency range:** 80 thru 10 meters in 5 bands: 3.5 to 4.0; 7.0 to 7.3; 14.0 to 14.35; 21.0 to 21.5; 28.0 to 29.7 MC. **Intermediate frequency filter:** Center frequency, 3.0 MC; Bandwidth at —6 db, 3.0 KC; Bandwidth at —60 db, 10.0 KC Max.; Hermetically sealed. **Panel controls:** Sideband Select; R.F. gain; A.F. gain—Off—On; Noise Limiter; AVC select; main tuning; band switch; antenna trimmer; SSB, CW-AM switch. **Signal-to-noise ratio:** 10 db at 1 microvolt or less. **Output impedance:** 500 ohms and 8 ohms. **Power requirements:** 6.3 V at 8 amps. or 12.6 V at 4 amps. AC or DC, 300 volts DC at 120 MA. (Uses Heathkit HP-10 or HP-20 power supplies). **Cabinet size:** 6¼" H x 12¼" W x 19¾" D.



### Heathkit "Cantenna" Transmitter Dummy Load

Dissipates 1 kw ICAS with less than 1.5 vswr to 300 mc. Imp. 50 ohms. Coax input plus jack for relative dc output to VOM. Uses re-resistive element, requires 1 gal. oil.

**Kit HN-31**, 2 lbs. **$9.95**

HEATHKIT by Daystrom

**HEATH COMPANY**
**Benton Harbor 9, Michigan**

Please send FREE 100 page 1962 Heathkit Catalog

Name_____

Address_____

City_____ State_____

# GOTHAM VERTICALS DELIVER THE CONTACTS

## IS K6INI THE WORLD'S CHAMPION DX OPERATOR?

Judge for yourself! Read his letter and count the DX he has worked—with only 65 watts and a $16.95 Gotham V-80 Vertical Antenna.

2405 Bowditch, Berkeley 4, California
January 31, 1959

GOTHAM
1805 Purdy Avenue
Miami Beach 39, Florida

Gentlemen:

I just thought I would drop you a line and let you know how pleased I am with your V-80 vertical antenna. I have been using it for almost two years now, and am positively amazed at its performance with my QRP 65 watts input! Let me show you what I mean:

I have worked over 100 countries and have received very fine reports from many DX stations, including 599 reports from every continent except Europe (589)! I have also worked enough stations for my WAC, WAS, WAJAD and ADXC awards, and I am in the process of working for several other awards. And all this with your GOTHAM V-80 vertical antenna!

Frankly, I fail to see how anyone could ask for better performance with such low power, limited space and a limited budget. In my opinion, the V-80 beats them all in its class.

I am enclosing a list of DX countries I have worked to give you an idea of what I have been talking about.

Wishing you the best for 1959, I am

Sincerely yours,
Thomas G. Gabbert, K6INI (Ex-T12TG)

## OR IS K4ZRA THE NEW CHAMP?

Read his letter, and see his diagram of a typical installation and what it achieved:

2539 Christie Place
Owensboro, Kentucky

GOTHAM
Miami Beach, Florida

Gentlemen:

During the time I used this antenna, I worked well over 100 DX stations in 44 different countries, earned a WAS certificate, and worked the necessary stations for WAVE, receiving very fine signal reports from all. My rig ran from 75 to 100 watts plate input and the receiver was an old military ARR-7 (Hallicrafters reboxed SX-28.)

The above mentioned contacts were made with the vertical mounted several inches off the ground, without radials, with only a simple ground connection to the coaxial shield.

Daniel F. Onley, K4ZRA

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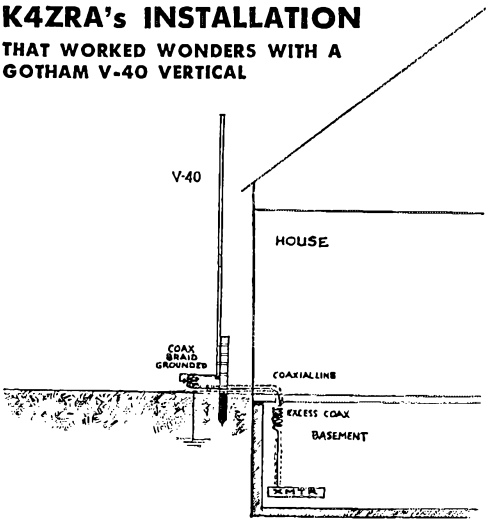


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- Uses one 52 ohm coax line.
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# Station Activities

(*Continued from page 88*)

informed on aurora and v.r.f. K2UKV boasts of 30 states worked on 50 Mc. W2EIF, Camden, continues his fine QO work. K2MNZ, Blackwood, is now operating /7. K2MGZ is vacationing in Florida. Activity reports are solicited from Mercer and Cape May Counties. Traffic: WA2VAT 598, W2RG 165, K2RXB 86, W2ZI 48, K2HUKSEC: W2LXE, RMs: W2RUF, W2EZB, W2-ARJ 8, W2ZVW 7, W2IU 4.

**WESTERN NEW YORK**—SCM, Charles T. Hansen, K2HUK—SEC: W2LXE. RMs: W2RUF, W2EZB, W2-FEB. PAM: W2PVI. NYS C.W. meets on 3670 k.c. at 1900; ESS on 3590 kc. at 1800; NYSPTEN on 3925 kc. at 1800; NYS C.D. on 3610.5 and 3993 kc. at 0900 Sun. and 7102.5 kc. at 1930 on Wed.; TCPN 2nd call area on 3970 kc. at 1900; 1PN on 3980 kc. at 1600; 2RN on 3690 kc. at 0945 GMT and 2345 GMT. BPL this month goes to W2EZB and WA2OPG. Appointments: WA2WEE as ORS, WA2LDC and K1BVI/2 as OBS; K1BVI/2 as OES. Endorsements: K2DNN as EC Chemung Co.; K2KTK as ORS. The SWNYVHFA elected WA2CYM, pres.; WV2VCG, vice-pres.; W2VCZ secy.; K2OVB, treas. The club will hold its Annual Picnic July 14-15 at Great Valley fire tower 50 miles south of Buffalo on Rte. 219. The Elmira ARA (W2ZJ) elected WA2MJO, pres.; WA2FJM, vice-pres.; W2CMT, secy., W2INY, treas. K2DNN reports that 11 new hams resulted from classes sponsored by the Elmira ARA. WA2DAC reports that his new 300-watt linear on 6 meters has no TVI. The circuit uses 2-811-As in GG. The ARATs has started a monthly paper and is looking for a suitable name. WA2LKW has completed his WAS. WA2WEE is putting up a 35-ft. tower and two new antennas. K2-TDG reports that her sister is now KN1VIE; her OM is KN1VIF and they are looking forward to three-way with mother K2IYP. K2SDP has a new harmonic, a boy. K2PBU reports that WA2PDR was hit by a snow-plow while standing still. K2KTK would like to hear from G.E. employees interested in starting a club. W2ZUX has plans for a 60-ft. tower, eight elements and 100 watts on 6 meters. W2SHZ now has 261 countries worked. W2ZOC is building his 3rd s.s.b. rig. K2LWR works DX 60 hours a week. W2SSC is now working DX on 160 meters. W2QCI, of Lockport, has license plate LP-7373. K2YJC reports that the Dept. of Motor Vehicles has suggested a special "AR" prefix on license plates of NYS hams in lieu of special call letter plates. The LARA mobile frequency is 29.550 Mc. WA2BPE is looking for a Vidicon tube so he can try ham TV. Don't forget the Rochester Hamfest to be held at Doud Post Sat., May 12. Traffic: WA2OPG 700, W2EZB 522, W2RUF 248, W2FEB 225, K2RTO 203, WA2HSB 128, W2MTA 105, WA2KZQ 99, K2QDT 73, WA2IXY 44, K2JBX 43, WA2ANE 25, WA2BEX 23, W2PVI 23, K2RYH 19, KBBJ 18, K2OFU 18, W2RQF 18, WA2TDE 15, WA2HEC 12, K2PBU 12, K2AFE 10, WA2WEE 10, WA2LKW 8, K2EE 5, K2PNA 5, K2TDG 5, WA2GLA 4, WA2MJN 4, WA2DAC 3, K2KTK 2.

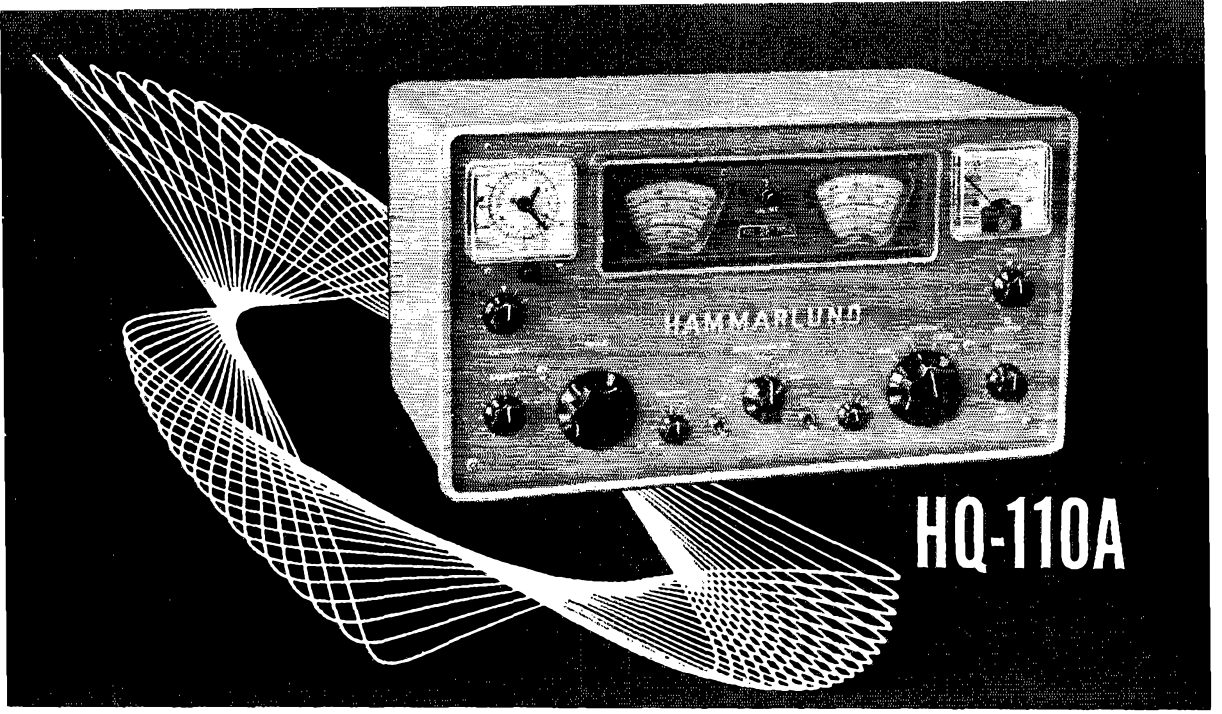
**WESTERN PENNSYLVANIA**—SCM, Anthony J. Mroczka, W3UHN—SEC: WRE. Asst. SEC: KUN. RMs: KUN and NUG. The WPA Traffic Net meets Mon. through Fri. at 2400 GMT on 3585 kc. The Keystone Slow Speed Net (KSSN) meets at 2330 GMT on 3585 kc. Mon. through Fri. Congratulations to NDE on reaching his 82nd birthday. K3KMO has a new Drake 2-B. WRE has an article on the "Bug" in *73* Magazine. K3BWI and K3CTN are teaching code and theory classes. QNI and OVM were main speakers at the March ATA meeting. Bedford County ARC, via *Shorts*, reports: The club net meets Sun. at 1330 GMT and Wed. at 0300 GMT on 3899 kc. K3OXT and SMV have their first harmonic. K3HTJ won the 1961 VE/W Contest for the section. Up Erie way: KPV now is AREA vice pres.; KVB moved to a new QTH; K3NUO is pushing RACES on 2 meters. IYI is instructing code classes at Indiana County ARC. The Cumberland Valley ARC reports via *Valley QRM*: CUK moved back into the area; the club mobiles assisted in the collections of the Annual March of Dimes Drive on 10 and 2 meters. JIV has a new jr. operator. New Novices in Washington County are KN3s SBG, SBK and SIT. Coke Center RC reports: K3JDZ has an SB-10; a new General is K3NNW. RUK has a new Mohawk receiver. The Mercer County Radio Assn. meetings are held the 1st and 3rd Thurs. of each month at the Farrell Public Library. The Horseshoe RC reports through *Hamateur News*: ZVA has a 30-L1 linear; K3NUY has a Gonset G-76; the club is issuing a new certificate—Worked All U.S. Districts. QVG built a new 2-meter converter. The Conenaugh Valley Six-Meter Net is being organized. A new Novice is KN3SJN. The *Oscillator* of the Etna RC reports: The club has purchased a 16 mm. sound projector; PGV made a tape of Satellite Oscar; the Breeze Shooters Annual Hamfest will be held May 20 at North Park; K3OTY is busy working DX on 10 meters, OX is coming along fine after his serious illness. The Nittany ARC and H-CAR report through *The Beacon*: New officers at Nittany are NEM, pres.; K3LUX, vice-pres.; K3ONN, secy.-treas.; K3OOU, act. mgr.; POP, comm. mgr.; K3PML, pub. mgr.; ZZO is on 6-meter s.s.b.; K3POG is on 2; K3AKR is on 220 Mc.; K3OVV passed his General; YA was guest speaker at the H-CAR Installation banquet. The greater Pittsburgh V.H.F. Society plans to hold the 2nd Annual Greater Pittsburgh V.H.F. Hamorama this summer. The Penna. C.D. Net meets every Sun. on 3538.5 kc. at 1100 GMT. Traffic: (Feb.) W3WRE 773, NEM 432, KUN 339, K3DKE 107, KMO 84, W3SMV 54, LSS 41, KNQ 37, UHN 30, IYI 27, K3GQA 18, HTJ 14, W3KWO 13, K3HSE 12, W3OEO 9, LOD 8, K3EDO 6, W3RTV 6, IDO 4.

## CENTRAL DIVISION

**ILLINOIS**—SCM, Edmond A. Metzger, W9PRN—Asst. SCM: Grace V. Ryden, W9GME. RM: W9USR. PAM: W9RYU. EC of Cook County: W9HPG. Section net: ILN, 3515 kc. Mon. through Sat. at 1900 CST. This column's deepest sympathy is extended to the family and friends of K9RUC, who died Feb. 17. W9-GPI, Central Division Director, was guest of honor at a chicken dinner sponsored by a group of Springfield amateurs and their wives. K9AMD finally made DXCC after five long hard years of trying. K9LXG is now sharing his new 6N2 transmitter with his XYL, W9AXV. W9LMJ has two new calls at his QTH, WN9-BKA and WN9BKB, his harmonic and XYL. K9QON has been appointed Asst. EC for Hancock County. W9AKV's rig is now sporting a homebrew transistorized TO keyer. The North Central Phone Net handled 149 messages during February. St. Mary of the Lake Semmary Radio Club's call is now W9ETQ. New "N" calls heard there are WN9BLG and WN9DQR. New appointees are K9RHU as OBS, K9QCU as OO, K9-DLS, K9HLT and K9EIV as OESs, W9CWH as EC. The new officers of the SWANI Club are K9ZQF, pres.; K9SBD, vice-pres.; K9QHD, secy.; W9YUN, treas. W9ECE has a new Gonset GSB-101 linear. K9JTD is using his new SX-115 for Frequency Measuring Tests. W9NSA, W9UMG, W9CN, W9DQX and K9ROL have new beams on 20 meters. W9YYG is the proud father of a boy harmonic. W9BQC reports the Rockford Two-Meter Emergency Net meets Thurs. at 2030 CST on 145.4 Mc. K9OAT is sporting a new TA-33 jr. and trying to bring in the hard ones. K9KBJ and K9OAU are now s.s.b. The Annual SARA Picnic sponsored by the Shawnee Amateur Radio Association will be held Sun., July 15, at Duquoin, Ill. WN9DON, WN9DEU, WN9DCS and K9DEJ were graduated from the latest Joliet Amateur Radio Society code and theory class. W9FDR is transmitting from his fallout shelter. K9-DFE is on 2 meters with a new Heathkit "Twoer." A late BPL is awarded to K9CIL for a late January report. Traffic: (Feb.) K9BTE 139, W9FAW 132, W9AKV 120, W9MAK 117, K9OCU 63, K9OAD 36, K9JTD 24, W9QQG 12, W9PRN 8, W9HPG 4, K9LXG 4, W9SKR 4, W9SXL 4, K9RHU 1, K9VLE 1. (Jan.) K9UGY 292, K9CIL 142, K9OCU 97, W9YYG 14.

**INDIANA**—SCM, Donald L. Holt, W9FWH—Asst. SCM: Clifford M. Singer, W9SWD. SEC: W9SNQ. PAMs K9KTL, W9MM. K9GLL. RMs: W9TT, W9VAY, K9-WET. Net skeds, IFN 0800 daily and 1800 M-F on 3910 kc. ISN (s.s.b.) 1930 daily on 3920 kc. QIN (training) 1800 M-W-F on 3745 kc. QIN daily at 1900 and RFN 0700 Sun. at 3656 kc. New appointments: K9SGZ and K9ARW as ORSs; W9EPT as OES; K9WWJ as EC for Wells Co. and K9AYN as EC for Vanderburgh Co. New officers of the Winslow ARC are K9MRL, pres.; KN9GHN, vice-pres.; KN9DHJ, treas.; K9KRN, secy. New officers of the Michiana ARC are K8PHO, pres.; W9NXU, vice-pres.; W9EQN, treas.; K9AJC, secy. A new Novice in Indianapolis is KN9DRP. A new Tech. in Anderson is WA9BPT. The IRCC Hamfest will be held at Highland Park, Kokomo, Ind. Sun. July 15, 1962. The Annual V.H.F. Picnic, sponsored by the Wabash Valley ARA, will be held at Turkey Run State Park, Sun. July 29, 1962. QIN Honor Roll: K9-SGZ, W9TT, W9ZYK, K9VEJ, K9ZLA, W9VAY, K9-UHQ, K9WJJ, W9ZZR, K9RFW, K9LMJ, K9PNP, W9-FJI and W9TKK assisted officials in the control movement of patients and equipment from the old to the new Gibson Hospital in Princeton, Ind. *Amateur Radio exists as a hobby because of the service it renders.* Feb. net reports: IFN 91, ISB 349, QIN 255, QIN (training) 16, RFN 93, Hoosier V.H.F. 169. W9ZYK

(*Continued on page 98*)

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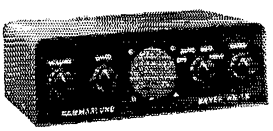

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(*Continued from page 96*)

reports 9RN traffic as 1076 with 100 per cent Indiana representation. Those making BPL: W9JOZ, W9VAY, W9ZYK, and W9TT. Traffic: (Feb.) W9JOZ 1187, W9-VAY 515, W9ZYK 508, W9MIM 385, W9TT 288, K9ZLA 176, K9SGZ 171, K9OET 169, W9NZZ 141, W9RE/9 120, W9UQU 110, K9YIC 103, W9BUQ 74, K9HYV 65, K9-KTL 56, K9WET 56, W9RTH 52, W9EWH 51, W9QLW 49, W9OG 42, K9YJW 41, K9CRS 36, K9GLL 33, K9GSI 32, W9DZC 29, W9SNQ 29, W9QYQ 28, W9IMU 27, K9WWJ 25, K9ZZS 25, W9GJS 24, W9RWQ 24, K9QVZ 19, K9FFV 18, K9HMC 18, W9EJW 17, W9DOK 16, W9DGA 14, W9YYX 14, K9DZW 13, K9RMI 13, K9SPH 12, KN9FOG 10, W9BDP 9, W9ZNC 9, K9ILK 8, W9-QWI 8, W9HUF 7, K9ZUP 7, W8LFG/9 5, K9GLK 5, K9RGF 5, W9SWD 5, K9SJR 4, W9DCA 2, K9FVL 2, K9UQC 2, K9LJP 1, K9MWC 1. (Jan.) W9SFU 44, W9DGA 20. (Dec.) W9ZYK 871.

**WISCONSIN**—SCM, Kenneth A. Ebneter, K9GSC—SEC: W9BCC. PAMs: W9NGT, W9NRP, W9SAA. RMs: W9VIK, W9VHP. New appointees: K9UUT as ORS. W9YZS as EC for Oneida County, K9SFA as OBS on 80-meter s.s.b. Renewed appointments: W9-QIX, W9BEW, K9UTN as ECs; W9YT, W9CBE W9MWQ, W9GIL as ORSs; W9AIW as OO. K9BSC is leaving Wisconsin for New York. W9YT is working DX on 160 meters with a half-wave vertical antenna. K9-CJP and his son K9AQF are on s.s.b. with an HQ-170C and an HT-37. New officers of the FLARC are W9-HCR, pres.; K9EEQ, vice-pres.; K9JWU, secy.; and W9FMI, treas. W9KQB has a new semi-vertical antenna for 7 and 21 Mc. W9EKZ has a new 6-meter nuvister converter working. W9ZB has modified his tri-band beam for 40-meter operation. K9EHS/KR6AR worked 70 countries in two months of operation. K9UJJ has nearly completed his WAS. W9BCC is putting together a new scope. Net reports traffic cleared: WSBN 260, WIN 197, WSSN 20. BPL received for February traffic: W9DYG, W9NQW, KR6AR. Traffic: (Feb.) W9-DYG 557, W9NQW 505, W9CXY 407, W9VHP 147, K9EHS/KR6AR 141, W9SAA 79, K9GSC 51, W9YT 47, W9IRZ 39, W9NRP 36, K9UUT 32, K9GDF 28, K9HFR 28, W9WJH 25, W9CBE 24, W9KQB 23, W9OTL 22, K9-BSC 21, W9VIK 21, W9MWQ 19, W9LFK 18, W9NLJ 16, WA9DHL 15, W9IQW 12, W9HPC 10, K9QKG 6, W9ONI 4, K9OCA 2. (Jan.) K9WGN 104, K9GDF 32.

## DAKOTA DIVISION

**NORTH DAKOTA**—SCM, Harold A. Wengel WØHVA—SEC: WØCAQ. PAM: KØTYY. RM: KØQWY. New appointments: KØQWY as RM and ORS; KØRSA as OPS. KØQWY reports the North Dakota CW. Net meets Mon., Wed. and Fri. at 1830 CST. on 3670 kc. During February the C.W. Net held 12 sessions, with an average of 5 check-ins and handled 3 pieces of traffic. The Goose River Net reports for January: 4 sessions, 94 check-ins, 1 formal message handled and 5 informals; for February: 4 sessions, 110 check-ins, 5 formals and 3 informals. The North Dakota 75-Meter Phone Net reports for February: 24 sessions, 578 check-ins, 67 formals, 50 informals with 15 relays. KØYWD is now Conditional Class and is building a 6-meter converter. WØECO, Minot AFB, has been checking into the Tenth Regional Net. Traffic: (Feb.) KØIVQ 155, KØITP 80, KØQWY 54, KØGGI 52, WØ-YCL 20, WØHSC 7, WØMHB 5, KØTPK 5, WØAQR 3.

**SOUTH DAKOTA**—SCM, J. W. Sikorski, WØRRN—SEC: WØSCT. WØSCT renewed ORS, OPS and OBS appointments. New appointments: KØWEM as OBS and KØWEM as OPS. KØSCL has a new HQ-145X. KØYVC is attending police school in Sioux Falls. New calls: WNØBDE, WAØABF and KØFVV, of Rapid City, and WNØBLA, Sioux Falls. KNØINJ passed the Technician exam. KØEYT, Rapid City, has moved to California. When KØGBC went to the hospital with a broken leg, WØFJZ, KØWYC, KØCXM, KØCXL and KØCXK installed a trap doubled on the hospital roof so GBC could operate portable. KØFVV purchased a Valiant kit. The Hi-Lo ARC's officers are WØRWX, pres.; KØALN, vice-pres.; KØWJT, secy.-treas. KØ-YBX and KØALN have a homebrew modulator on their DX-20. KØVIZ forgot to turn down the heat in his shack and 130-degree temperature ruined a crystal mike. WØZWL made BPL for the fifth consecutive month. Traffic: WØZWL 707, WØSCT 259, KØBMQ 120, WØDVB 107, KØAIE 44, KØZMA 33, WØOFP 32, KØVYY 28, KØELQ 26, WØNNX 22, KØDHA 20, KØCXL 17, KØYVC 17, KØBSW 12, WØVQC 12, KØTNM 10, KØWJT 10, KØYNS 8, ZBJ 8, KØAOY 6, WØNWM 6, KØYJF 6, WØGWW 5, WØCQN 4, KØDUR 4, WØRWM 4, WØYBX 4, WØYVF 4, KØTAM 3.

**MINNESOTA**—SCM, Mrs. Lydia S. Johnson, WØKJZ—Asst. SCM: Charles Marsh, WØALW. SEC: KØJYJ. PAMs: WØGCR, KØEPT. RMs: WØKLG, KØAKM. To Helen, WØOPX, most sincere thanks for a job well done as PAM of noon MSPN for the past two years. Congratulations to Clarie, WØGCR, who has accepted the position as PAM of MSPN. Many of the Twin-City hams had the pleasure of meeting two DX hams, YU3EN and YU3GA from Yugoslavia, at the MRC meeting. Congratulations go to KØLWK, KØVPJ, KØZKK and WØGCR on receiving OPS appointments. KØLIU received his General Class ticket and can be heard on the bands with a Valiant. WØWMA is getting a new P.T.O. for his Collins receiver. New NCSs on the phone nets are KØZKK, KØUBA and WØQDL. New NCS and the first WAØ is WAØABU, who accepted Tue. evenings on MJN. OOs listed a total of 106 violations: WØKLG 84, WØISJ 7, and KØORK 15. WØZOB and his XYL spent five weeks in California. OPS and NCS KØSBB reported an all-time high total Sun. QNS of 55 on the MSPN. WØFGP is a MARS member now. New Ulm Radio Club's officers are KØAYU, pres.; WØFUX, vice-pres.; WNØAHV, secy.-treas.; WØMDA, act. mgr. Rochester Explorer Post 189 elected KØUKU, pres.; KØOAZ, vice-pres.; KNØ-AIL, secy.-treas.; KØBHV and KØPSI, advisory board. WØDQL and WØKJZ renewed ORS appointments. Mrs. L. B. Johnson, XYL of the Vice-President of the U.S.A., was a house guest of WØAGL and his XYL, KØJXX. LU4BAD visited KØSAZ in Rochester. EC KØMEQ has his Apache on the air. KØGNH uses a Viking Valiant, and his son WNØCBV a Viking Adventure and an SX-99 receiver with a 60-ft. vertical antenna. Traffic: (Feb.) WØKJZ 437, WØYC 270, WØKLG 178, WØLST 135, KØOTH 120, WØHEN 84, KØZKK 84, KØAKM 59, KØQBI 49, WØUMX 43, WØATO 37, WØOEZ 35, WØOPX 35, WØWMA 31, KØEPT 28, KØORK 25, KØAYU 24, KØVPJ 24, KØWPK 20, WØGCR 17, KØJYJ 17, KØUBA 16, WØRIQ 14, WAØABU 12, WØKWR 12, KØSBB 11, KØLWK 10, WØTHY 10, WØALW 8, WØBUO 8, KØ-GKI 8, KØIKU 8, KØZRD 7, KØSNG 3, KØWYV 3, KØUKU 2. (Jan.) KØZKK 124.

## DELTA DIVISION

**ARKANSAS**—SCM, Odia L. Musgrove, K5CIR—SEC: K5IPS. PAM: W5DYL. RM: K5TYW. Activity on the Arkansas Emergency Phone Net was up a bit in February, but it was down on the OZK Net. The South East Arkansas Amateur Radio Club finally has moved into its new communications center at 3300 West 7th. All equipment has been set up and working fine. The club also has a teletype working. K5CIX is the chief engineer. W5CAM is the editor of the club paper, The Grid Drive. W5RPB is the chief cook and bottle-washer. K5PRL has a Drake 2B receiver. K5QHY has a Heathkit Shawnee and a two-over-six HyGain beam on a 60-ft. pole. Traffic: (Feb.) K5TYW 95, K5IPS 40, K5YEP 22, W5CAF 20, K5YCM 14, K5UEK 10, K5CIR 6, K5YMU 6, K5ABE 2, K5ICH 2.

**LOUISIANA**—SCM, Thomas J. Morgavi, W5FMO—W5CEZ took on the duties of Asst. Scoutmaster but just the same led the state in traffic handled. W5JGV has a 300-watt final on 6 meters using a pair of 826 triodes and is working on a 4-1000 final. K5VJT is active on 75 meters. W5FYZ, busy on 144 Mc., has worked 30 states on 2 meters plus two Canadian contacts. To K5ARH: "yes I enjoyed Lake Charles presentation." W5HNS is building a d.s.b. adapter for his DX-100. K5CZV has taken up frequency measurements. W5JYA is active on 10 meters in New Orleans. K5USO is chairman of the Delta Division Convention, which will be held in New Orleans Labor Day week end. W5MXQ is president of the N.O. Council of Clubs that is sponsoring the convention. KN5KCA has dropped the "N." K5CTR is building a final for his SB exciter. The Lafayette ARC elected K5VDF, pres.; K5DPH, vice-pres.; K5DNH, secy.; K5VJZ, treas. The club is sponsoring a "Worked all Louisiana Parishes" award. W5HHA manages to get on occasionally. K5UYL is waiting for the next SS contest. W5TQR has been doing fine work on 6 and 2 meters. W5DGB is recovering from his recent illness and plans to move all his gear in the house from his outside shack. W5ACY went sideband. W5SUM built a new "Monster." In addition to handling traffic, K5QXV finds time to send code practice. Check the expiration dates on your ARRL appointments. Traffic: W5CEZ 437, W5MXQ 98, W5-QXV 40, K5CZV 20, W5HNS 13, W5EA 11, W5HHA 4, W5JYA 1.

(*Continued on page 100*)

Amateur / CB / Industrial 2-Way Radio Operators . . .

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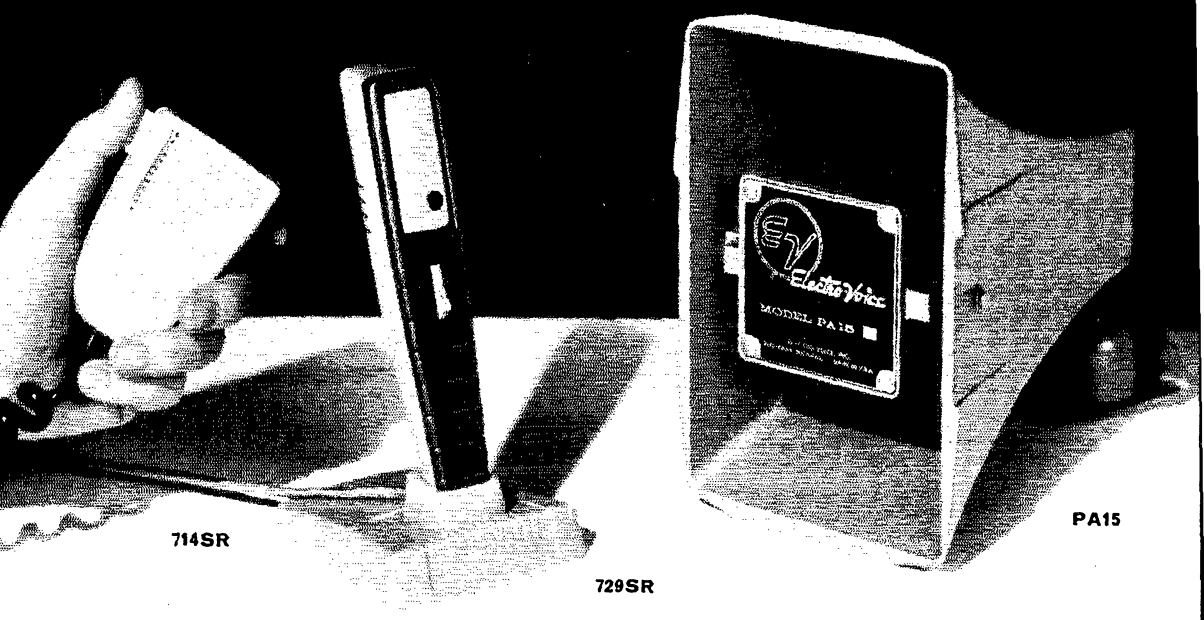


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**MISSISSIPPI**—SCM, Floyd G. Teetson, W5MUG—The Jones County ARC is including a sketch of a fine rig in each of its publications. WN5ALL has his 15-w.p.w. Code Proficiency certificate and is working on his WAS. K5GAD reports the organization of a Severe Weather Net that meets on 3980 kc. when severe weather threatens. K5YPV reports he is working DX with a 13-ft. vertical and has a mobile rig on 10 meters. K5WSY advises that the Severe Weather Net was in action recently on a tornado alert. K5DZE has come back to 75-meter operation after chasing DX for awhile; he also reports the Tombigbee Club still meets the first Tue. of each month. W5CKY reports a fine score in the C.W. DX Contest. I had the privilege of presenting the Meridian Club its new charter recently. I hear plans are under way for the Delta Convention at New Orleans. Hope to see you there. Traffic: K5RUO 70, K5WSY 57, K5YPV 12, K5DZE 6, K5GAD 6.

**TENNESSEE**—SCM, R. W. Ingraham—W4UIO—SEC: K4OUK. RM: K4AKP. PAM: W4PQP. W4PL enjoyed a visit from W4FX and W4VJ. K4AKP is the new Central Director of Transcontinental Corps. K4WWQ is running 950 watts on an 813 final pushed by an HT-37. K4AMC's service address can be obtained from WN4CBF, Nashville. New Generals in the Loudon Co. Club are WA4-CUP and WA4CUQ; a new Technician is YL WA4FSZ. New officers in the Oak Ridge Club are W4HRN, K4-OUK, K4EAK, W4SGI and W4OYZ. New officers in the Kingsport Club are K4VKA, W4DDK and W4PYK. Renewed appointments: W4VJ as ORS and OBS. Reports received: OO—W4ZBQ, K4RIN; OBS—W4VJ, W4-SGI, W4OQG; Nets K4AKP, W4UIO; Clubs—Loudon County, Oak Ridge, Memphis Mid-South V.H.F. Traffic: (Feb.) K4AKP 1713, W4PL 556, W4FX 408, W4OGG 295, K4WUG 162, W4OQG 129, W4VJ 117, K4WWQ 48, W4UIO 18, W4LLJ 8, W4SGI 2.

## GREAT LAKES DIVISION

**KENTUCKY**—SCM, Elmer G. Leachman, W4BEW—SEC: W4BAZ. PAM: W4SZB. RM: W4CDA. V.H.F. PAM: K4LOA. Flood threatened certain areas of Kentucky again late in February and many hams responded to the need. Eastern Kentucky had good coverage on 3823-kc. a.m. Other parts of Kentucky were covered by KYN and phone nets on 3930 and 3960 kc. Space does not permit a detailed report. K4QIO reports that a joint meeting of the Amateur Radio Transmitting Society and the Kentuckiana Radio Club, both of Louisville, was held Mar. 3, attended by Director Dana Cartwright, W8UPB, SCM Elmer Leachman, W4BEW, and SEC W4BAZ. Over 75 were on deck for the meeting at WHAS. Official Bulletins are transmitted simultaneously on 51, 144.5 and 220.1 Mc. by OBS W4RHZ. This is a real accomplishment and soon 420.1 Mc. will be included. W4ZOU and W4AHL recently demonstrated two-way amateur radio to the students of Walton Verona High School. A good thought for other amateurs. All appointees, please send in certificates for endorsement if expired, otherwise cancellation notices must go out. Progress is being made toward organization of a Kentucky Council of Radio Clubs. Let's hear from more clubs. Traffic: K4KWQ 304, W4BAZ 130, K4HOE 124, K4CSH 89, W4RHZ 79, K4OZG 57, W4CDA 55, K4TOZ 31, W4KKG 28, K4LOA 19, W4RNF 18, K4ZQR 10, W4YYI 9, W4ADH 8, K4JKP 8, K4DFO 7, W4BEW 5, W4SZL 3.

**MICHIGAN**—SCM, Ralph P. Thetreau, W8FX—SEC: W8LOX. RMs: W8EGI, W8QQO, W8FWQ, K8KMQ. PAMs: W8CQU, W8JTQ. V.H.F. PAM: W8PT. Appointments: K8BZL, W8EWE, K8GIK, K8JKK, W8JXX as ECs; W8EGI and K8JJC as ORSs; K8BZL, W8CQU and W8EFY as OPSs; K8BZL as OBS; W8VPC as OO. Governor Swainson signed the proclamation making "Michigan Amateur Radio Week" June 18 to 22. New officers: Mason County RC—K8PVC, pres.; K8BNK, vice-pres.; K8JED, secy.; K8DIX, treas.; K8CKD, act. mgr. A new amateur radio club, the Wolverine Amateur Radio Society, meets the 2nd Tue. of each month at 8 P.M. at St. Andrews Church, 16360 Hubbard, Livonia. The Huron Valley ARA has a new duplicator for better bulletins. The Milford ARC has a bulletin and meets the last Thurs. of each month in the Edison Bldg., Milford. W8LME, K8BQD, K8LJI, and K8UVB set up a ham station at the Cranbrook ARC. When BC station WCBY burned up, W8HKL was there. W8NBF is back from the hospital. The Catalpa ARS meets the 3rd Mon. of each month in the basement of St. James Church, W. Maple Road, Birmingham. New officers: St. Clair Valley RC—W8MYU, pres.; VE3BMX, vice-pres.; VE3BTL, secy.; W8TBU, treas. The Genesee County RC meets the 3rd Tue. of each month at Flint Scots House, 412 E. Kearsley St., Flint. Flint also has a new "Michigan 6-Meter Rag Chewers Net." Officers of the Twin Sault RC are W8IJN, pres.; W8FYX, vice-pres.;

(*Continued on page 102*)

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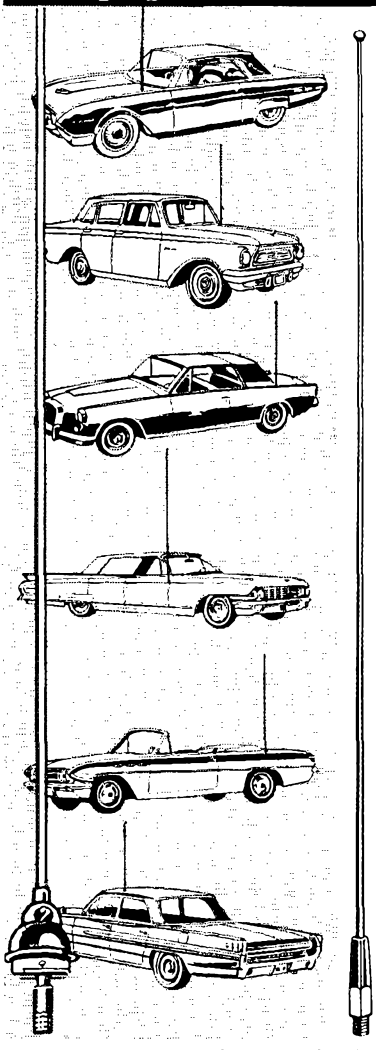

The Hy-Gain mobile whips are all taper ground with 3/8x24 standard stud for mounting directly or use with most mounting accessories. Models 96, 72 and 60 are of 17-7 PH professional grade stainless steel, the former two with removable stud, allowing whip to be shortened to desired length . . . Models 108 and 102 are of top grade commercial stainless steel. Model M-36 is a chrome plated extension with 3/8x24 stud fitting any mount or loading coil.

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108 inch stainless steel whip.
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72 inch professional quality stainless steel whip.
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**Model M-36**
36 inch chrome plated 5/8" OD steel tubular base extension.
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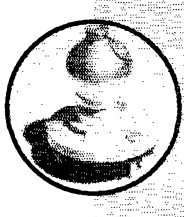

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**BODY MOUNT**
Cadmium plated cast aluminum split-ball base mount with grey cycolac plastic base completely pre-assembled.
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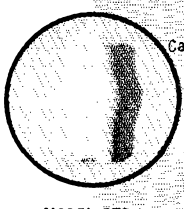
Same as Model BDYS but triple chrome plated. **$4.77 Ham Net**



**MODEL SPGS**
**SPRING MOUNT**
Cadmium plated, double tapered steel spring with injection molded cycolac end bells isolating spring from antenna and eliminating noise. Provided with 3/8x24 stud to fit either body or bumper mount.
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Same as Model SPGS but triple chrome plated for heavy duty applications. **$4.77 Ham Net**

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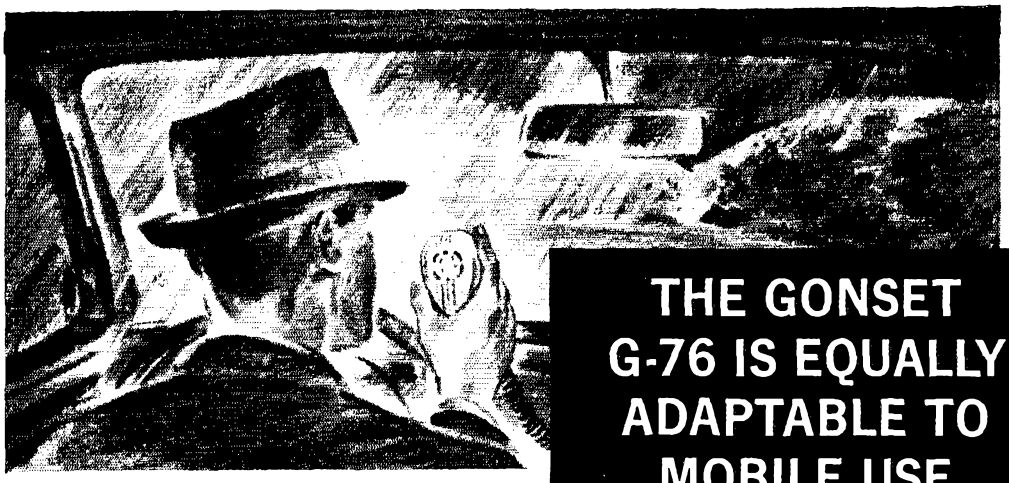
KN8WAH, secy.; W8III, treas. Marinette & Menominee RCs officers are W9ZAW, pres.; K9BKA, vice-pres.; K8CQW, secy.-treas. BPLers: K8JJC, K8KMQ. K8MEG now is in the Navy, as is W8NOH. K8HTP is in the Army on Okinawa. W8JYJ works Antarctica and Thule. W8EGI rebuilt his SX-11. K8IRC runs an antenna test for school physics. K8GJD has a new Warrior KW. K8JJC has an SX-101A. K8SHQ sets up ham TV on 420 Mc. K8QCJ will be a tenor with the '62 Michigan Choral group in Europe this summer. W8EMD has s.s.b. now on 6 and 2 meters. K8GOU is going on 160 meters. K8LOS recorded Col. Glenn. K8PUS worked W6LNE, Calif. on 50 Mc. K8WPI is working 144 Mc. Traffic: (Feb.) K8JJC 505, VE3CYG/W8 274, K8KMQ 263, W8-LXJ 225, W8ELW 182, W8JTQ 144, K8MEG 134, W8OCC 133, K8TDJ 110, W8EU 103, K8HLR 98, W8WQH 83, K8QLL 69, W8RTN 65, W8AUD 64, W8FWQ 64, W8ZHB 60, W8FX 54, K8RQO 52, K8PYW 50, W8JYJ 41, W8MAI 36, K8ZZW 31, W8MPD 28, W8HKT 27, W8EGI 24, W8-BEZ 23, W8DSW 23, K8TJH 23, W8TBP 22, K8KQV 18, W8IUJ 17, K8IRC 14, K8JED 14, K8WQV 12, K8EPZ 9, K8GJD 9, W8AHV 8, W8ILP 7, K8SHQ 4, K8QCJ 3, zk8EFY 2, W8TIN 2, W8EMD 1. (Jan.) W8SWF 19.

**OHIO**—SCM, Wilson E. Weckel, W8AL—Asst. SCM: J. C. Erickson, W8DAE. SEC: W8HNP. RMs: W8BZX, W8DAE, W8VTP, K8ONQ. PAMs: W8VZ, K8KSN. W8-QAW is now WA2NRK. Your SCM attended the Tire Town RC along with W8s ADQ, HR, IOZ, KBR, LGG, LZE, QXB, SGG, VJX, WEO, K8s CHE, DRS, ECK, EJK, JZN, KEW, KTH, LDU, MAE, MZS, MZT, NJH, NJM, NYM, OPW, QNT, SEZ, VQX, WFM, YYV and WA8ABC. The Sunday Noon Naggers Net is giving a certificate to those who have worked 15 members under 100 miles from Canton, 5 members over 100 since Mar. 26, 1961 on 6 meters. K8PBE received the Michigan 6-Meter Award. K8DDB was in the hospital. Canton ARC's *Feedline* carries a picture of K8JZN seated in his station on the cover page and informs us that W8PWO is now K7RTP. K8LHZ is holding General Class theory at his home; K8ANA is the proud father of a baby girl; K8ZCO, his son K8ACZ and daughter KN8BLD moved to W1-Land; W8GAB received a certificate for 2nd place in the Breeze Shooters Contest; W8NAL is a member of the QCWA and has a new HQ-170; W8AL received the Noon Naggers Net and OOTC Class E awards. New appointees: W8CUT and W8JTZ as ECs; K8KSN as OBS; K8ZXN as ORS. W8UPH, W8DAE and K8SQK made the BPL. The North East Ohio V.H.F. Group will hold a banquet at Terrace Gardens in Barberton May 5 and a hamfest picnic at Sunset Park near Alliance June 17. K8CCS and K8JQH moved to Uniontown. The Coshocton County ARA's officers are K8VQM, pres.; K8NSH, vice-pres.; W8HEL, secy.-treas. Warren ARA's officers are K8QDQ, pres.; K8LSI, vice-pres.; Kalman, secy.-treas.; K8ZNB, corr. secy.; W8-KJE, act. mgr.; K8GAS, W8KJE, K8IDX, trustees. WA8CJI is a new ham. K8WJB and K8ZNB are Technicians. The Seneca RC toured the General Electric plant at Tiffin and W8ZJ spoke on old-time radio. W8SZL was commissioned an ensign in the USNR. The Inter-City RC held an auction. Tusco RC's *Beam* tells us W8BIM, K8SMA, K8RNM and K8QBS have new Drake 2Bs. W8JHJ has a new 75S-1. KN8ZID has a new 75A-2. K8ZIQ has a new TA36 beam and W8SYZ has a new Apache. The Ohio Phone Net starts at 1630 EST now. Greater Cincinnati ARA's *Mike and Key* informs us W8ERG discussed converters. Dayton ARA's *R-F Carrier* advises that K8KNU spoke on diodes and power supplies. W8HOH's topic was product concepts and the Miami Valley AREC held its Annual Winter Field Day. Many thanks for QCEN's *The Listening Post* and the South East ARC's *Ham Fax*. Queen City Emergency Net's officers are W8HQK, pres.; W8MXR, vice-pres.; K8CRV, secy.; K8VWC, treas.; K8DGE, comm. mgr. South East ARC heard a talk and demonstration on closed circuit television and radar. Toledo's *Ham Shack Gossip* named K8YOO and his son K8YON as its Hams of the Month and states W8HYE is ill; K8YLM has her General Class license and K8YIN was in the hospital. Findlay RC's *The W8FT News* tell us W8WE was in hospital because of a heart attack. Cuyahoga County AREC used 29- and 50-Mc. mobiles in collection of Heart Society funds with W8s LHX, NZI, SJX, SUS, TNB, VBU, VFU, K8s AWF, CQY, GBH, IZL, KNJ, MBV, MBW, MME, MVA, SCR, SMQ, and UPJ taking part. Parma RC's *P.R.C. Bulletin* informs us WØSGY from Collins talked on s.s.b.; W8OXS is a Silent Key; K8DHX left for the armed services. From *Smoke Signals from the Indian Hills RC*: UVK and YWL received their General Class licenses; K8STP has a new Eico 720 and K8STK has a new Seneca. Springfield ARC's *Q-5* states W8IIP gave a talk on New Look in High Power Finals; K8PMF became a Silent Key. OHKYIN V.H.F. Radio Society's *Q-Fiver* tells us that K8THT was in the hospital. W8BZX received WQCM and Canadian Borderline Friendship Awards. K8PYD received the

*(Continued on page 104)*



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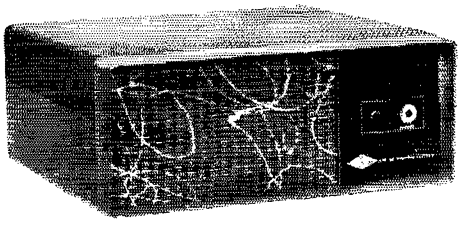

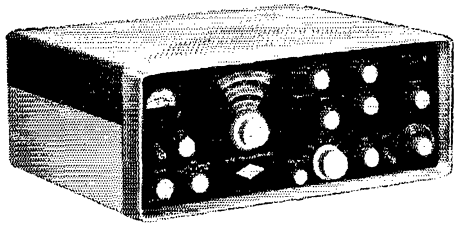

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WGSA award. The Ohio Single Side Band Net was organized Feb. 26 and meets nightly on 3975 kc. at 1830 EST or 2330 GMT. Traffic: (Feb.) W8DAE 1183, W8UPH 902, K8SQK 533, W8CHT 362, W8BZX 267, WA8AJN 208, K8AAG 180, W8BGP 95, K8BDZ 73, K8ONQ 65, K8BNL 54, K8RYU 47, W8PZE 16, W8AL 44, K8KSN 43, W8LZE 36, K8VWN 34, W8CXM 31, W8ILC 30, K8DDG 29, W8ZYU 12, K8RND 6, K8KXS 5, W8WYS 5, K8PBE 2. (Jan.) W8PMJ 20.

## HUDSON DIVISION

**EASTERN NEW YORK**—SCM, George W. Tracy, W2EFU—SEC: W2KGC. RMs: W2PHX and K2QJL. PAM: W2LJG. Section nets: NYS on 3670 kc. at 0000 GMT nightly; NYSPTEN on 3925 kc. at 2300 GMT nightly; ESS on 3590 kc. at 2300 GMT nightly; Interclub on 28.690 Mc. Mon. at 0130 GMT; MHT (Novice) on 3716 kc. Sat. at 1800 GMT. Endorsement: W2GTI as EC. WA2SPG is on 6 meters with a Gonset III and a five-element beam. WA2PIW, WA2SJG and WA2IUL, all 2-meter men in Albany, are attending Clarkson College. Join the Capital Area Radio Emergency (CARE) Net each Sun. at 2000 GMT on 145.35 Mc. WA2BAH reports 16 states on 2 meters. K2BSB and W2CTH are on 220 Mc. with 11 elements upstairs. The guest speaker at the Schenectady Club was *73* Editor, W2NSD. Down at the Communications Club of New Rochelle its speaker was W1TLZ on RTTY. The mayor presented the club with a certificate from the City Council honoring CCNR for its RACES service and line Field Day work. A new KWM-2 worked 19 countries and 27 states in five days for W2URP. Sorry to report that K2JFR was drowned Feb. 25. The Ulster County Club publishes an interesting news sheet, *QRM*, edited by WV2VJV. The club held an auction Feb. 15. The Pelham H.S. Club, K2OXR, is on the air with a Knight rig and a Super-Pro receiver. WV2VJV/2, with an assist from K2VYN and WA2JTK, put on a demonstration for 400 visitors at a Scout rally to show both phone and c.w. operating. Other members of the Ulster County Club assisted by furnishing contacts. Congrats. Traffic: W2EFU 216, W2THE 173, WA2MID 104, WA2HGB 67, K2TXP 66, K2SJN 28, W2PKY 20, W2URP 18, WA2DRP 12, K2MPK 8, W2PHX 6, WA2LOJ 2, WV2VYS 1.

**NEW YORK CITY AND LONG ISLAND**—SCM, George V. Cooke jr., W2OBU—SEC: W2ADO. RM: K2UFT. PAM: W2UGF. V.H.F. PAM: W2EW. Section nets: NLI, 3630 kc at 0015 GMT nightly; NYCLIPN, 3908 kc. at 2230 GMT nightly; V.H.F. Traffic Net, Tue.-Wed.-Thurs. 145.8 Mc. at 0100 GMT and Fri.-Sat.-Sun.-Mon. 146.25 Mc. at 0000 GMT. BPL cards went to K2UAT, WA2GPT and K2UBG, all over the 500 mark, and W2GKZ, W2EW and WA2TQT, on originations and deliveries. W2EW, our V.H.F. PAM, received a beautiful certificate for "Recognition of Outstanding Service" from the Department of Defense, Eastern Instructor Training Center, for service handling messages from students to representative officials of Federal and local government agencies, destined to all parts of the U.S. and permissible foreign countries. WV2VKK advises that the BSA Emergency Service 2-Meter Net operates on 146.39 Mc. Wed. at 0000 GMT and that all local N.Y.C. Boy Scouts are invited to call in, with licenses. The USNR Security Group at Freeport boasts of its communications ability and service acumen with W2SKK, TUK, K2UAY, WA2ANP, DHF, FBC and HQF as officers and enlistees. TUK is the amateur to see if you're interested in Navy Reserve Communications. W2KR, our Division Director, K2HEA, his XYL Dottie, K2MGE and W2QZ are mighty active with 2-meter s.s.b., the first three using HA-2s. W2SMW is way down South with new call, K4QKH. WA2WRK, formerly W8QXW, is a new call in Manhattan. The newly-formed Rockaway Amateur Club's officers are WA2TAQ, pres.; K2MYS, vice-pres.; WA2OHM, treas.; WA2MLN, secy. Section Net certificates were issued to W2YCW, DPR, EHA, K2KCY, SDM, UPA, ZKU, WA2HUF, EER, ICX and OAX. The GLO Spring Dance is scheduled for May 26. See W2AEV for tickets. The South Shore AWA elected W2VGR, pres.; K2UAT, vice-pres.; WA2VDZ, treas.; K2UFT, secy. K2OZH and WA2CSE are attending Cornell. WA2NCE received his WCONN and WWCNY awards. K2UFT is now CHC No. 431. K2DDK and K2DDE held a 4-hour, 50-minute QSO on 2 meters. W2VLQ is a new EC in Garden City. WA2MPP will be off the air for a while—his mother cleaned up the shack. K2ASP is back on the air on 2 meters as second station of W6VQM after a five-year absence from Brooklyn. The Hicksville HSARC has a new NC-190 and members are operating all bands with a DX-100 and trap dipole. WA2GAF received his hard-earned WAS. K2DZA bought a new G-50 and 6-meter converter for the SX-101A. It's a June wedding for WA2QBB and Bunny after meeting through the CAP. W2EW and K2OWD are passing RTTY traffic on 2 meters and attempting to get an

(*Continued on page 106*)

# SEE and HEAR
## the imaginatively designed

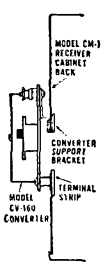

# MOSLEY CM-1 receiver

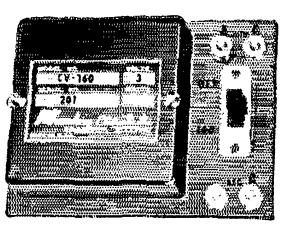
- *First low priced receiver with double conversion and crystal controlled first oscillator.*
- *First receiver with 5 dual-purpose tubes of one type and 4 semi-conductor diodes which perform all functions usually requiring 12 or more tube sections.*
- *First low priced receiver with selectivity, sensitivity and stability that equals receivers selling for $100.00 or more higher.*

**FEATURES AND PERFORMANCE:**

Diode detector for a.m. and product detector for s.s.b. and c.w.
Calibration every 5 kc.
WWV reception at 15 Mc.
Selectivity: ½ microvolt for 10 db. signal-to-noise ratio on ten meters.
Sensitivity: 2.5 kc. at -6 db. Automatic noise limiter.
Stability: Less than 500 cycles drift after one-minute warm-up. Less than 200 cycles change for 10% line voltage change.
Image and i.f. rejection: 35 db. minimum.
"S"-meter functions on a.m., c.w. or s.s.b. with or without b.f.o.
Audio output: ½ watt at 6% distortion into a 4 ohm speaker.
Rear chassis accessory facilities: Transmitter relay terminals, accessory power socket, external speaker/VOX terminals.
Power consumption: 33 watts. (115 volts a.c., 50 to 60 c.p.s.)
Write for complete descriptive brochure and the name of the dealer handling the CM-1 in your area.

Amateur Net, $182.70 * (All crystals included)
Matching Speaker, Model CMS-1. Amateur Net, $16.95 *




**New! MOSLEY 160 METER CONVERTER**
**Model CV-160**

*Converts the 160 meter band, 1750-2000 kc. to 3700-3950 kc. for reception on most 80 meter band receivers.*

*Designed to attach directly to rear of the Mosley CM-1 and adaptable to most other amateur band receivers.*

*Connects only to antenna and ground terminals of receiver. No other connections are required.*

*Transistorized, crystal controlled, printed circuit, self powered by two penlite cells (not included).*

*Amateur Net, $14.95 **

* *Slightly higher west of Rockies and outside U.S.A.*

Mosley Electronics Inc.
4610 N. LINDBERGH BLVD. BRIDGETON, MO.

RTTY traffic net organized. WA2TQT has a new Clegg 99er and an SX-108. K2MUB is running 500 watts c.w. on 6 meters and looking for scatter skeds. WA2KSD received an award from the N. J. QSO Party "2nd in N. Y." and "4th in the U.S.A." WA2GFP has completed his 220-Mc. Helical beam for semi-spherical tracking of Oscar II, if and when it goes up. WA2RMP, in Huntington, received an ORS appointment. Your SCM requests that monthly reports be in his hands by the 7th of each month. Some appointment certificates need endorsement. Traffic: (Feb.) K2CAT 1300, WA2GPT 622, K2UBG 533, W2GKZ 337, W2EW 323, K2FO 154, WA2RMP 153, WA2-TQT 143, K2KYS 79, WA2DHF 74, K2UFT 66, WV2-VKK 59, WV2RVU 54, WA2EFN 46, WA2QAT 43, WA2-LJS 25, WA2QHT 20, K2THY 17, WA2WEA 16, K2YQK 14, WA2FUL 11, W2IAG 11, W2OME 10, W2DBQ 9, W2EC 7, WA2FRW 7, W2JGY 7, WA2FIT 6, W2TUK 6, W2PF 3, WV2TYC 3, WA2QJU 2, WA2RKK 2, K2SPG 2, WA2BWO 1. (Jan.) W2LGK 16, K2OWD 11, K2ASP 10, W2DBQ 10, WA2PUE 3, K2QBW 1, WA2QHT 1.

**NORTHERN NEW JERSEY**—SCM, Daniel H. Earley, WA2APY—SEC: K2ZFI. PAM: K2SLG. V.H.F. PAM: K2VNL. RM: WA2GQZ. The name, time and frequency of the major nets: NJN, 3695 kc. daily at 0000; NJPN, 3900 kc. daily except Sun. 2300, Sun. at 1300; NJ 6&2 Thurs. and Sun. 51.15 Mc. at 0200, Wed. and Sun. on 147.75 Mc. The net reports, sessions, attendance and traffic: NJN, 28-477-379; NJPN, 28-511-145; NJ 6&2, 19-128-23. Appointments: K2VNL as V.H.F. PAM; K2-ZFI as SEC; K2ONE, Jersey City, as EC; WA2SRK, WA2KRC, W2CWK, as ORs; K2OPI as OO. Endorsements: WA2EJZ, W2NKD, W2ABL as ORSs; WA2-EJZ, W2NKD as OPSs; W2BVE as OO; W2NKD as OBS. We regret that K2YFE had to drop his OO appointment because of medical school. W2ZVW has dropped his ORS appointment in N.N.J. because he has moved to S.N.J. W2BVE has his Extra Class ticket now. WA2TWL, the Rutgers station, now has a DX-100. The latest from K2AGJ is that she's suppressing carriers. K2UCY says his MCW is going over great. W2CWK got on 1.8 Mc. for the first time; he says 500 kc. is good listening for would-be traffickers. Guess we'll have to create an Asst. RM appointment for WA2GQI. The science, math award of the American Chemical Society was won by WA2IKH. WA2GQZ was late for his daughter's engagement party because of the NJN and 2RN. Flash! W2CVW is out of the Army. Goodbye K3WAG. Someone who used to hold an appointment says WA2APY is using wide-band c.w. Another convert to a keyer, W2ABL, have patience. W2NIY got new countries in the Novice Roundup. We are glad to have W2NKD back again. WA2CCF now has 25 consecutive BPLs. K2TWY was elected trustee of WA2DNI, Monmouth ARC. W2-ERZ reports the Windblowers V.H.F. Society, Inc., is giving certificates for working 12 of them on 2 meters. WA2KKH has been accepted by the Rensselear Polytechnic Institute. K2VZJ would like a 40 or 80-meter sked with Ocean and Warren Co. K2OQA has 103/92 for DXCC. I would again like to thank all those who elected me to the SCM office. I'll do my best. I want to welcome K2ZFA, SEC, and K2VNL, V.H.F. PAM, into the fold. I know they will do a good job. Twelve Net certificates were issued in February. WA2CCF and WA2-JHQ made BPL again. I guess it pays to advertise; the reports were much better this month. Traffic: (Feb.) WA2-JHQ 555, K2UCY 470, K2VNL 207, WA2CCF 176, WA2-APY 122, WA2GQI 115, WA2SRK 84, WAJTZ 74, WA2-TWL 72, K2SLG 23, W2DRV 18, W2CVW 16, W2ABL 14, W2EWZ 14, K2FQP 11, WA2KRC 11, WA2YWM 11, WA2FJZ 5, W2OXL 5, W2NKD 4, K2AGJ 2, W2BVE 2, W2NIY 1, WA2OQP 1. (Jan.) WA2GQL 79, WA2KRC 3. (Oct.) WA2GQL 88.

## MIDWEST DIVISION

**IOWA**—SCM, Dennie Burke, WØNTB—Asst. SCM: Russell B. Marquis, WØBDR. SEC: KØEXN. PAM: WØPZO. RM: WØDUA. Elections: SUIARC—WØWXG, pres.; KØUJJ, vice-pres.; KØDKA, secy. Central Iowa ARC—KØEAA, pres.; WØDGY, vice-pres.; WØEFL, secy. WØNWX, our Midwest Division Director, vacationed in VP-Land and worked 60 Ws, Ks and VEs from VP5BP on 160-meter c.w. Our section AREC has 68 active ECs, four districts each with a calling frequency. The Section Net meets the 1st Sun. of the month at 1300 CST on 3930 kc. The 75-Meter Phone Net meets at 1230 CST Mon. through Sat. on 3970 kc. Feb. report: QNI 1474, QTC 165, 24 sessions. The 160-Meter Phone Net meets daily at 1900 CST on 1815 kc. Feb. report: QNI 977, QTC 20, 28 sessions. The 75-Meter S.S.B. Net had a rough winter because of long skip. I hope all traffic men, net men, s.m., s.s.b. and c.w. men will unite this year in the common effort of protecting your amateur privileges. ARRL is your best protection. Don't try to be a lone wolf. Your comments are invited. KØUAB is a busy EC. KØAZJ made WAS. KØQVZ sent in a good report from Webster Co. The Tired Business Men's

(*Continued on page 108*)

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**90-WATT CW TRANSMITTER* #720**
Kit **$79.95** Wired **$119.95**
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"Top quality"—ELECTRONIC KITS GUIDE
Ideal for veteran or novice. "Clean" 90W CW, 65W AM-phone with EXT plate modulation. 80 through 10 meters.

**60-WATT CW TRANSMITTER #723**
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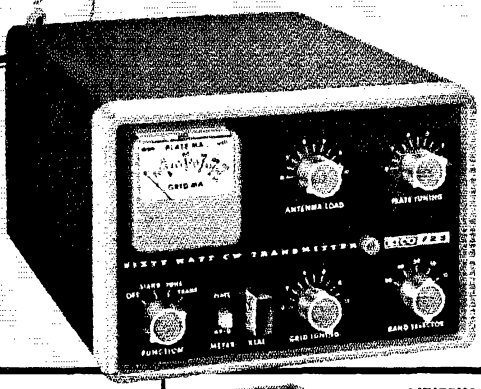
Perfect for novice or advanced ham needing low-power standby rig. "Clean" 60W CW, 50W AM-phone with EXT plate modulation. 80 through 10 meters.



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Complete with battery
Select variable tone, flashing light, or both together.
Phone jack for private use. Efficient speaker: clean loud signals.
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***New!* CITIZENS BAND WALKIE-TALKIE #740**
Complete with rechargeable battery and charger. 9 transistors, 1 diode. Full superhet. U.S. made.
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Superhet; prealigned xmitter osc; match different antennas by variable "pi" network. Single & multi-channel models.
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Delivers 50W undistorted audio for phone operation. Can plate-modulate transmitters having RF inputs up to 100W. Unique over-modulation indicator. Cover E-5 $4.50.

**GRID DIP METER #710**
Kit **$29.95** Wired **$49.95**
Includes complete set of coils for full band coverage. Continuous coverage 400 kc to 250 mc. 500 ua meter.

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Wired **$129.50**
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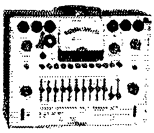

**DYNAMIC CONDUCTANCE TUBE & TRANSISTOR TESTER #666**
Kit **$69.95** Wired **$109.95**
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Kit **$34.95** Wired **$49.95**

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**ENGINEERS:** Excellent career opportunities in creative electronics design. Write to the Chief Engineer.

Net moved to 3855 kc., a fine example of cooperation. Thanks GUY—S. Traffic: (Feb.) WØLGG 1778, WØSCA 831, KØMMS 190, WØCZ 157, WØPZO 79, WØLJW 51, WØREM 39, WØNTB 38, WØBDR 19, KØZCQ 16, WØUTD 15, WØYDV 14, KØEVC 11, WØGQ 10, KØKAQ 10, KØWVK 10, KØHIC 9, WØJPJ 8, KØUAA 8, KØMYU 7, WØUYX 7, KØAFI 16, WØEEG 6, WØFMZ 5, WØIO 6, KØJYF 6, WØQVZ 6, KØgot 5, KØQKD 5, KØVSV 5. KØVKT 4. (Jan.) WØDUA 252.

**KANSAS**—SCM, Raymond E. Baker, WØFNS—SEC: KØBXF. Asst. SEC: KØEMB. RM: WØQGG. PAM: KØEFL. V.H.F. PAM: WØHAJ. Nets: KPN, 3920 kc. Mon., Wed., Fri. 1245Z, Sun. 1400Z; NCSs KOQKS, WØIFR, FHU, ORB; 15 sessions: QNI, high 45, low 1, total 296, average 19.7; QTC, high 26, low 0, total 84, average 5.6. QKS, 3610 kc. daily 0030Z 27 sessions, QNI 232, high 12, low 4, average 8.59; QTC 140, high 15, low 0, average 5.19; NCSs KØBXF, IRL, BYV, FNS, SAF, KSBN, 3920 kc. Sun. 7:30 A.M., KØSHB mgr., 4 sessions, QTC, high 2, low 2; QNI 44 higr 11, low 11. Endorsements: WØVBQ and WØBLI as ORSs; WØBLS as OPS; WØALA, WØALD, WØEQD, WØFHU, KØEWW, KØQKS, WØZUX as ECs. The Junction City Club elected KØEJW, pres.; KØLIH, vice-pres.; WNØAUZ, secy.-treas. WØCXO and KØBRA have worked all continents for WAC. KØTCW, the XYL of WØUHN, was elected president of the Kansas Fair Assn., the only XYL in the history of the state to hold this honor. The Ham Butcher Net Picnic will be held at Leavenworth June 10. This will be joint with Army MARS and AF MARS. Everyone is invited. Topeka Hamorama will be held May 13. Plains Picnic May 20. Salina Hamfest June 3. Winners in the Kansas Centennial QSO Party: KØRNZ phone, KØBHM c.w., WØBP RTTY. Do you wish a yearly event of this nature? The Emporia Amateur Radio Club has a new club station with a pair of 813s. WØFTB is being used in handling the Kansas Weather Net when controlled at Emporia. Traffic: (Feb.) WØOHJ 1031, WØSAF 313, KØHGI 278, WØBYV 135, WØFNS 120, KØHVG 77, WØIFR 61, WØARJ 48, KØYTA 41, WØQGG 30, KØEFL 22, WØTOL 13, KØQKS 12, KØGH 11, KØLHF 10, WØALA 9, WØFDJ 9, WØFHU 6, WØWFD 6, WØTSR 5, KØZHO 5, WØBLS 2, KØLPE 2. (Jan.) KØIRL 31, WØALA 28, WØBLS 7, KØVBV 4.

**MISSOURI**—SCM, C. O. Gosch, WØBUL—Net reports: HBN (7280 kc. 1805 GMT, M-F) 19 sessions, MEN (3885 kc. 2400 GMT, MWF) 12 sessions; QNI, 390; QTC 106; NCSs: KØIHA 4, KØVPH 4, KØONK 3, KØWNZ 1. QNI 560; QTC 356; NCSs WØANT 3; KØLTJ 2; KØYWT 3; WØTWJ 2; KØWNZ 5; KØLTP 3; KØHGI 1. MSN (3715 kc. 2200 GMT, M-F; 1400 GMT, S) 24 sessions; QNI 72; QTC 95; NCSs KØVPH 7; KØGOB 5; KNØGFA 3; KØONK 4; KØFPC 5. MoSSN (3965 kc. 2400 GMT, Tu-Th) 8 sessions; QNI 131; QTC 39; NCSs WØPXE 4; WØOMM 4. MON (3580 kc. 0100 GMT Tu-Sn) 24 sessions; QNI 171; QTC 125; NCSs WØOUD 12; WØKIK 5; WØRTW 2; KØVPH 4; KØFPC 1. SMN (3580 kc. 2200 GMT, Sn) 4 sessions; QNI 13; QTC 12; NCSs WØOUD 4. PON (3810 kc. 2100 GMT, M-F) 17 sessions; QNI 215; QTC 54; NCSs KØPIQ 8; WØHVJ 3; WØTXC 4. Appointment: KØIPD as OBS. Endorsements: WØKY as OBS; WØOUD as RM/MON Mgr.; KØMMR as OPS; KØOJC as ORS. Cancellation: KØZEI as OBS (per his request.) The Missouri Hamfest/Picnic will be held June 3 on the Missouri State Fairgrounds in Sedalia. KØIPD reports a kw. linear under construction. WØQEV reports rigs on all bands with a cubical quad on 10, 15 and 20 meters. KØJWN has a new General Class ticket. KØOMA and KØMMR moved to new QTHs. WØEKM reports on v.h.f. experimentation. KØVPH copies XE, So. America and ZL around sunset on 10 meters. Officers of the Jefferson Barracks ARC are: KØZVY; pres.: KØBVM vice-pres.; KØDCQ; secy.; WØODI, treas.; WØAYB has a code class on 29.6 Mc. at 0100 GMT for those in the St. Louis Area. Officers for the Heart of America RC (Kans. City) are KØBKE; pres.; WØDSC, vice-pres.; WØBER; secy.; WØMCL, treas.; WØYKE is the call of the S.W. Mo. State College RC, of which KØLTK is president. Traffic: (Feb.) KØONK 570, KØLTJ 448, WØANT 337, KØVPH 190, WØOUD 101, WØOMM 92, WØKIK 90, WØBVL 74, WØMKJ 63, KØFPC 54, KØIPD 54, WØBUL 50, WØZLN 47, KØRPH 36, WØWAP 28, WØYKE 24, KØWNZ 22, WØRTW 17, KØVNB 15, WØTPK 13, WØAYB 12, KNØGFA 12, WØPXE 11, WØOVV 9, WØEPI 7, KØHIY 4, WØGBJ 2, KØMMR 2, WØKCG 1. (Jan.) KØRPH 67, WØRTW 47, KØFPC 27, KNØGFA 14.

**NEBRASKA**—SCM, Charles E. McNeel, WØEXP—SEC: KØTSU. The Nebraska Section C.W. Net late report for January: QNI 253, QTC 84. WØDGW reports the morning phone net: QNI 570, QTC 92. The Western Nebraska Net, reported by WØNIK: QNI 539, QTC 489, 100 per cent reporting W7TVX, WØWYX, WØAHB,

(*Continued on page 110*)

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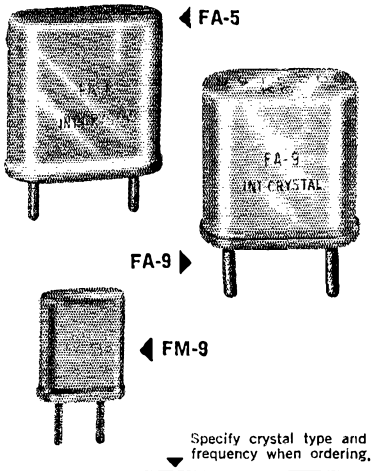
Wire mounted, plated and hermetically sealed in metal holders. FA-5 and FA-9 are HC/6U pin type. The FM-9 is an HC/18U pin type.

**Priced from $3.30 to $10.00**

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| | FA-5 and FA-9 | FM-9 |
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| Fundamental | * 1000 - 1499 kc<br>* 1500 - 1799 kc<br>* 1900 - 1999 kc<br>2000 - 9999 kc<br>10000 - 14999 kc<br>15000 - 20000 kc | Not available<br>Not available<br>Not available<br>8000 - 9999.999 kc<br>10000 - 15000 kc<br>15001 - 19999.999 kc |
| Overtone (3rd) | 10 - 14.99 mc<br>15 - 29.99 mc<br>30 - 59.99 mc | Not available<br>20 - 49.99 mc<br>40 - 59.99 mc |
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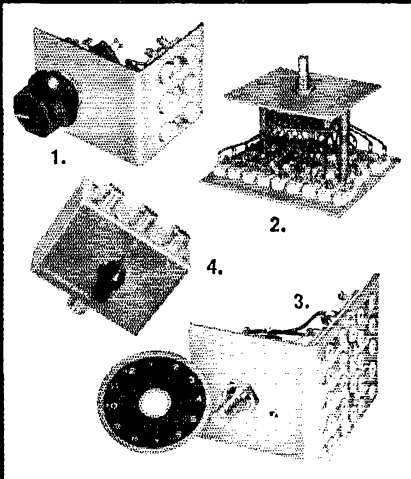


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KØBMQ, WØMIK, WØOFP, KØUWK, WØVEA, WØGGP, WØDVB. The Nebraska Emergency Phone Net, WØHXH reporting: QNI 604, QTC 25. New members WØCKE, WØDAR and KØLXD make a total of 53 members. WØDLM reports the Central Nebraska Radio Club will conduct an AREC net at 1400 CST on 3960 kc. each Sun. with KØPZS as NC. WØNYU transmits ARRL Bulletins on RTTY t.s.k. on 3525 kc. at 1845 CST Mon., Tue. and Wed. The Pine Ridge Amateur Radio Club Hamfest will be held June 3 at Chadron State Park. Congratulations to WØAHB and KØRRL, who each have a new jr. operator. Traffic: (Feb.) WØGGP 481, KØGAT 96, WØDDT 85, WØNYU 66, WØZJF 49, KØRRL 45, WØOKO 44, KØODF 43, KØUWK 43, KØDGW 42, KØKJP 42, WØNIK 35, KØYDS 31, WØFNH 29, WØWUV 29, WØRIH 27, WØAHB 25, WØFRU 25, WØYFR 24, WØLOD 19, WØLFJ 18, KØIAL 15, KØELU 14, WØEGQ 11, KØKTZ 11, WØVZJ 11, WØKDW 9, KØSBP 8, WØVEA 8, KØSCN 6, WØTHF 6, WØBOQ 5, KØZEQ 5, WØHOP 2. (Jan.) WØOKO 79, KØYDS 33, KØSBV 7. (Dec.) KØODF 83.

## NEW ENGLAND DIVISION

**CONNECTICUT**—SCM, Henry B. Sprague, jr., W1CHR—SEC: EOR. RM: KYQ. H.F. PAM: YBH. V.H.F. PAM: FHP. See March issue for traffic nets and skeds. Forty attended the Ninth Annual Net Dinner at Johnny's in Forestville. BVR, K1s IJU and IJV came down from W. Mass. K1HTV boosted his DX total to 159/139. EFW had transmitter trouble. ADW is back on 80-meter c.w. with 30 watts. BNB moved back to his home QTH. BDI attended the Edison Award Dinner. HHR gave a talk on c.d. communications to the Columbia Lions Club. K1VEK is conducting a theory course for RACES personnel. K1IVR made BPL, having solved his gear problems. KN1RWH is building a new power supply. OJR and QV enjoyed the DX Contest. ZGO is exploring n.f.m. as a possible solution to his TVI problems. K1OZY, with help from the Tri-City RC members, is conducting code and theory classes at the Mystic Community Center. Seven took Novice exams in Feb. K1QAL is out of the hospital and has a Gonset IV in his new car. SXR is building a tower. K1NYT is studying electronics. K1RVL has a new Clegg transmitter. K1-KSD runs a kw. s.s.b. on all bands. UAD has moved to Naugatuck. The Bridgeport AREC group fed driving reports to WICC during the Feb. 14 storm. The group also ran five testruns on 6 meters. K1OAP has a Warrior on s.s.b. LIG hopes to better his old record in the recent FMT. K1BEN reports his AREC group is more active than ever. CVN net certificates were awarded to K1s PKQ, PUG, JXB, RJK. K1KSH is in the Air Force. QJM, on c.w. and K1CLR, on s.s.b., organized communications for the Connecticut reactivated reservists aboard the destroyer escort *Coates*, on a training cruise in the Caribbean, and their families. Hundreds of messages were handled with KQY and K1GGG on c.w. and LZM, KNM and K1RP on phone. Mobileers, with MEO the lead man, helped with local deliveries on 2 meters. The U.Conn. Club station, LXV, is active again, thanks to EOR and MHF. K1OEH now gives us Stamford area coverage for CN. Traffic: (Feb.) K1GGG 570, W1KYQ 274, AW 203, K1JAD 198, W1RZG 181, NJM 150, YBH 149, K1IFJ 142, PPF 128, MZM 104, IVR 122, W1BD1 71, K1AQE 63, PUG 59, EIC 54, W1RFJ 47, K4M1UT/1 42, W1FXS 40, K1OEH 40, EIR 37, W1FHP 33, K1DGK 31, W1BNB 24, K1MBA 24, W1CHR 17, NTH 14, QV 14, K1MVQ 10, W1CUH 8, K1JVZ 2. (Jan.) W1NJM 159, EFW 155, CUH 9.

**MAINE**—SCM, Albert C. Hodson, W1BCB—Not much news was sent in for February but talk of mobiles on 2 meters and spring installation of others is in the air. A new XYL in Holden is Sandra, K1VRX. Her OM is TJQ. K1VOR now is on in Presque Isle. The Sparks Radio Club meets the 1st and 3rd Mon. of each month at Loring Air Force Base. GKJ is trying s.s.b. with a 5100-B. Please get your notices of summer activities in early. ROM is on with a Valiant. Traffic: K1GUP 109, BZD 33, MDM 27, W1ISO 22, EPN 18, K1OAZ 12, RQE 12.

**EASTERN MASSACHUSETTS**—SCM, Frank L. Baker, jr., W1ALP—SEC: AOG. K1HBM is the new Stoneham EC. K1KMV is a new OES. GCM is a Silent Key. K1TPX is the call of the Perkins School for the Blind where K1MDI is an instructor. MBA is moving to Wakefield. Heard on 2 meters: W1s SZR, NXM, BJE, YFA, YQY, DDH, K1s HRY, QNM, GCN/1, BTF, GVM, SUG, RZN, NKQ, IIL, JPX, JPW, OZN, MAF, JAF. KN1s VMZ, VDI, VDJ, VXB. EM2MN held 20 sessions with 283 stations and 233 pieces of traffic. New hams on 2 meters with 8100-kc. crystals are invited to join our 2-meter net 8 P.M. Mon. through Fri. The new Earl C. Batchelder Radio Club meets Tue. at the Falls Fire Station, Attleboro Falls. Officers are JPJ, pres.;

(*Continued on page 112*)

# RADIO HAMS! FLEET OWNERS! CB OPERATORS!

(INBOARD BOAT OWNERS, TOO!)


*The Sprague SUPPRESSIKIT—especially developed for Amateur, Citizens' Band, Industrial, or Public Service mobile equipment. Easily installed on any truck, car, or boat engine using a 2-pole 6-volt or 12-volt d-c generator.*

# SUPPRESS RADIO FREQUENCY INTERFERENCE in your MOBILE RADIO GEAR!

**Deluxe Type SK-1 SUPPRESSIKIT has full 60 ampere voltage regulator and generator THRU-PASS capacitors designed for heavy-duty continuous operation in hot engine compartments. Shielded armature and field leads keep noise level to a minimum!**

✱ Every THRU-PASS capacitor, as well as the field R-C suppressor, in the Deluxe Suppressikit has been designed for quick, simple, effective installation. The generator capacitor is built for continuous heavy duty 257°F (125°C) operation. The combination of a full 60 ampere current rating and the high rated operating temperature gives you an extra factor of safety against expensive generator burnouts, unlike many suppression assemblies containing general-purpose capacitors. The lower noise level, plus the time saved in installation, are well worth the slight extra cost! And you won't suffer the aggravation of trying to figure how to mount ordinary general-purpose feed-thru capacitors when you install the SK-1 Deluxe Suppressikit according to the comprehensive step-by-step instructions in each neatly-packaged kit.

## Just Look at the Advantages of the Type SK-1 SUPPRESSIKIT

- ✱ **Provides effective R-F interference suppression at moderate cost.**
- ✱ **Permits faster, more readable, less tiring communication at greater ranges.**
- ✱ **Makes possible H-F interference control by means of new, extended range, THRU-PASS capacitors which are effective through 400 mc.**
- ✱ **Heavy-duty capacitors avoid "short-outs", preventing generator failure.**
- ✱ **Contains only 5 easy-to-install basic parts—practically a "do-it-yourself" kit.**

**ONLY $17.85 net**

**COSTS A LITTLE MORE, BUT GETS THE JOB DONE PROPERLY!**

**ORDER FROM YOUR SPRAGUE DISTRIBUTOR**

***He'll be glad to explain the SUPPRESSIKIT—and answer questions you may have. See him today!***

**Send check or money order . . . get your SUPPRESSIKIT without delay . . . We ship immediately . . . No shipping charges to you!**

## SPRAGUE PRODUCTS COMPANY

**75 Marshall St., North Adams, Mass.**

All right! Send me an SK-1 SUPPRESSIKIT at once.

*I am enclosing ☐ money order ☐ check for $17.85.*

NAME_____

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CITY_____ STATE_____

-6S-339

OEO, vice-pres.; K1NFY, treas.; K1TKW, secy.; K1PEF, act. mgr. The following are looking for 2-meter AFSK teletype contacts: MB, IYU, MEG, HJP, IFX and K1CEZ. K1MOO and others are reviving the Old Colony Radio Club. K1JVM is now General Class. The Framingham Club had movies by the phone company at its meeting. New officers of the Waltham Amateur RA are DDF, pres.; K1HSI, secy.; DDN, treas. The club meets on the 1st and 3rd Tue. at VFW Hall, 84 Orange St. at 8:30. 1HL moved to the Cape. KN1VCQ is in Sudbury. K1MEM is on 6. HGT worked some DX on 6-meter c.w. aurora. K1DRB is on 6 and 2 meters. K1NDD, K1ISH, QMU and PIW are on 6. K1KKS completed a ground plane for 2 meters and is converting an SCR-522 for 2. K1AII and WINJL had scores of 27,000 and 18,560 in the N.E. QSO Party sponsored by the Conn. Wireless Assn. The Yankee Club had a talk on Naval Communications. UWG moved to Connecticut. LMU is on 6 and 160. IBE is on 80 and 2 meters. The Mass. V.H.F. Society met at IME's. The No. Shore Club held an auction. Ex-1SAD, now WA6VTL, would like the calls of any blind amateurs. His QTH is 2300 W. Clark Ave., Burbank, Calif. Ex-COL is WA6VTM and son is WA6VTN. ARO, AGN, LMU and ABA gave a course in Marine Electronics to a Power Squadron. The Newton 6-Meter Net is on Sun. nights. CGU, DYS, VYS, RM and JOW are on f.m. from their cars. W8-UDL/1 has a 6N2 from Natick and mobile in the car. UG is in Florida and has an all-band rig. CMT is rebuilding. EAB is on 80-meter c.w. UKA is back on 10 meters. AGR has a 6N2. KN1TIJ is a new YL in Auburndale. AWA is home from his trip to W4-6 Land. PTR is moving back to Virginia and will be 4PTR. KN1TYC has an Adventurer and an S-107. The QRA had a talk by KRD. KN1TOA is on 2 meters with a beam and a Gonset III. AYG is home again. KN1NTS built a transceiver for 6 meters. K1QJT has s.s.b. on 20 meters, also a 432 transmitter. DBY is helping some YLs get their tickets. PEX made BPL. K1BUF is busy as a teacher. AOG is on 40-meter c.w. IAU, K1TZC and K1CHC are helping out in a radio school for their AREC group. KN1RZL had an Eico 720 and a Drake 2B on 80 meters. K1IZM spoke at the Waltham ARA. The Milton ARC had Les Cushman of Cush Craft Antenna Co. as a speaker. The 6-Meter Cross Band Net had 20 sessions, 292 stations, 65 pieces traffic. New officers of the M.I.T. Radio Society, MX, are WAJ, pres.; WA2-FFC, treas.; W2TDE, act. coordinator; 2TOX, station mgr.; K2UQY, secy. Ex-EXY is now KP5BEA. FQA went to Florida. K1QNZ is now General Class on c.w. with a Globe Chief. Appointments endorsed: DBY Chelmsford, EHT Wayland, 1BE Rockport, EIQ Bedford PST Brookline, RM Newton, HKG Malden as ECs; K1IWE as OBS; IHC as OES. EM75N had 286 stations, 144 pieces of traffic. Traffic: (Feb.) W1PEX 910, EMG 336, OFK 334, DFS 138, ZSS 137, K1BUF 67, W1DOM 62, K1OCD 55, W1AOG 45, SIV 36, K1QNQ 30, BGK 25, QNZ 25, ROA 19, CMS 7, GTX 6, W1AUQ 5, K1QOG 4. (Jan.) W1AWA 296, DFS 106, K1DGI 73, BUF 53, BYV 48, W1IAU 10, K1OLN 1. (Dec.) W1PEX 455.

**WESTERN MASSACHUSETTS**—SCM, Percy C. Noble, W1BVR—SEC: BUH/K1APR. RM: K1IJV. Our SEC reports that our section has 96 AREC members, 81 of whom are full members. Six local emergency nets are reported with 3 on 28 Mc., 2 on 50 Mc. and one on 144 Mc. Our RM reports that WMN handles 109 messages during February in a total of 24 reported sessions. OY, our Westover AFB EC, reports that there are approximately 30 hams at the field (changing from day to day), and that the field is equipped with the latest equipment which would be ready to give help to the AREC whenever needed. K1GCV/2 is operating mobile while at college. DPY is active on 75-meter s.s.b. and with the local c.d. K1JQT has been accepted for Hiram College in Hiram, Ohio. DGT is busily engaged building a 19-tube receiver. At the March meeting of the Hampden County Radio Association DVW and MNG presented a program on some of the electronic techniques used at the Springfield Armory. Of the 129 licensed operators of the HCRA, 104 are League members. Of the 129, 113 report themselves as being active, with the break-down into types of operation as follows: C.w. 35.37%, phone 50.57%, s.s.b. 14.06%. 35 of the members have mobile equipment. K1JGW has a new HT-37. K1LAG is leaving for W2-Land. KQK has built a dual conversion receiver using 12-volt tubes and transistors, the entire unit in a cabinet 10 x 4 x 4½ inches. MDS is working DX on 15- and 20-meter s.s.b. Traffic: K1IJV 192, W1-BVR 151, K1LBB 30, JQT 20, W1DVW 3.

**NEW HAMPSHIRE**—SCM, Ellis E. Miller, W1IIQ—SEC: K1GQK. PAM: K1JDN. RM: K1ITS. GSPN meets Mon. through Fri. at 2400 and Sun. at 1430 on 3842 kc. CNEN meets Mon. through Sat. at 1145 on 3842 kc. NHN (c.w.) meets Mon. through Sat. at 2330 on 3685 kc. Endorsements: K1JDN as OO and OPS. K1PDA reports the formation of a teenage net holding sessions for

*(Continued on page 114)*

IN ADDITION TO THIS NEW LOW-COST 1 KW (PEP) DUO-BAND KIT, TELREX HAS THE FOLLOWING KITS AVAILABLE

TELREX INVERTED "V" 500W (1 KW PEP) KITS

| MODEL NO. | FREQ | PRICE |
|---|---|---|
| IV/CB-1011 | CB AND 10M | $12.95 |
| IV/5C-15 | 15 M. | 13.95 |
| IV/5C-20 | 20 M. | 14.95 |
| IV/5C-40 | 40M. | 15.95 |
| IV/5C-80 | 80M | 16.95 |
| *IV/5C-248 | 20,40,80M | 32.95 |
| $IV/5C-1080-10 | thru 80 M | 48.95 |

* NOTE - 4 TRAPS EMPLOYED
$ NOTE - 8 TRAPS EMPLOYED

ALSO AVAILABLE, HIGH-POWER "BALUN" FED INVERTED "V" KITS 3 KW PEP RATING

| MODEL NO | FREQ | PRICE |
|---|---|---|
| 3KWMBBFD/10 | MONO 10M | $18.95 |
| 3KWMBBFD/15 | MONO 15M | 18.95 |
| 3KWMBBFD/20 | MONO 20M | 19.50 |
| 3KWMBBFD/40 | MONO 40M | 19.95 |
| 3KWDBBFD/10-15 | DUO 10-15 | 34.95 |
| 3KWDBBFD/15-20 | DUO 15-20 | 38.95 |
| 3KWDBBFD/20-40 | DUO 20-40 | 38.95 |
| 3KWDBBFD/48 | DUO 40-80 | 48.00 |
| 3KWTBBFD/248 | TRI 20-40-80 M. | 68.00 |

AVAILABLE TELREX "BALUNS" (CAN BE PURCHASED SEPARATELY)

1 KW PEP "BALUNS"

WIDEBAND MODEL 5C10/11-15
USE FOR ANY 50 OHM 10, 11 or 15 METER ANTENNA $9.95

WIDEBAND MODEL 5C1080
USE FOR ANY 50 OHM 10, 15, 20, 40 or 80 METER ANTENNA $12.95

HIGH-POWER 3 KW PEP "BALUNS"

WIDEBAND MODEL ADB/321
USE FOR ANY 50 OHM 10, 15, 20 40 or 80 METER ANTENNA $16.85

WIDEBAND MODEL BA1430/1-1
USE FOR ANY 10, 15 and 20 METER "TRI-BAND" ANTENNA $16.85

SUPER-POWER 6 KW PEP "BALUN"

WIDEBAND MODEL BB/3
USE FOR ANY 10, 15, 20, 40 or 80 M. TRI-BAND or QUAD-BAND $25.00

NOTE:- TELREX TRAPS ARE NOT SOLD SEPARATELY!

ITEM — PARTS SUPPLIED

1.— 130' OF No. 16 COPPERWELD WIRE
2— 2 TELREX MODEL 1KW40MT TRAP
3— 4 HIGH VOLTAGE INSULATORS
4— TELREX "BALUN" MODEL 5C10-80

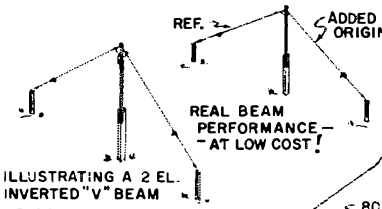
**$24.95** F.O.B ASBURY PARK N.J.

INSTALLATION SUGGESTIONS

AS ILLUSTRATED YOU CAN MAKE UP A NEAT INEXPENSIVE SELF SUPPORTING ANTENNA STRUCTURE AS INDICATED OR ATTACH TO YOUR TOWER OR HOUSE STRUCTURE

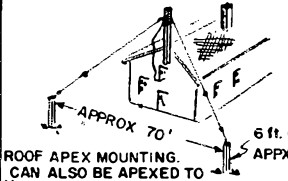
1st ORDER OF PROCEEDURE, CUT THE COPPERWELD WIRE INTO 7 LENGTHS (2) PCS 34'-6" LONG (THE 40 METER SECTION) (2) PCS 21'-6" LONG (THE 80 M. SECT.), (2) 5' LONG AND (1) 4' LONG.

THEN ANCHOR THE "BALUN" AND TIE THE 40 METER SECTION APEX TO THE MAST AT ABOUT 36' ABOVE GROUND FOR BEST RESULTS.

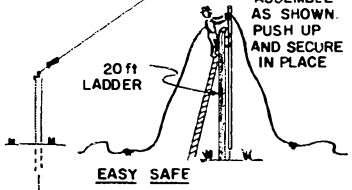


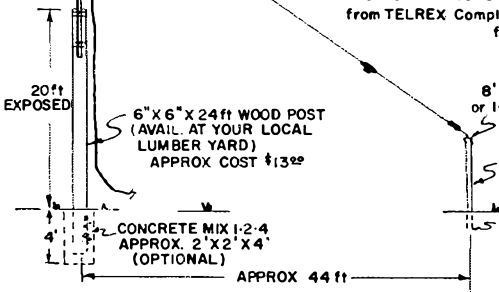

ILLUSTRATING A 2 EL. INVERTED "V" BEAM

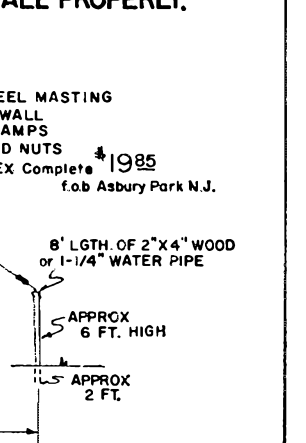
TELREX SUPPLIES — COMPONENTS & KNOW-HOW




ROOF APEX MOUNTING. CAN ALSO BE APEXED TO YOUR TOWER PRESENTLY SUPPORTING OTHER ANTENNAS.







NOTE— DIMENSIONS GIVEN ARE APPROX. IT IS IMPOSSIBLE TO PROVIDE EXACT DIMENSIONS BECAUSE OF VARYING GROUND CONDUCTIVITY AND SURROUNDING OBJECTS WHICH CAUSE THE ANTENNA TO LOOK LONGER OR SHORTER AT YOUR SITE.

YOU CAN BY CUT AND TRY, EFFECT EXACT RESONANCE TO YOUR FAVORITE SECTOR OF THE 40 M. BAND BY INCREASING OR DECREASING THE LGTHS. OF THE 40 M. ANTENNA SECTION, THEN PROCEED TO DO THE SAME WITH THE 80 M. SECTION.

UNLESS EQUIPPED WITH THE PROPER INSTRUMENTATION AND ABILITY, WE SUGGEST YOU PUT THE ANTENNA UP AS SUGGESTED —SIT BACK AND HAVE FUN—

**NOTE! TELREX INVERTED "V" DOUBLET KITS DO NOT REQUIRE GND RADIALS, INEXPENSIVE AND EASY TO INSTALL PROPERLY.**

# TELREX "BALUN" FED 40 and 80 METER "DUO-BAND" INVERTED "V" KIT 1KW PEP MODEL IV/5C48 $24.95

MFG UNDER TELREX PATENT No. 2,576,929

Send For PL77— Tech info on 107 Antennas

ANTENNAS SINCE 1921 — Communication and TV Antennas

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ASBURY PARK 40, NEW JERSEY, U.S.A.

Maine, N. H. and Vt. sections on 50.32 Mc. at 0230 GMT. K1KOB and K1PDA have built the v.h.f. v.f.o. described in the June 1959 issue of *QST*. Both report excellent success. K1JDN is in Florida. BYS has been appointed NHCD Radio Officer. IJB has turned in the largest OO report to date. K1NYS is wiring a Pawnee. BST and the Laconia gang have a radio-equipped bobhouse on Paugus Bay. MUJ has installed a new eleven-element 2-meter beam. MDP is specializing in OO reports of harmonics. JB says he was 56 cycles away from IJB in the recent Frequency Measuring Test. Wonder who will be nearest? Results will be forthcoming soon from Hq. Traffic: W1TA 90, K1JDN 31, W1IIQ 14, K1GQH 9, W1YMJ 3.

**RHODE ISLAND**—SCM, John E. Johnson, K1AAV—SEC: PAZ. RM: SMU. PAM: TXL. Report of RISPN: 28 sessions 558 QNI, 184 traffic. New OES appointees are K1NKR and PWC. Endorsement: LPL and OES. The PRA, W1OP, announces it will hold its 41st Annual Dinner Dance May 19, 1962 at Johnson's Hummocks in Providence. Persons desiring tickets should contact K1NVS or any club member. Prize winners at the Radio Exhibit in the Old Slater Mill Museum were John Sendley, K1ABE and LDK. New male jr. operators arrived in February to our OBS, WED and her OM, NFD; also to our RM, SMU, and his XYL. K1OGZ is building a 25-watt 6-meter transmitter. OGY has erected a new 6-meter beam. KAR worked the mid-west on a 6-meter band opening. KDI is building an electronic keyer. LPL reports that the R.I. QSO Party was a huge success with all counties and all bands active. EI has completed a new mobile transmitter for his car, which is equipped with horizontal and vertical antennas. The AQ Club of East Providence has its new station operating on the 10-meter net. Traffic: (Feb.) W1SMU 696, TXL 554, K1RI 176, PZY 49, DZX 43, GRC 43, JOD 37, GRA 12, AAV 11, RCW 6, W1WED 5, K1PNI 3, KDI 1. (Jan.) K1NEF 42.

**VERMONT**—SCM, Miss Harriet Proctor, W1EIB—SEC: K1DQB. PAM: HRG. RM: KRV. FPS, of Brattleboro, is an active ragchewer and has just worked EP2BK in Iran on 40-meter c.w. FN, of White River Junction, is giving Vermont contacts on 20-meter c.w. The CVARC has 18 members in a code class conducted by OAK and FRT. Ed Tilton was a recent guest speaker at the CVARC. K1DQB has built a 2-meter station with 200 watts. NDL was a visitor at ARRL Headquarters. HFS, of Vergennes, and TFB, of Middlebury, are on 6 meters. Work is progressing well for the first amateur radio activity at a Girl Scout Jamboree. K1LLJ reports being the first Vermont contact for over 500 stations with most work on 15- and 80-meter c.w. Congratulations to K1OMO on getting his Conditional Class license. K1OXG has a new beam. K1MFP will be mobile on 2 meters. Thanks to K1MPN for his news letters. Traffic: W1FPS 33, KJG 14.

## NORTHWESTERN DIVISION

**IDAHO**—SCM, Mrs. Helen M. Maillet, W7GGV—The FARM Net returned to 1900 MST Mar. 1. Floods in Eastern Idaho called for AREC activity in Pocatello and Rexburg. K7CVB and K7IMB set up base stations at the Red Cross and National Guard Armory in Pocatello. When telephone lines became jammed, 22 hams using mobile and fixed stations maintained communications for 60 continuous hours. DWE/m kept K7ANZ and his broadcast radio station constantly informed of rising waters in the Rexburg and Sugar City Areas. New Novices are KN7RUN and KN7SCG. K7LCW is Conditional Class. K7NNM, vacationing in California, was net control for MACAN during February. GDA was appointed OES because of his work in tracking Oscar. K7OAB won *HAMBONE'S* QSL contest for Feb. K2EFI/7 will be in Idaho for a year. The Magic Valley Club held a dinner meeting with 30 present. FARM Net traffic: 25. Traffic: K7NNM/6 112, KBY 56, W7GGV 25, K7HLR 25, W7WMO 16, VQC 12, EEQ 8, DWE 6.

**MONTANA**—SCM, Ray Woods, W7SFK—SEC: BOZ. PAM: YHS. K7AEZ. The Mountain Phone Net meets on 3910 kc. at 1800 hours M-W-F. MSN meets T-T-S on 3550 kc. at 1830 hours. TSN meets M through F at 1200 hours on 7230 kc. K7AJQ made a trip to California. A few of the Montana hams were heard in the YL-OM Contest. K7KJH is on with a new G-76 transceiver. K7LTV has a Gonset Super 12. K7LUH is on with a new 15-meter beam. Hams going through Forsyth would do well to see the fallout shelter of K7ISW. UWY went to s.s.b. and we suspect PRH of the same thing. BOZ is on with a new kw. linear. Sympathy is extended to the COX family on the loss of Verlin's mother. Verlin is K7AEZ. YQZ is thinking of moving to Havre soon. There is a movement on in Montana towards a certificate to commemorate the coming Montana Centennial. GSV says he is coming on this spring with a mobile. Good

(*Continued on page 116*)

**DOC AULWURM, W6BBC,** maintains contact with other Raytheon field engineers and headquarters staff personnel from his Piedmont, California home.

# FIELD ENGINEERING WITH A FUTURE

*Doc Aulwurm and his "traveling" ham rig*

Arthur (Doc) C. Aulwurm, Senior Field Engineer, and his compact ham rig have traveled the world working on a wide variety of challenging assignments for Raytheon. Doc's story is highly typical of the Raytheon Field Engineer.

Since Doc joined Submarine Signal Company (a predecessor of the present Raytheon organization) in 1945, he has tackled specialized tasks in Karachi, Pakistan; Lakehurst, N. J.; and San Diego, California, among other places.

Doc is now working on sonar equipment at Mare Island Naval Shipyard, California. Future assignments may carry him to other parts of the world or to headquarters in Massachusetts.

Perhaps you too can qualify for a Raytheon field engineering future. Requirements are previous experience plus an E.E. degree or equivalent in practical know-how in guided missiles, fire control, ground and bombing radar or sonar.

Benefits: attractive salary, insurance, educational programs, relocation assistance, opportunity for advancement. For details, forward your resume to Ronald Guittarr, Electronic Services Division, Raytheon, Northwest Industrial Park, Burlington, Massachusetts.

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luck to HJM on his eye operation. Plans are being discussed quite a bit regarding the Glacier Hamfest to be held the third week end in July. Hams from all the states should try to work it in on their trip to the World's Fair at Seattle. Traffic: K7EWZ 331, NHV 107, W7TVX 50.

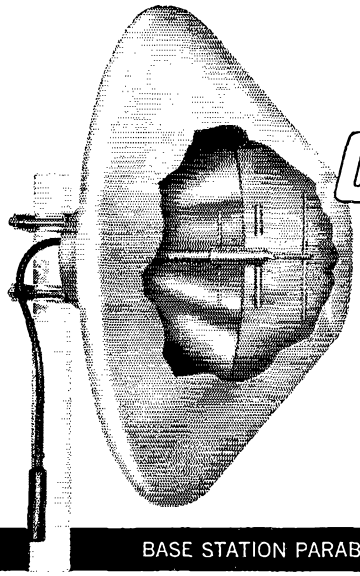
**OREGON**—SCM, Everett H. France, W7AJN—SEC: WKP. PAM: NJS. RM: MTW. ZFH, Oregon State Net mgr., reports sessions 20, attendance 207, traffic 73. BRAT awards went to AJN, MTW, ZFH and K7IWD. Certificate endorsements: K7IMH as OES, K7CNZ as OPS, K7KZP as EC, GWC as EC. New stations in the Grants Pass Area are K7RWO and KN7RRF. K7PMB is on 15-meter phone with a home-brew 807 rig. K7-DVK, of Portland, reports good turnouts for 2-meter RACES drills. MAH, formerly of Nevada, has moved to the Portland Area and is using 800 watts s.s.b. on 2, 6 and 20 meters. THX is getting good reports on 6 meters from Oregon areas. K7CNZ has just finished a W5-BGP teletype converter. K7IWD is now secretary for the Radio Fraternity of Multnomah College and received his 30-w.p.m. code sticker. K7IMH is getting good reports from California on 50 Mc. using 175 watts s.s.b. NJS has been active on the YL nets and 6-meter activity in 4 county AREC and RACES nets. The Oregon AREC C.W. Net had 7 sessions with an attendance of 36 total, average per session 5. The 50-Mc. AREC Net held a simulated emergency drill with mobiles K7CNQ, K7CKE, K7LFU, K7IPT, K7KVK, K7IHKW, K7ORB, K7IRI, WHN, GWT and K7CNN fixed station. Traffic: (Feb.) W7ZFH 111, K7AXF 84, IWD 29, W7DEM 26, K7CNZ 16, OWF 16, W7AJN 15, BVH 15, EUG 15, RVN 15, MAO 12, K7EZP 4. (Jan.) W7BDU 56, ZB 35, K7-CLL 4.

**WASHINGTON**—SCM, Robert B. Thurston, W7PGY—The Bremerton Hamfest will be held May 19 at the same location as last year. The VARC Annual Banquet was held Feb. 16 and the following officers were elected: IYU, pres.; RMI, vice-pres.; K7DQV, secy.; JJK, treas.; K7CZA, sgt. at arms.; BUG, HMQ, trustees. New General Class licensees are K7s PZL, PZQ, ODA. The following Novices in the Richland Area are awaiting their Conditional Class licenses: KN7s PVF, OOA, QFY, RRM, PVJ, RSM, NIH, PVG, PWQ, PJL, PVI, PWM and PVO. OJY is in the hospital in Bremerton. EVW is feeling better and again active on the bands. HMQ is operating mobile again. It is with deep regret that we report the passing of CMQ Feb. 16. K7OFW finally snagged his 50th state. New officers of the Lewis County Amateur Radio Club are K7OGU, pres.; K7-IOS, vice-pres.; ECX, secy.-treas.; ISC, EC and delegate to the PSCARC. The loggers contest, sponsored by the Tacoma Radio Club, was held during February. K7-AYC has a tape recording of John Glenn's voice on his trip into space. RXT and K7ATD took home the pinochle trophy from the club for the month of February. IEU is enjoying DX and is QRL with a new vertical. JC's traffic activity is on the rise. FAN is new president of the Bremerton Amateur Radio Club. AMC is QRL lining up prizes for the Bremerton Hamfest. K7CWO is going mobile soon with an AF-68. AIB reports band conditions still are spotty but hopes that conditions will improve so WSN can move back to 1900 PST. WJR is running a Novice class at the local jr. high school in the Richland Area. OEB and OIH built a T/R switch from the '61 *Handbook*. CXJ is moving to a new QTH. KIX is QRL building a new transistorized communications receiver. YJE is reported moving to a new QTH in the Seattle Area. MHL is QRL a new house. IKD is building a new center-fed hertz. UUO is trying to adapt his rig for s.s.b. DDL and his XYL, DJV, are in W2-Land on business. RGL has his big rig about fifty per cent finished. We understand K7IYR has a new Collins S/Line unpacked for the last four months. KN7RSF is a new Novice in the Colton Area. K7HGF helped him steam the DX-40 up. IKM now is the proud possessor of a Johnson 6-2 transmitter. We understand that a large group of 6-meter XYLs has formed the Puget Sound XYL Net to operate on 6 meters every afternoon at 2 P.M. The EC of the Totem Net (Seattle) is QRL laying plans for an elaborate Field Day expedition and demonstration for the visitors to the Seattle World's Fair. Traffic: (Feb.) W7BA 911, DZX 707, GYF 171, GIP 67, APS 44, AMC 30, OEB 21, JC 19, K7PXV 18, W7AIB 16, USO 14, IEU 6, K7CWO 5. W7JEY 1. (Jan.) K7PIC 270, W7GYF 80, AMC 24.

## PACIFIC DIVISION

**NEVADA**—SCM, Charles A. Rhines, W7VIU—The Southern Nevada Amateur Radio Club has been reorganized and meets the last Mon. in each month at 7:30 P.M. at the Water and Power Building in Boulder City. New SNARC officers are PRM, pres.; PBV, vice-pres. for Boulder City, K7ICW, vice-pres. for Las Vegas;

*(Continued on page 118)*



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## BASE STATION PARABOLIC ANTENNA (18X-Unidirectional Gain)

**CAT. Nos. 271-509 and 272-509**
**FREQUENCY RANGE 952-960 MC**

Cat. No. 271-509 Parabolic Antenna consists of 3-element yagi antenna feeding a 27-inch diameter spun aluminum parabolic reflector. It may be mounted for horizontal or vertical polarization using the hardware furnished.

In regions where icing or severe winds are encountered, the antenna is available with a molded fiberglass wind screen and radome. The antenna complete with radome is designated Cat. No. 272-509.

### SPECIFICATIONS

**Electrical:**

| | |
|---|---|
| Nominal input impedance | 50 ohms |
| VSWR | 1.5:1 |
| Bandwidth | ±1.0% |
| Maximum power input | 100 watts |
| Flexible terminal extension | 18 in. of RG-8A/U |
| Termination | Type N male with Neoprene housing |
| Lightning protection | Direct ground |
| Vertical beam width (½ power points) | 30° |
| Horizontal beam width (½ power points) | 26° |
| Unidirectional gain | 12.6 db |

**Mechanical:**

| | | |
|---|---|---|
| Radiation element material | | 6061-T6 aluminum |
| Reflector material | | 3003-0 aluminum |
| Radome material | | Fiberglass |
| Reflector diameter | | 27 in. |
| Rated wind velocity | | |
| | Cat. No. 271-509 | 100 MPH |
| | Cat. No. 272-509 | 125 MPH |
| Maximum lateral thrust at rated wind | | |
| | Cat. No. 271-509 | 170 lbs. |
| | Cat. No. 272-509 | 170 lbs. |
| Weight | Cat. No. 271-509 | 10 lbs. |
| | Cat. No. 272-509 | 12 lbs. |

Galvanized steel hardware supplied to mount antenna on 2 in. IPS pipe.

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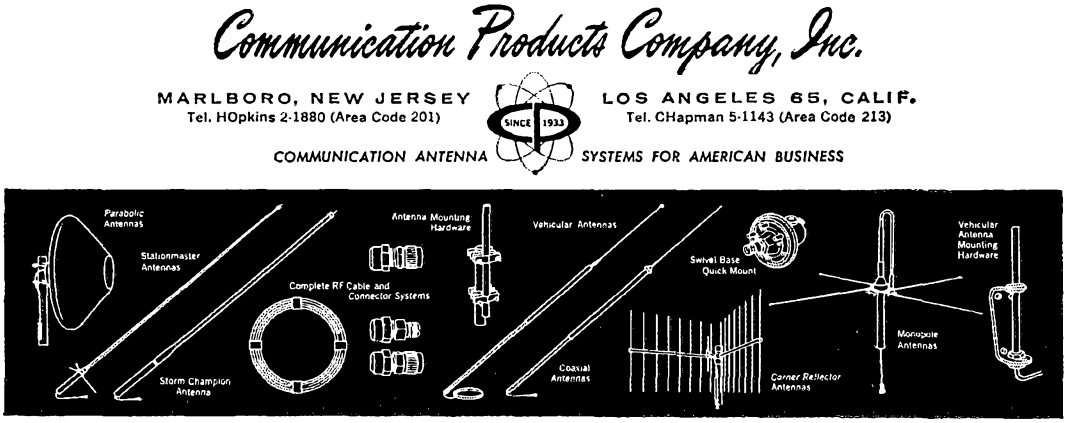


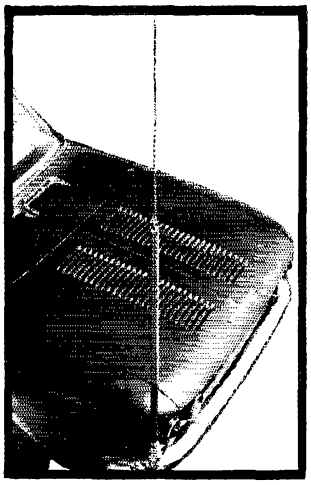
K7AIN, rec. secy.; BJY, treas./achievement awards chairman. K7KBN has a new beam up 40 feet and is gaining on DXCC. HYP is putting up a new TH-4 beam on a 60-ft. crank-up tower. ICW had good success in the 160-Meter DX Test, working HC1AGI among others. KHU made DXCC on s.s.b. CNG is going RTTY. VIU is building grounded grid 811s final. The Boulder City gang is active on 145.8 Mc. nightly. A new v.h.f. club is starting up in Las Vegas. Traffic: W7KHU 142, K7KBN 11, W7VIU 3, PBV 1.

**SANTA CLARA VALLEY**—SCM, W. Conley Smith, K7DYX—W6AUC, SCARS prexy, reports the club held a rummage sale of radio parts and pieces in February with *all* proceeds going to the club. The MBRC also held a successful auction with K6TEH and W6OJO as auctioneers. WA6HVN reports the SCCARA Novice class is doing well with between 20 and 30 enrolled. The Foothills ARS Feb. meeting was a "Tell All" night where the members in turn divulged their life history, occupation, hobbies, peeves and aspirations. All clubs have committees busy with Field Day plans. W6NVO, Asst. SCM, expects to spend another month in New York, leaving in May. K6TEH enjoys 2-meter mobile on his frequent trips up and down the state. K6ZCR is now Claire Bahian, RN, and will be featured with her hobby in a forthcoming publication of the hospital where she works. K6MTX has a Heath Warrior linear in operation and working well. K7GOK/6, who leaves us now for assignment in Panama, has enjoyed operating areo-mobile with WA6RWY flying out of Monterey. WA6EIC, PAM, reports SCVSN (146.7 Mc.; 0300 GMT) held 18 sessions, 33 check-ins, 51 messages in Feb. NCN had a Brunch at Rickey's in Palo Alto Apr. 1. The Mission Trail Net plans its Annual Roundup in Santa Cruz, June 16, 17. New appointees: W6UJA as OO, W6VMY as OES. Sorry I skipped Hal Moore's traffic total for Dec. I add it here for the record. Traffic: (Feb.) K6KCB 312, K6DYX 258, K6GZ 124, WA6EIC 99, WA6OLQ 86, W6AIT 85, W6AUC 76, W6DEF 67, W6FON 62, W6OII 26, K6ZCR 13, W6WX 12, K6VQK 10, W6RFF 6, K6TEH 6, K6EQE 5, WA6HRS 4, W6ZLO 4, W6UVP 2. (Jan.) W6YHM 39. (Dec.) W6DEF 110.

**EAST BAY**—SCM, B. W. Southwell, W6OJW—K6GK is getting his RTTY transmitter ready to go. K6LRN/6 moved to Concord and has a new jr. YL operator. K8JYS was a visitor at the LARK meeting. W6QMO is mgr. on NCN because of the resignation of WA6LVX. W6NNK, past-president of the ORC, was given a lifetime membership card. The ORC is setting up teams for Field Day operation. K6LWA won the SACEN mobile transmitter hunt. K6STI finally QSOed his 58th county for the ORC WACC award. WA6ESD is a new member of the ORC. Get your 145-Mc. gear perking for the Oscar II package to be sent up this spring. W6CXP reports that progress on radio equipment for the Byron Boys Rehabilitation Center is booming. W6CXP says they need a soldering gun and hook-up wire. Contact "Doc." if you can help. The CCRC held its Feb. meeting at the HARC club house. VE2AGF/6 reported on Project Oscar to the CCRC. The Castro Valley Radio Club, WA6OAK, has a DX-40 and SX-99 station on the air. K6HGO is secy. of the HARC. WV6VPG and WV6VPH are new father-and-son Novices in Hayward. WA6GUM is QRL a business trip to New York and will operate 6-meter mobile. K6SPP has a new 6-meter beam. WA6JYB is moving to Eureka. San Francisco section's gain is E. Bay section's loss. W6ICR has a new Pacemaker. W6UGO has gone s.s.b., Collins S/Line. WA6LTV has a new NC-240. Traffic: K6GK 145.

**SAN FRANCISCO**—SCM, Wilbur E. Bachman, W6BIP—The Mar. 2 meeting of the S.F. Radio Club was auction night. W6CTH was auctioneer. W6ERS is active on s.s.b. W6OPL's XYL, Myrtle, finally has consented to allow the OM to move his ham shack into the family room. K6FCT is temporarily off the air because of a cable change project. Ed expects to improve the quality of signals. This does not affect other circuits, only 3885 kc. WA6MDL, of Eureka, reports not much activity for this month. W6QMO reports a new Section Net certificate was sent to WA6BXV, of Novato. She says that because of conditions the net had to operate at 1800 which made a difference for many stations. On return to 1900 the check-ins began to pick up. Jeri request that SCMs advise their OBSs to include QST in their bulletins periodically, giving name, frequency and how the net operates, daily 3635 kc. 1900 PST. This request is made to the five SCMs of Santa Clara Valley, San Joaquin Valley, Sacramento Valley, East Bay and, of course, our own San Francisco section. OBSs, please note. New officers of the Marin Radio Club are W6JBZ, pres.; W6JEU, vice-pres.; WA6AUD, secy. and WA6FJY, treas. The late W6OZC's son-in-law, Ken Gates, is now WA6YAK, of Tiburon. W6KZF informs us that the February storms didn't bring about any communications emergencies but let's keep prepared just the same. Emergency

*(Continued on page 120)*



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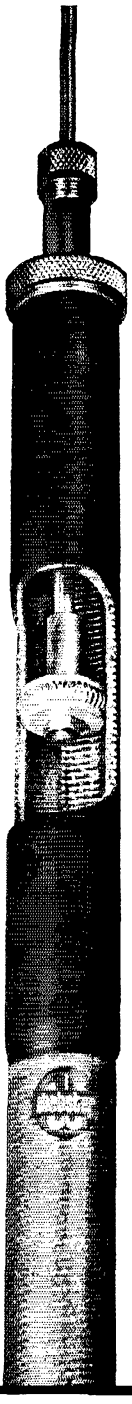

CUTAWAY SHOWING HOW MOVABLE WHIP CONTACTS INTERNALLY EXPOSED LOADING COIL TURNS

**Now . . . even more handsome** with top loading section available in a sparkling new color . . . COBALT BLUE!

**Now . . . even more effective** with new lower support column design that retains strength, beauty and lightness-in-weight of fiberglass, adds greater radiating surface area with tubular conductor of copper protectively sealed within laminated fiberglass column.

**Now . . . stronger.** New design features hex shape at base to facilitate tightening—utilizes internal insert for added strength at junction of fiberglass column and chrome plated brass base.

**BAND-SPANNER—ultra high quality—fully streamlined mobile antenna** covers 80-40-20-15-10 meters (and MARS frequencies), **uses no plug-in coils!** Streamlined loading inductor is wound directly on upper portion of fiberglass support column. Exact resonance within any band is obtained by simple plunger-type adjustment of stainless steel top whip. (See cutaway of loading section at left). No exposed joints to corrode, no flimsy plastics involved. Strong—durable—unaffected by moisture. **Easily handles KWM-2, G-76 and other equipment with power inputs of 100 watts or more.**

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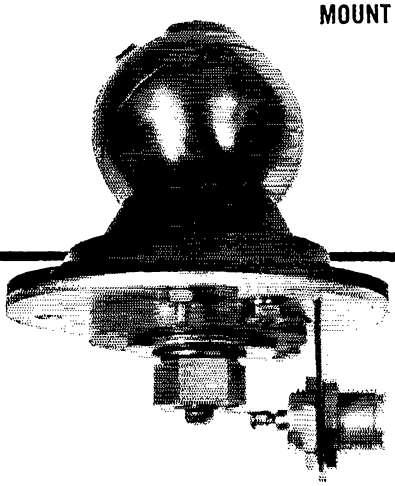
## *new* SINGLE HOLE UNIVERSAL MOUNT



Requires only single hole in vehicle body. Split-ball assembly is chrome plated aluminum—insulated base and through-shoulder are of heavy-duty tenite. Mount is reinforced inside of vehicle body with heavy gage metal plate which also supports right angle coax connector. Required diameter of mounting hole is 1⅛".

**RIGHT ANGLE COAX CONNECTOR KIT**
Fits base plate drilling of all standard ball mounts, is available separately.

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power for the home rig is most desirable and should be acquired if possible but mobile operation and drills, handie-talkies are most convenient for emergency work. Why not have your club start a building program so you'll have a handie-talkie net? Check in to the AREC Net Sun. at 10:30 A.M. on 3900 kc. WA6TKS is a new General Class ham and already has worked five states and VE6AFS on 7050 kc. He has a 30-watt transmitter. For a second year the Marin County amateurs have had a directory published. WA6FJY helps to get it out. Red Cross officials had good comments for the Marin Club who, under its EC WA6ASW, put on an SET to test its communication facilities under emergency conditions. K6ANP says he was surprised to see how much the new bride knows about ham radio and the ham shack was the first room in the house to get wall-to-wall carpeting. The HAMS Club enjoyed a very interesting movie at a recent meeting which had a big attendance. Congratulations to K6HYW and his beautiful bride, Connie. K6VXI reports a new operator on 6 meters, WA6-UHN of S. F. K6RCR has a new rig on 2 meters with excellent results on groundwave. W6SRZ is secretary of the 1962 City & County of S.F. Grand Jury. W6GQA has been appointed Official Frequency Monitor for AF MARS. Traffic: K6FCT 560, W6QMO 204, W6OPL 114, K6SAA 68.

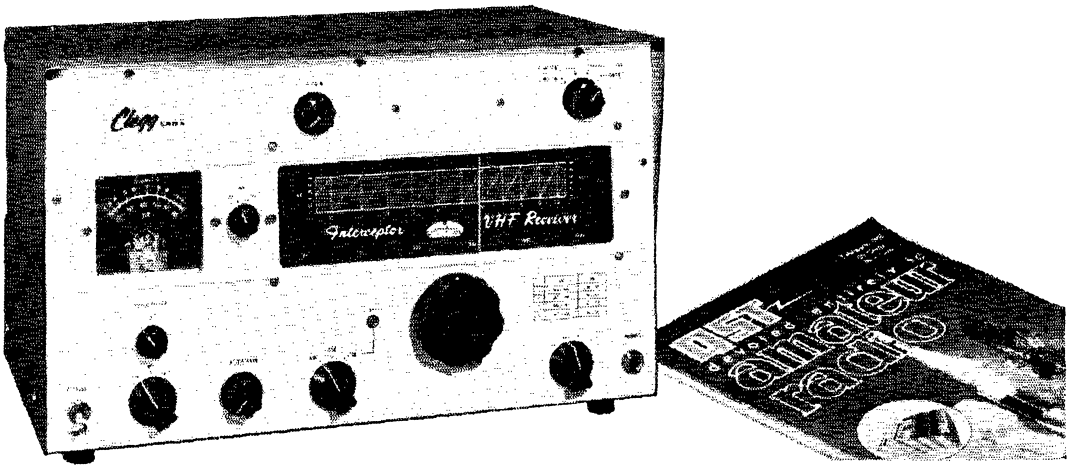
**SACRAMENTO VALLEY**—SCM, George R. Hudson, W6BTY—Asst. SCM/SEC: Anton F. Buzdas, K6IKV. EC: WA6ONK, K4VPN/6. OBSs: W6AF, W6WGO, K6-HHD. OOs: W6WLI, W6ZJW, WA6NAU, K6EIL, W6-TFH. ORSs: W6WGO, K6YZU. OES: W6PIV. OPSs: W6WGO, K6EIL, WA6PVT, WA6ONK. If your call was left out it's because of non-reporting and I assume non-active! K1IKV has been appointed Asst. SCM, WA6-ONK has been appointed Shasta County EC and K4-VPN/6 has been appointed Yuba County Area EC. The Golden Empire Radio Society up Chico way elected W6RHC, prexy; W6SYX secy.-treas. and reports that most all its members are active in the C.D. Emergency Net on 1980 kc. each Mon. at 8 P.O. WA6NAU and W6-TFH, in Sacramento, are new OOs. K6YZU is a new ORS! Our Asst. SCM/SEC reports 42 full and 17 supporting members now associated with the AREC in the section. Address your AREC applications to K6IKV, Sacramento. W6QMO has returned to NCN as manager. A pat on the back to WA6LVX for a job well done as manager of NCN. The Sacramento ARC elected W6-WGO, prexy; W6BTY, vice-pres.; K6IKV, asst. vice-pres.; W6MCR, treas.; W6BFN, secy.; W6MIW, *Mike and Key* editor. WA6ONK is busy organizing the AREC in Shasta County with K6DIZ assisting K6YZU, Mr. Traffic of the North, catches NCN at 0300Z, RN6 at 0345Z and PAN at 0439Z. WA6NAU is active in the Postoffice Net, East Yolo County C.D. Net and Sacramento V.H.F. C.D. Net. Thanks to those who wrote saying they missed *Valley News and Views* but your SCM just had to take a much needed rest! Traffic: (Feb.) K6YZU 144, (Jan.) K6YZU 65, WA6NAU 3, (Dec.) K6YZU 92, WA6NAU 29, WA6PVT 8.

**SAN JOAQUIN VALLEY**—SCM, Ralph Sarovan, W6JPU—The Modesto gang has gotten together and organized a radio club with the following officers in charge: WA6GJA, pres.; W6NLX, vice-pres.; K6ODA, secy.-treas.; W6SFP, TVI chairman with WA6OYP assisting. WA6OYP is going mobile on 75 meters, K6ODA is installing a 75-meter rig for mobile. WA6GJA and WA6OYP have completed 2-meter rigs. The SJVN in January had 420 check-ins, 33 traffic and 11 bulletins, and in February 456 check-ins, 100 traffic and 10 bulletins. The Delta Amateur Radio Club's new officers are W6YGZ pres.; WA6FBL, vice-pres.; K6EUY, secy.; K6RHX, treas. K6AXV has a 6-meter beam up. K6-PKO is building a kw. rig. K6SEV has a Drake 1A receiver and is operating on 40-meter s.s.b. W6JUK is heard on 75-meter s.s.b. running a kw. K6ZCD is blowing out 6 amp. fuses on his mobile rig. W6QFR has gremlins in his amplifier. Members of the Fresno Radio Club helped out in communications in the recent C.P. Telethon held in Fresno. I am still looking for some activity reports from down south. Reports from the northern area are trickling in and I can't write much if I don't get any news. Anyhow, the Fresno Radio Club will hold its hamfest at the Town and Country Motel, May 12, 1962. I will see you there. Traffic: (Feb.) W6-EFB 21, (Jan.) W6EFB 12.

## ROANOKE DIVISION

**NORTH CAROLINA**—SCM, B. Riley Fowler, W4-RRH—SEC: W4YMI. PAM: W4DRC. V.H.F. PAM: W4 ACY. RM: K4CPX. I am sure W4CH will make a good SCM and I stand ready to support him in every way possible. From Apr. 11, 1962, Riley plans to devote what time he has to being an amateur. No memos and low politics. The Tampa Fair has been going on and W4-

*(Continued on page 122)*

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Clegg's new Interceptor Receiver for 6 & 2 meters introduces revolutionary new concepts in VHF receiving techniques. Now you can realize the benefits of engineering features that are years ahead of their time!

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Take a look at all of the advantages you get with this great new receiver:

- ★ **Extremely low cross modulation.**
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- ★ **Hermetically sealed 10.7 Mc crystal lattice filter that provides optimum selectivity for both AM and SSB. Selectivity 3.1 kc at 6 db points; 8 kc at 75 db points.**
- ★ **Sensitivity of better than .1 microvolt.**
- ★ **Frequency tuning accuracy of less than 3 kc in calibrated 1 Mc ranges.**

And that isn't all! Here are some other great Interceptor features — ones that will help make your station second to none:

- ★ **Input provision for 220 Mc, 432 and other UHF converters.**
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RRH/A4RRH handled some 1213 of those. The Mecklenburg Amateur Radio Society has elected new officers: W4FHI, pres.; W4OTW, vice-pres.; K4PDY, treas.; W4BLN, secy. and trustee. The American Red Cross has furnished the club an air-conditioned place to meet on Park Road. The Tar Heel Emergency Net, 3865 kc. 7:30 P.M. has elected K4ODX, mgr.; K4QFV, asst.; W4BVC, secy.-treas.; W4IEV, K4JQJ, W4NTS and W4ZKE, directors. They have 68 active members. The NCN meets on 3547 kc. at 2300Z and NCSN on 3612 kc. at 0300Z. The RM is K4CPX, net manager is K4TPZ. There are 48 members but the RM says all are not active. NCSN has 32 members. K4YCL has been appointed ORS. Traffic: (Feb.) W4LEV 1012, K4CPX 459, WA4FJM 287, W4PNM 277, K4MPE 66, W4BAW 32, W4LXS 31, W4LWZ 9, K4FUN 7. (Jan.) W4PNM 272, W8EXZ/4 118.

**SOUTH CAROLINA**—SCM, Dr. J. O. Dunlap, W4GQV—SEC: K4PJE. PAM: K4KCO. RM: W4PED. K3PAG will be operating out of Beaufort for an indefinite time. W4DAW and W4FFH plan the programs for the Charleston ARC. A new teen-age club has been formed in Charleston named the St. Andrews A.R. Society. Officers are K4ZNJ, pres.; WA4AGT, vice-pres.; WA4DDK, secy. All members are between 13 and 18 years of age. K4VVT had K1CZR as a recent visitor and is busy building a kw. amplifier. The Spartanburg ARC members are checking their "handie-talkies" on 6 meters to cover the Peach Blossom Golf Tourney in May. K4HQK sends in excellent OO reports each month. K4OCU and K4NZE are new ORS appointees. K4PJW has received his net certificate on the c.w. net. The Palmetto V.H.F. Club has affiliated with ARRL. W4HHE is secretary. K4SYM and W4GIF are commended for the public service rendered in an emergency caused by sleet and ice. Traffic: W4PED 105, K4LND 81, W4AKC 51, K4WOI 36, W4CHD 23, K4ZHV 22, WA4DGH 16, K4HDX 12, K4KCO 12, K4PJW 10, K4OCU 7.

**VIRGINIA**—SCM, Robert L. Follmar, W4QDY—Asst. SCM: H. J. Hopkins, W4SHJ. SEC: W4VMA. RMs: W4LK, K4MXF, W4SHJ, W4QDY. PAMs: W4BGP, K4JQO, K4PQV. W4PFC is starting a sked with K4PQV on Mon. and Wed. and W4MJH on Fri. to help with this big traffic load. W4WDZ is going overseas for 60 to 90 days. W4FOR, our busy ORS, OO and EC, is remodeling the shack and building a new rig. The Tidewater boys had a big workout because of the late winter storm. K4MXF was off the air for 10 days—reason—DX Contest. K4YNW's receiver has been acting up. The *Virginia Ham* got back into circulation during January and much favorable comment has been received. The Novice class at Winchester is going FB according to W4OOL and the 2-meter net is on the upswing. Better QSL card returns from 80-meter DX is claimed by K4TSJ. W4BGP is active in VFN, CD Party, OO work, FMT and as OBS. K4YZT has finished a 4-125 final at 400 watts. K4DCN tells of a new 2-meter station in town. W4TE has his transmitters and receivers back on the air at home and a new mobile installed in the station wagon. Ye SCM and XYL, along with W4SHJ and W4JNF, journeyed up Washington, D.C. way and met many old and new friends at the Edison Award Dinner. A stop was made along the way for an eyeball QSO with W4KX, the former SCM. W4ZM was elected chairman of the local QCWA chapter. K4TZF expects his WAC award shortly. K4IIP says that some band conditions are forcing him on c.w. Hi. K4EVY worked 45 states—WASWPL—which means—worked all states without permission of handlord! Traffic: (Feb.) W4PFC 1188, W4FOR 580, K4PQL 555, W4WDZ 223, W4LK 198, K4FSS 185, K4RNH 111, W4MJH 107, K4MXF 103, W4NTR 100, K4YNW 95, W4IA 88, W4RHA 78, K4NNP 60, W4OOL 54, W4SHJ 38, K4TSJ 38, W4QDY 37, K4ITV 35, K4YZT 29, W4BGP 27, K4AL 24, K4DCN 22, K4MLD 21, K4PQV 21, W4TE 15, W4JUJ 12, W4KX 12, K4JQO 10, W4ZM 6, W4CWT 5, K4SGO 5, K4TZF 5, K4IIP 4, W4LRN 4, K4LTK 4, W4NVX 4, K4ORQ 3, K4AET 2, K4EVY 2, K4JYL 2, W4OWV 2. (Jan.) K4PQV 72, W4OOL 23, K4TZF 7, W4CWT 6, W4JUJ 6, K4ORQ 3, K4UTV 3. (Dec.) K4TZF 14, W4WBC 2.

**WEST VIRGINIA**—SCM, Donald B. Morris, W8JM—K8LOU reports 18 sessions with 111 stations handling 45 messages in February. K8CFT, NCS Thurs. night for the W.Va. Phone Net, reported 4 sessions, 21 stations and 8 messages. K8MYU is off the air because of school work at AB College. K8JSX reports the St. Albans gang has 15 stations in the CD Net. K8CSG handles traffic back home for the 150th Armored Cavalry at Fort Meade. W8ESH awaits a good band opening at 6 meters. W8NTV conducts code and theory classes at Grafton High School. K8NNF, EC for McDowell County, reports 10 new members, 3 mobile units and classes under way for beginners. K8TSB, a new OES, worked into Texas and Oklahoma on 6 meters. K4TZV, formerly of

*(Continued on page 124)*

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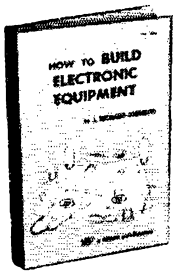


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As kit building requires an orderly approach for best results, the ideas and techniques in this book are presented in the order in which you would approach a typical kit building project. For example, the first chapter explains what typical electronic equipment looks like, and describes its overall construction; the second chapter covers tools and materials giving you information on some special tools that will make your job easier; the third chapter covers selection and working of the chassis; the fourth chapter covers layout, and so on through to the last chapter on checking, painting, marking and calibrating the finished equipment. Profusely illustrated to make all procedures easily understandable.

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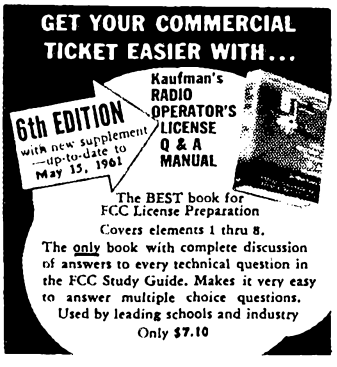


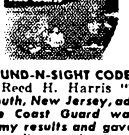

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## WEST VIRGINIA QSO PARTY

*May 4-6*

The Mountainer Amateur Radio Association will sponsor a W. Va. QSO Party from 2200 GMT May 4 to 2359 GMT May 6. The contest is open to all West Virginia amateurs and all others who have held calls in W. Va. in the past. Only these contacts may be counted for awards. However, stations interested in working W. Va. for county contacts should check 3570 and 3890 kc. There are no power or band limitations and the same station may be worked on different bands for credit. C.w.-to-phone QSOs are allowed but cross-band contacts are not permitted. Score 2 points for each completed contact, exchanging the following information and submitting it with your logs: date; call; time; city, county. When contacting stations outside of W. Va., obtain the ex-call of the former W. Va. station. Mobiles operating in more than one county may be worked once in each county by a fixed station, and the mobile can count the fixed station once from each county. Each contact with stations in Morgan, Hardy, Doddridge counties will count 6 points for a complete exchange. Multiply the final score by the number of countries worked. Awards for first and second place. To be eligible, logs must be postmarked not later than May 25 and mailed to MARA, Don B. Morris, Sec'y, 1111 Alexander Place, Fairmont, W. Va.

Castlewood, Va., is now W8CZT, of Burnsville, West Va. A joint meeting of the West Va. State Radio Council and the West Va. State Radio Convention was held in South Charleston Feb. 17. Mark your calendars for the West Va. QSO Party, the Roanoke Division Convention, the West Va. State Radio Convention. Send your nominations for the West Va. Outstanding Amateur of 1962 to W8SSA. It is with deep regret I report the passing of W8GAD, who was active in the Post Office Net, West Va. MARS and the West Va. Phone Net. Traffic: K8LOU 45, K8CSG 42, K8HID 28, K8CNB 14, W8JUE 8, K8TSB 8, K8ELH 7, W8DPT 6, W8JM 5, W8SSA 3.

## ROCKY MOUNTAIN DIVISION

**COLORADO**—SCM, Donald S. Middleton, WØNIT—SEC: WØSIN. PAMs: WØCXW, WØIJR, WØGNK. RM: WØFEO. OBS: KØDCC. WØETT is now a member of the Certificate Hunters Club, CHC, by getting and compiling 25 certificates. WØMNQ reports regular 2-meter skeds with BAG in Security. WØIA was awarded the Colorado Section "Picon Award" on Feb. 8 at the BARC meeting in Boulder. KØWWJ completed the 432-Mc 5-watter (Mar., 62 *QST*) and is starting living tissue and nerve cell experiments. WØTIV participated in the Feb. FMT. Look for the new AREC Columbine Net on 3996.5 kc. at 0200. This net was organized by WØSIN, Colorado SEC. The Rocky Mountain Division ARRL Convention will be held July 21 and 22 in Denver. The Convention Committee will be headed by KØEBV. A new Colorado section ORS is WØBES. A new Novice class was organized by the Western Slope Radio Club in Feb. Classes meet at Mesa Junior College. Over 40 "hams" are now enrolled at Pueblo Junior College. The college also boasts seven "ham" instructors including Colorado SCM WØNIT. Traffic: WØFEO 324, KØRTI 193, WØETT 113, KØEDK 106, KØEDH 98, KØDCW 94, WØBWJ 78, KØSZA 37, KØEVG 25, KØWGC 22, WØENA 20, WØCWD 18, WØIA 18, KØQGO 12, WØCBI 10, KØWWJ 6, WØTIV 5, KØMNQ 2.

**UTAH**—SCM, Thomas H. Miller, W7QWH—Asst. SCM: John H. Sampson, 7OCX. SEC: BLR. Several local RACES groups around the state participated in "Operation Fallout" which was a c.d. exercise in conjunction with the Utah National Guard "Muster Day." The Ogden group had 17 amateurs taking part. K7HVF and LOD assisted in getting reports to county c.d. officials in Utah Co. The Salt Lake group had a 2-meter station at the local c.d. office and another at State C.D. Hq. K7LUM has been appointed Asst. EC in Utah County. OCX earned BRAT on TWN, QWH, OCX, VTD, VTJ and K7s BGU and PPB earned BRAT awards on BUN. New officers in the Oquirrh ARC in the Kearns-Granger Area are ESC, pres.; K7IDF, vice-pres.; K7PDR, secy.; ZSW, treas. The Salt Lake Club had Morris Jones from Eimac as a speaker at the March meeting. Traffic: W7OCX 73, QWH 10, K7HVF 4.

**NEW MEXICO**—SCM, Carl W. Franz, W5ZHN—

*(Continued on page 126)*

# AMECO LEADER in COMPACT, QUALITY HAM GEAR

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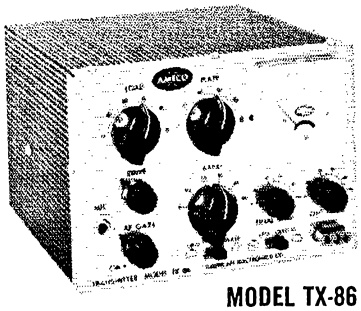

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Tube lineup:—12BY7 oscillator, a 6BQ5 buffer, a 6146 final modulated by a 12AX7 and a 6AQ5. Power requirements of 6 V at 3.2A or 12 V at 1.6A and 300 V at 75 ma. plus 600 V at 150 can be supplied by PS-3 for fixed use or W612A for mobile. Smaller power supplies can also be used. Other features include: Final operates STRAIGHT-THRU on all bands, push-to-talk mike jack; Pi-net output ckt., true potentiometer drive control (no detuning of circuits), can take crystal or VFO.

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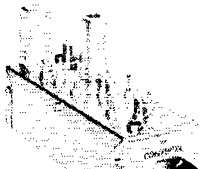

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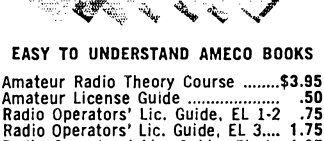

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SEC: W5BQC. PAM: W5ZU. V.H.F. PAM: W5FPB. RM: K5GOJ. The Breakfast Club meets daily at 6:30 A.M. on 3838 kc., TWN on 3570 kc. daily at 8 P.M. The Caravan Club of Albuquerque joined the Chamber of Commerce. K5UYF won both the Kansas and W/VE Contests for New Mexico; John now holds 147 awards. The Los Alamos ARC installed 6&2 units in 8 fallout shelters as command circuit. W5PDO now is operating at a new location and maintains a monitoring receiver on 29.6 Mc. Appointments are open for those who can and will report regularly. Novice operators who are interested in working in a Novice traffic net, please get in touch with W5ZHN. We welcome WN5BLZ, a new operator in Albuquerque. K5ZCA had a fine trip through Mexico. The Caravan Club Annual Hamfest and Picnic will be held at Albuquerque Aug. 24. As a convenience for New Mexico amateurs W5WZK will pick up activity reports on 3838 kc. Traffic: W5ZHN 271, W5MYQ 40, W5PDO 18, W5WZK 5.

**WYOMING**—SCM, Lial D. Branson, W7AMU—The Pony Express Net meets Sun. at 0830 MST on 3920 kc. The YO Net is a c.w. net on Mon., Wed. and Fri. at 1800 MST on 3160 kc. K7MAT spent a week end in Casper on business. GZG has a new Drake receiver. The weather is getting nice after a long hard winter so look out for transmitter hunts. ORM is in Veterans Hospital in Cheyenne. AEC has a new Heathkit scope. LKO is looking for a mobile rig for the new car just purchased. The Casper Radio Club is housing the YMCA headquarters after the fire in their temporary quarters. Traffic: W7DXV 60, GZG 46, ONK 38, BHH 31, HDS 25, HH 22, AMU 15, HBB 14, HLA 9, GDX 7, K7KLE 6, W7NMW 6, AEC 3, BKI 3, K7PRG 3, W7CQL 1.

## SOUTHEASTERN DIVISION

**ALABAMA**—SCM, Harvell V. Tilley, K4PHH—SEC: W4FQQ. RM: K4YUD. PAMs: K4BTO, K4PFM. S.S.B.: K4KJD. Welcome to AENO: K4EVT, WA4EQC, WA4ERB, WA4DDV, W4VDD, W4YMX, K4ZXF, W4EKL, W4ERX and W4WGI. Net certificates were issued to: AENXM—K4WHW, K4QXM, W4GUW, 4WWF, W4OWQ, K4WND, W4DS, W4RJN, AENO:—WA4BQK, K4PBN, W4WFA, W4RWJ, W4NZD, W4YMW, W4KWQ. K4KDE has completed WAS and Cradle of Confederacy. Congrats to WA4BUL on receiving his Technician Class license. K4WWP reports a radio club at the University of Alabama is getting started. NCS for the AEND are WA4BDW, K4BRZ, K4WVD, WN4AZK and WA4AVM. New stations in Jasper are WA4FGJ and WN4ERW. The Marshall County AREC Net meets on 50.55 Mc. Tue. and Thurs. at 2000 CST. The Morgan County AREC Net meets on 50.7 Mc. K4UEC is Asst. EC:6 meters for Morgan County. New officers of the North Alabama Hamfest Assn. are W4YIZ pres.; K4WSU, vice-pres.; W4EKL, 2nd vice-pres.; K4IKR, 3rd vice-pres.; W4NFK, secy.; W4WWL, treas. A late August hamfest is planned Feb. "Ham of the Month" in the Huntsville Area was W4NML. Traffic: (Feb.) K4YUD 98, W4FQQ 94, W5OXU 63, K4WOP 58, K4UDK 57, K4PHH 56, K4AOZ 54, K4PFM 53, K4ROR 53, K4WHW 43, WA4BDW 34, K4KJD 26, W4CWF 25, K4JDA 21, W4RLG 19, K4DJR 14, K4UMD 14, W4CIU 11, K4ZTT 10, K4ZTT 10, K4BTO 9, K4RIL 9, K4FZQ 8, K4BPY 8, K4SUY 8, K4TDJ 8, W4VWG 8, W4WHW 7, K4AAU 5, W4DS 5, K4DSO 5, K4YTT 5, K4CTB 4, K4GXS 4, K4WIF 4, K4WWP 2, W4DGH 1, W4MI 1. (Jan.) K4BPY 22, K4BRZ 13, W4OXU 13, K4WVD 11, K4VWG 5, K4AAU 2.

**EASTERN FLORIDA**—SCM, Albert L. Hamel, K1SJH—SEC: W4IYT. RM: K4KDN. RM RTTY: W4EHU. PAMs: 40 W4SDR; 75 K4LCF; v.r.f. W4RMU; s.s.b. W4CNZ. The Orlando Hamfest will be held in the Cherry Plaza Hotel May 5 and 6. Hope see you there. W4DFU, University at Gainesville, now is on RTTY plus five other rigs and looking for traffic in and out. W4WHK gets his BPL medallion, plus EAN and 4RN certificates. W4EXM attended the QCWA dinner in D.C. OOs, please watch your activity and reporting. Many are being scratched. Ditto for OBS/OPS appointees as well as others. E.Fla. remains way down in OES with only 40 out of a possible 1800 v.h.f.ers. Write or radio Ham, K4SJH, for details. Many OBSs are not transmitting as scheduled. Watch it, fellers. We have a waiting list. There is some drop off on the number of reporting traffickers. Tired already? Support your section. Traffic: (Feb.) K4SJH 1200, W4WHK 789, W4TUB 759, K4EHY 603, WA4BMC 519, K4ENW 458, W4FFF 373, K4KDN 265, K4BY 245, K4RDX 238, K4LCF 236, W4SDR 227, K4YSN 217, W4LDM 144, K4DBT 139, K4COO 132, K4ILB 129, W4TRS 129, K4RNG 117, K4AX 101, W4EHW 96, W4AKB 86, W4YPX 66, WA4EDM 65, WN4AME 64, W4CNZ 64, W4TRU 64, K4DAX 60, K4VNA 52, K4LVE 47, W4HTH 46, W4MIN 41, W4CWD 39, K4AKQ 38, W4VLH 35, WN4BYP 34, W4ZAK 29,

*(Continued on page 128)*

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**WESTERN FLORIDA**—SCM, Frank M. Butler, jr., W4RKH—SEC: W4MLE. PAM: W4WEB. RM: K4UBR, Tallahassee: W4CMG is looking for new traps for the 75-meter doublet. WA4AZR is active on 75 and 40 meters. WA4DTG, W4GAA, K4ARK and K4OHR keep 10 meters hot. K4YPI works AM while looking for forest fires. TARC is planning a ham gear auction. W4MLE had an FB article in *QST* on Hurricane SET. Quincy: K4QDN is a new OPS. Madison: W4RCO has a new 20-meter beam. W4WMA is a regular on WFPN. W4PBO holds an AREC drill the 2nd Sun. of each month. Perry: W4KQP has a new receiver. K4NJH is working on a mobile rig. K4FTG put up a new antenna. W4YLP is QRL with new family additions. W4RTN moved to town. Panama City: W4FIU, K4GVV, K4MAP, K4RGE and WAFIJ aided the March of Dimes Drive. WA4FIJ and WA4FJF are new OESs. K4RXT/4 made several 6-meter DX QSOs during the recent opening. Ft. Walton: New Whipsnappers Club officers are W4UXW, pres.; W4ZGS, vice-pres.; W4BPJ, secy.-treas. The Monday Night 2-Meter AREC Net now has check-ins from as far as Pensacola. K4SEL is getting on 220 Mc. Our newest ham is WA4FRK, on 2 meters. WA4FFU is now mobile. W4PLK is improving the setup for 432 Mc. Pensacola: Escambia H.S. Club officers are K4CFS, pres.; K4PMT, vice-pres. V.H.F. Ham of the Year Award went to W4IMY. WN4ELE is putting up a 90-ft. tower. W4VBU now is mobile. New NAS Club officers are W4LKC/4, pres.; K1CXU/4, vice-pres.; KN4OIQ, secy. Traffic: (Feb.) W4BVE 85, K4VND 59, W4CMG 26, W4GAA 12, K4BDF 9, WA4AZR 6, WA4FIJ 6. (Jan.) W4MLE 113.

**GEORGIA**—SCM, William F. Kennedy, W4CFJ—SEC: W4PMJ. PAM: W4LXE. RM: W4DDY. GCEN meets on 3995 kc. at 1830 EST Tue. and Thurs., 0800 Sun. GSN meets Mon. through Sun. on 3595 kc. at 1900 EST and 2200 EST. The 75-Meter Mobile Net meets each Sun. on 3995 kc. at 1700 EST with W4LG as NC. The GPYL Net meets each Thurs. on 7260 kc. at 0900

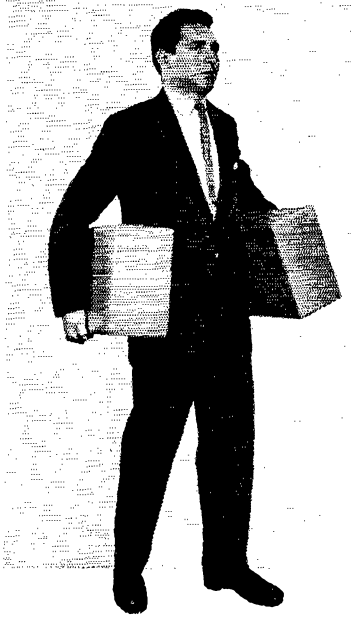
*(Continued on page 180)*

## GEORGIA QSO PARTY

*May 12-14*

All amateurs are invited to participate in the first Georgia QSO Party, sponsored by the Columbus Amateur Radio Club.

*Rules:* (1) *Time:* 2300 GMT Saturday, May 12 to 0500 GMT Monday May 14. Any or all of the 30 hour period may be utilized. (2) All emissions and bands may be used, but a station may be contacted only once per band. C.w-to-phone is permitted, but crossband contacts are not allowed. (3) *General call:* "CQ GA" on c.w. and Ga. county. 2nd and 3rd place awards will identify by signing "DE (call) GA K." (4) *Exchange:* QSO number, RS(T), and county, state, province, or country. (5) *Scoring:* Count two points for each completed contact, one for each report received and sent. For final score, Ga. stations multiply QSO/points by the total number of different states, provinces, and countries worked. Ga-to-Ga. contacts count for the purpose of obtaining Ga. multiplier. Outside stations multiply QSO/points by different Ga. counties. (6) *Awards:* Certificates to the highest scoring station in each state, province, country and Ga. county. 2nd and 3rd place awards will be issued if in the opinion of the contest committee the number of entries warrants it. (7) *Suggested frequencies:* 3595, 3995, 7060, 7260, 14060, 14260, 21060, 21310, 28060, and 28560 kc. (8) Logs should show dates, times, stations worked, exchanges, frequency, type emission, and a signed statement that all contest rules have been observed. Contest logs postmarked no later than May 31, 1962, should be sent to CARC, c/o Rusty Epps, K4BVD, 1638 Forest Avenue, Columbus, Georgia.



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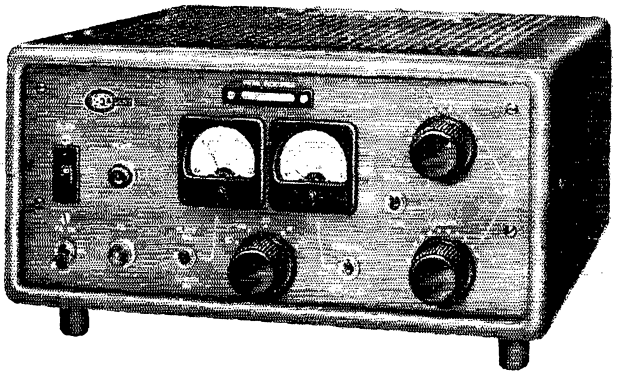

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EST with K4KIH as NC. The Atlanta Ten-Meter Phone Net meets each Sun. on 29.6 Mc. at 2200 EST with W4BGE as net mgr. The Ga. S.S.B. Net meets Mon. through Sun. on 3975 kc. at 2000 EST with K4-RZL as net mgr. Among his other activities W4HYW writes articles in both *The Bugle* and *Atlanta Ham* papers. K4WWY is building a 14-watt rig for 80-40 meters. W4EEE has just received the first Georgia all-phone WAZ. He is No. 119. The only other W/K4 is in another state. George also is CHC No. 163, FHC No. 308 and DXCC phone with a total of 254. W4FWH transmits Official Bulletins regularly on 2 and 6 meters along with K4QOF of 40 meters. Traffic: K4MCL 886, W4DDY 270, W4PIM 253, K4UJS 78, W4LME 60, W4-HYW 34, K4QPL 28, K4WWY 28, K4BAI 12.

**WEST INDIES**—SCM, William Werner, KP4DJ—C.D. Radio Officer: MC. QSL Mgr: YT. WT is the second KP4 to receive the "HI" Award from Radio Club Dominicana and has been invited to visit Santo Domingo as its guest. ASL also has been invited. WT guards 7245 kc. all day and her transmitter is crystal-controlled on the same frequency. On other bands she uses a 32V-2 to pile up traffic for foreign students attending the School of Engineering at Mayaguez. AWH made 768 contacts in the first half of the DX Phone Contest and his DXCC is now 106/88. AWH has worked 28 countries and 38 states so far on 75 meters. He was awarded a WPR25 certificate. ABP is postmaster of the Rio Piedras Post Office. BCQ is manager of BC station WMIA, Arecibo, and is active on 6 meters. AFL's Cheyenne/Comanche mobile rig is working FB on 10 meters. AFE's 12-year-old son WP4BCW, on 80 meters, is WT's grandson. DJ's sked with W6NUN started on 28 Mc. several years ago, then 21, then 14 and now 7 Mc. SV, WD, ACF and AQQ have ordered 75S-3 receivers. PJ received his second Drake 2B receiver. ATV is off until he gets a Drake 2B to replace the NC-183 he sold. ABA, a professor of languages at UPR, is back on after years spent studying and is using a Viking I. ACF burned out the power transformer in the BW-5100. BV became a Silent Key Feb. 7. Traffic: KP4WT 125, AWH 8, AFL 4.

**CANAL ZONE**—SCM, Thomas B. DeMeis, KZ5TD—The CZARA held a dinner at the Police Lodge Mar. 30 with all members and non-members invited. KZ5MM has left the Canal Zone and again will be operating from K2VUY. HX now has a Warrior linear tied to his HT-32. SW is using an 813 linear in an old BC-610 frame. The local licensing authorities have waived dual identification for RTTY for the Canal Zone. There are better than five would-be RTTY men here who are building and working on their gear. WZ put up a 40-meter beam, two elements. OA, OB and TD are awaiting the arrival of the new HX-10 s.s.b. rigs. Air Force MARS already is planning a large Field Day this year. Traffic: KZ5OA 44, SS 36, JW 32, OB 29, CD 12, AD 11.

## SOUTHWESTERN DIVISION

**LOS ANGELES**—SCM, Albert F. Hill Jr., W6JQB—SEC: K6YCX: RMs: W6BHG, WA6ROF. PAMs: W6-ORS, K6PZM. The following stations earned BPL for the month: W6GYH and K6EPT. Congrats, fellows! W6CIS is moving back to Sacramento. Good luck, Ken! WA6HUO is busy organizing AREC in the San Fernando Valley. K6OZJ has RTTY going on 6 meters. W6-BHG is getting the new shack in shape. K6COP has a transistorized receiver. ZI1AAX showed off his very fine all-transistorized homebrew s.s.b. receiver at the C-BAR-C meeting. WA6ROF is handling the traffic meeting for the Southwestern Division Convention. New officers of the Citrus Belt Amateur Radio Club are K6-EF, pres.; WA6DVK, vice-pres.; WA6IYN, secy.; W6-TNS, act. chairman; W6OHE, treas. WA6GRG is working on an electronics scholarship. Best of luck, Dan! WA6KAW has a new Heath Marauder on s.s.b. W6VUZ has a new 80-meter Marconi antenna up. The Alhambra AREC, under K6SUJ, assisted in communications for the Temple City Camellia Parade. W6IAH has the 1-kw. M.G. set for emergency power. WA6MHM has a new 54-ft. tri-ex tower up! CU at the Convention!! Support your section nets. On phone, the Southern California Six Net (SoCal 6) at 0230 GMT on 50.4 Mc. daily; on c.w., the Southern California Net (SCN) at 0300 GMT on 3600 kc. daily. Traffic: (Feb.) W6GYH 778, K6EPT 730, K6OZJ 322, K6MDD 200, W6QAE 197, K6-YVN 109, W6FNE 83, K6HOV 62, WA6KAW 59, K6SIX 45, W6BHG 44, WA6ODF 29, W6WPF 22, W6USY 20, WA6GRG 14, WA6KVS 9, WA6KVA 7, W6VUZ 7, W6-CIS 6, WA6DWP 6, WA6QMC 6, K6JNP 5, K6SUJ 5, W6LVQ 1, W6NAA 1, W6VOZ 1. (Jan.) WA6KQN 134, K6LVA 88, K6IWV 65, WA6KVS 24, WA6QMC 8, W6-NAA 3, K6SUJ 2.

**ARIZONA**—SCM, Kenneth P. Cole, W7QZH—Asst. SCM/SEC: George Mezey, K7NIY. PAM: OIF. RM:

*(Continued on page 132)*

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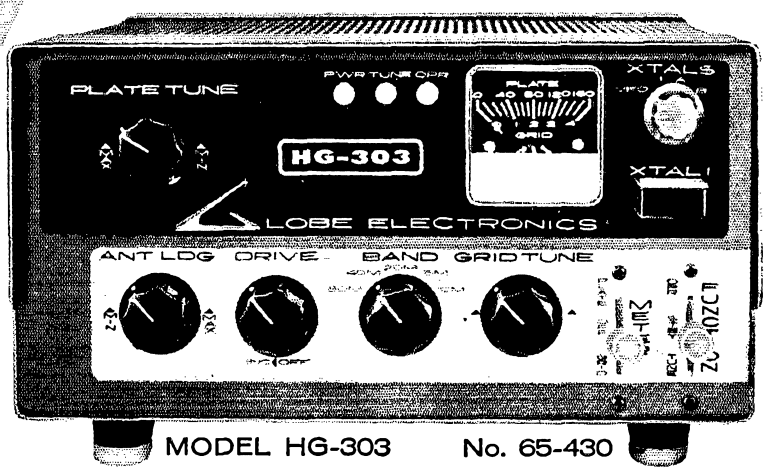


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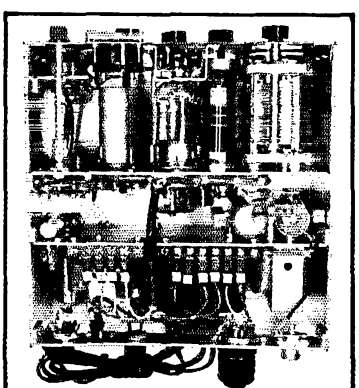

TOP VIEW OF HG-303 CHASSIS

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**WATCH FOR ANNOUNCEMENTS OF ADDITIONAL NEW GLOBE AMATEUR RADIO EQUIPMENT TO BE RELEASED IN FORTHCOMING MONTHS.**

LND. The Copper State Net meets at 1930 MST Mon. through Fri. the Grand Canyon Net Sun. at 8000 on 3800 kc. The Tucson AREC Net Wed. at 1900 on 3880 kc. Once a year Tucson amateurs arrange communication for children at the National Foundation for Asthmatic Children to their parents. This is called "Operation 52." Special credit should go to K7s LJY, GET, GQV, W7DRU, W5FWZ and many others. Amateurs of Maricopa County assisted in distribution of Polio Vaccine. Net control stations at McKesson Robbins Wholesale Drug Company, working 2, 6 and 10 meters, controlled over 50 mobiles in the field. Mobiles in the outlying areas were directed to meet helicopters and rush deliveries to clinics serving long lines of patiently waiting people. The program was carried out on two successive Sundays from 0700 until 1930 MST. We wish to thank those who willingly relinquished a frequency and helped clear up the inadvertant QRM. The following participated: W7s AYG CS IJP INP JCH KOY LND LXX MAE MWD OUE PMQ PXE QFO QNO QZH RBA WFY WYY YWF ZMH, K7s ASA BGL BOI BXT CAX CIN DVO ENN EXA ETQ GAG HDS HJO IDA JJU JNY JTF KAW KCR KDP KTJ KDQ LFS MBI NKC OBB QCT RFG RJN KN7PRS QXA WA2PCZ/7 and K9DAC/7. Only 400 call letter license plates have been issued in Arizona. The cost is $3. If you have a 7th district call (except Novice) and are the registered owner of an automobile, contact Division of Motor Vehicles, Arizona Highway Department, 1739 West Jackson Street, Phoenix, Ariz. Let's participate 100% before we lose the privilege. The special Arizona Semi-Centennial Certificate is now being issued for the year 1962 only. To qualify, work 35 Arizona amateurs. Send a letter, certified by two licensed amateurs other than the applicant or by an officer of a radio club, giving the call letters, date, time, location and mode of operation. Address all correspondence to Arizona Amateur Radio Club, P. O. Box 7155, Phoenix 11, Arizona. Do not send QSLs. Certificates will be mailed as quickly as possible. Traffic: (Dec.) W6MMC/7 240.

**SAN DIEGO**—SCM, Don Stansifer, W6LRU—WA6PDE is now EC for the South Bay Area, and is active chiefly on 75-meter phone. The Astronautics Radio Club of San Diego made its first traffic report in March, a total of 152. They held a ham swap picnic in March that was enjoyed by all attending. The late February meeting of the Newport Club featured a talk by WA6JDN on "Frequency Measurement and Equipment." Henry Satterlee, W6VAA, is now EC for Orange County. The gang up north is asked to help him put Orange County back on the map in emergency communications. Our thanks to W6DEY, in Santa Ana, who helped your SCM by handling EC matters in Orange County until a regular EC could be secured. W6CAE has a new duobander covering 40 and 20 meters and again is chasing the rare ones. WV6SVO, who worked 60 countries as a Novice, dropped the "V" from his call, and is now rapidly adding to his country total. WA6BUX made DXCC in March as well as straight A grades as a high school senior. W6EPZ was active all bands during the DX Test on c.w. Your SCM has a call for his cabin in Mono County, WA6VUI, and will be active there on c.w. only during vacations. The Post Office Box for the W/K6 QSL Bureau has been changed to Box 6029, San Diego 6, Calif. W6BZE becomes the second San Diego DXer to reach 300 countries worked. W6EWU, EC for San Diego and Asst. SCM, continues to do yeoman duty on 3825 kc. Sun. mornings on the AREC Net, which includes the check-ins from Southern California, Nevada and Arizona. Traffic: K6BPI 2140, W6YDK 1858, W6EOT 511, K6LKD 224, W6UUS 152, WA6CDD 117, K7NNM/6 112, WA6PDE 23, K6KGR 20, K6IME 2.

**SANTA BARBARA**—SCM, Robert A. Hemke, K6CVR—W6BRY now is pouring a signal into the San Joaquin Valley 2-meter AF/MARS Net and plans on going a.f.s.k. RTTY on 2 meters. W6AGO built a full-size three-element 40-meter Yagi. The beautiful job of welding and the boom work was by WA6RTM. W6MSG is forming a 2-meter Army MARS net for the Paso Robles Area. A new ORS and OBS in the Paso Robles Area is W6OXJ. W6HJL is active again on the ham bands. WV6RTM and WV6RTI are now sporting WA prefixes. WA6MPG had an accident with his 2-meter gear which almost required the fire department and he is now looking for new transformers. W6YMD is working on a three-element 40-meter beam to replace his present two-element job. W6VSB bought a KWS-1 and has it on the air. W6KZO has a new harmonic—a girl. K6JCR sold his 2-meter gear and bought a tri-band beam. Now he is all set to join in on the DX hunt. The PRARC is on 145.35 Mc at 1330 GMT daily. Traffic: W6OXJ 235, K6TOD 5.

## WEST GULF DIVISION

**NORTHERN TEXAS**—SCM, L. L. Harbin, W5BNG
*(Continued on page 134)*

"With the DRAKE 2-B RECEIVER you can work break-in and monitor your own signal at 60 WPM."

. . . so says KØILM and she *should* know. Sixteen months ago Mrs. Frank (Eileen) Cline of Fort Madison, Iowa, wrote asking if the Drake 2-A would meet these specs. Subsequent tests conducted by her in cooperation with our engineering department proved several changes were necessary. These changes, plus 500 cycle selectivity, were incorporated in the Drake 2-B.


Quoting part of her recent letter, "The outstanding advantage of the 2-B is that it can be used for break-in CW without any elaborate circuitry. I can hear a break station between letters at 60 WPM. The fast AVC and steep sided 500 cycle filter enable me to perfectly monitor my signal without objectionable sharp clicks and loud thumps and my sending quality has improved tremendously at high speed. The remarkable stability of the 2-B avoids constant retuning, important for CW".

**CW operators . . .** whether you operate at 5 or 60 WPM—take a tip from KØILM for more operating enjoyment and see for yourself why these four features make the Drake 2-B Receiver "tops for CW".

- **Selectivity 500 cycles at 6 db down and only 2.75 KC at 60 db down**
- **Stability Plus—less than 400 cycles warm up drift —less than 100 cycles after warm up**
- **Movable-passband tuner for interference rejection and signal peaking**
- **Fast AVC for break-in CW**

If you question the 60 WPM of KØILM just quiz some of the other high speed operators on the low end of 40. You'll find her there on week-nights after 0400 GMT. She prefers rag chewing. Had her fill of traffic during the war as a civilian radio operator for the Army six days a week. In between her duties as wife, mother, and bookkeeper she participates in RACES and is secretary of the Mississippi Valley Radio Club. She was first licensed as W5KMM in 1941.

Write us for information on KØILM's transmitter-receiver hook-up for break-in and monitoring at high speeds.

**R. L. DRAKE COMPANY**
MIAMISBURG, OHIO

—Asst. SCM: E. C. Pool, W5NFO. SEC: K5AEX. PAM: W5AYX. RM: W5LR. The main topic of conversation on the air at present is the announcement that the FCC has issued a notice of proposed rule-making to establish a schedule of fees for the licensing service. Naturally all are against the proposal. The $5 fee does not sound so bad since I have learned that the Italian Government has imposed a tax on amateurs equivalent to about $55 for a new license and an additional fee for yearly renewal. FRE has retired from the Telephone Co. after 45 years and 8 months of service. YUO recently divulged his secrets for winning transmitter hunts and can now expect some lively competition. Twenty-seven amateurs from Ft. Worth area assisted in the recent Mothers March of Dimes campaign by furnishing communication between headquarters and the various team captains. The Arlington ARC has a class of 19 working on their Novice Class licenses and 13 working on their General Class licenses. Amateurs from Ft. Worth and Arlington furnished communications between check points and a convoy transporting more than 100 children and their sponsors from Arlington to Camp Carter for a week-end outing. Both 6 and 75 meters were used and 20 amateurs took part in the exercise. Traffic: (Feb.) K5LBG 279, W5LR 166, W5BKH 152, W5GY 112, K5QWR 64, K5VWJ 49, K5PXV 39, W5CUI 36, K5RAV 32, W5GNF 29, K5IBB 26, K5HTM 21, K5-WSF 15, W5CF 5, (Jan.) K5IBB 26.

**OKLAHOMA**—SCM, Adrian V. Rea, W5DRZ—The largest event of February was the Lawton Ft.-Sill Hamfest with 277 registering for this event. W5QKF, West Gulf Division Director, was present as well as Oklahoma ARRL officials. The "Coon Catchin' Varmint" from Mangum did himself proud as master of ceremonies. The Oklahoma City V.H.F. Club participated in the Mother's March of Dimes by picking up collections. K5MBK is being transferred, Uncle Sam says to Germany. Frank has done a fine job on OPEN and we hate to see him go. New ECs are W5VHP and K5YZM. A new OO is W5GIQ. W5CZB received the SEC Trophy for the year from the Section Emergency Coordinator, K5KTW. W5CCK, Ila, who is a charter member of the Sooner Traffic Net, also an NCS ever since the net began and holder of an OPS appointment is the Oklahoma Amateur of the Month. New officers of the Tulsa Amateur Radio Club are W5FU, pres.; W5HUI, vice-pres.; K5JBW, secy.; W5ZBI, treas.; W5CNF, membership. K5REH has a new Viking 500. K5LZF is doing a fine job as EC of Pottawatomie County. New amateurs are WA5DHI, WA5BEL, K5FLL, K5FYJ and KN5QEV. Traffic: W5DRZ 92, K5MBK 73, K5JGZ 65, K5IBZ 56, W5JMQ 51, K5OCX 50, K5AUX 44, K5SWW 40, W5FKL 31, W5MFX 30, K5JOA 24, W5FWW 17, W5KY 17, W5-PNG 13, K5ZEP 11, K5ELG 9, K5OOV 9, K5VNJ 9, K5ZCJ 9, K5FKV 7, W5ICQ 7, K5CWR 6, W5EHC 4, K5HQE 3, K5RWL 3, W5WAF 2.

**SOUTHERN TEXAS**—SCM, Roy K. Eggleston, W5QEM—SEC: W5AIR. Another a.m. man has decided that if he can't whip them to join them. W5BRZ is being heard on the bands using an SN-10 and a DX-100. W5AIR has a booming good signal in South Texas with his new kw. final. It is sure good to hear ex-W5-FCK, formerly from Brownsville, on from 6-Land. Charlie was one of our most active amateurs when he was in this section. It is not too early to start planning for the West Gulf Division in Corpus Christi on Aug. 3-4-5. The committees are really working on it, and it looks like they will come up with a very good convention with some activities for every one. Make your vacation plans now to take this in. W5AQK is the general chairman, with W5HQR as his assistant. Both have been attending West Gulf Division Conventions for more years than they like to admit. The 7290 Traffic Net had 40 sessions, 1408 stations and 631 traffic. There is very little news to report from here, as I have to spend about 5 days a week out of town for approximately 8 weeks, so don't find out too much.

## CANADIAN DIVISION

**MARITIME**—SCM, D. E. Weeks, VE1WB—Asst. SCMs: A.E.W. Street, VE1EK, and H. C. Hillyard, VO1CZ. Winners in the 1962 VE1 Contest are as follows: BY (c.w. section) with 3150 points, runners up were QA and AHL. ABJ (phone section) with 8004 points, runners up were BC and QC. Newly elected officers of the St. Crois Valley Club are KX, pres.; W1-FJP, vice-pres.; ABL, secy.; LT, treas. EK is now a proud grandfather. Congratulations to ABM and his XYL on the arrival of a daughter. YN is active on 50 Mc. with a Heath Sixer. KC qualifies for membership in the Old Timer's Club. JF is spending several months in Mississippi and will be looking for VE1 contacts while "South of the Border." The Loyalist City Club is cele-

*(Continued on page 136)*

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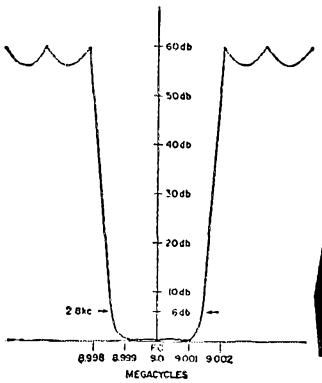
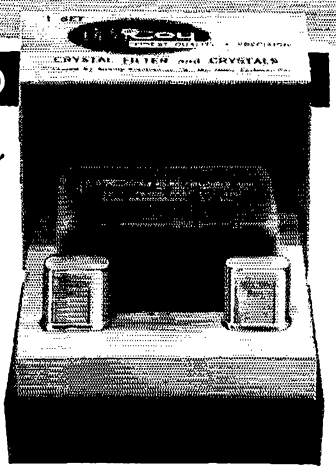
## The GOLDEN GUARDIAN (48B1)

TECHNICAL DATA
Impedance: 640 Ohms in and out (unbalanced to ground)
Unwanted Side Band Rejection: Greater than 55db
Passband Ripple: ± .5db
Shape factor: 6 to 20db 1.15 to 1
Shape factor: 6 to 50db 1.44 to 1
Package Size: 2 7/16" x 1 19/32" x 1"
Price: $42.95 Each

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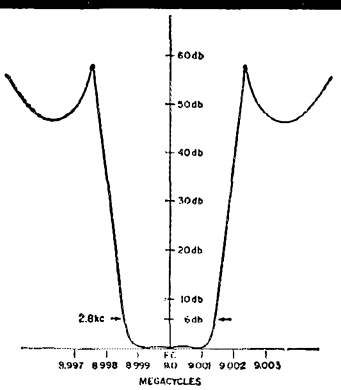


TECHNICAL DATA
Impedance: 560 Ohms in and out
Unwanted Side Band Rejection: Greater than 40db
Passband Ripple: ± .5db
Shape factor: 6 to 20db 1.21 to 1
Shape factor: 6 to 50db 1.56 to 1
Package Size: 1¾" x 1¼" x 1"
Price: $32.95 Each

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brating its Silver Anniversary. Could be the members have a special formula for keeping a club active over a period of 25 years? Congratulations, gentlemen. Time to get those plans laid on and rigs tested for Field Day. Let's make this event the most active one yet. Traffic: VE1DB 6, OM 6, WB 3.

**ONTARIO**—SCM, Richard W. Roberts, VE3NG—The Hamilton ARC is coaching 48 would-be hams. The Scarboro ARC has eleven grads as of Feb. This makes fourteen since Jan. CFR made his first BPL. BRI is on 2 meters. BZT is now at Cloyne. The Westsides ARC is planning FD. The Nortown ARC has moved again and is now located at EMO Hq, North York. TL and BUX have resumed the Swap Club. The Skywide ARC operated the ARRL booth at the Sportsman Show in Toronto. AKL was visitor to the big city. Cornwall has five new hams, thanks to the Seaway Club. CIF was a visitor to Brockville. EWT was heard on 6 meters. CVD is rebuilding. The Windsor ARC has a new crop of AA operators. EBE is s.s.b. now in Toronto. VE2BAY is now in Ottawa. ALC (ex-5NP) was a visitor to St Kitts. CP is on the sick list, as is AAW. The Ottawa Valley mobile gang had a skating party. BOH, CEZ, BCJ, CDG and BST assisted with their mobiles at the Motor Sports Club Ice Races. CSF is now mobile. BLD is on 6 meters. The Metro ARC has a 2-meter project under way. Nets on 75 meters are suffering for an unmodulated carrier most evenings. This eager beaver will be caught one of these days very soon. The OARFI group in Toronto has designed a Canadian ham necktie. Most clubs have received a sample. AYO and CRX are new calls at Toronto Varsity. VD works the West Coast on 40 meters with an 8-ft. whip. BUR is in W4-Land. ARF and his XYL, DVM, are in Arizona for a vacation. The Scarboro ARC had its Annual Dinner in March. Traffic: (Feb.) VE3CYR 228, CFR 222, DPO 182, NG 131, BAQ 93, CKG 78, FAS 65, AML 60, BZB 58, BUR 55, DRF 54, EAM 52, GI 35, LK 35, RN 33, ELQ 18, DH 17, DLC 7, CE 5, VD 4. (Jan.) VE3UOT 6.

**QUEBEC**—SCM, C. W. Skarstedt, VE2DR—ATL has been appointed Asst. SCM which will allow closer relationship with French VE2 hams. ATL greets you: Cordiales salutations à tous les VE2 langue Française. En tant qu'Assistant-SCM, je m'occuperai de faire publier vos rapports d'activités, en Français dans cette colonne. Vos rapports devront être envoyés à ATL, 10355, rue Cartier, app. 6, Montréal 12, Qué. Veuillez communiquer cette nouvelle à tous vos amis. Cette initiative vient de votre SCM, DR. Some 70 hams and XYLs enjoyed the South Shore Club's Annual Dinner and Dance. BFI won the HQ-129X receiver at the MARC election meeting. New officers are TY, pres.; KW, vice-pres.; NB, secy.; HI, treas. BDV, SF, NN, OC, VV and TA are holding down other appointments. 3BOU now signs BEU. Old CK is back in business. G6XL visited Montreal. UN and AKT put on a good TV demonstration. 7BEI, with the RCAF, transferred to Quebec. ATJ was ex-3DWG. Your Asst. SCM reports on the Quebec Club Carneval programme: Le Radio Club de Québec a organisé les 3 et 4 Mars une très intéressante réunion des VE2 à Québec a l'occasion du Carneval. 64 membres environ ont assistés au souper et plus de 100 ont participés aux activités. Le tout a été une réussite parfaite. Plusieurs amateurs ont été décorés de la traditionelle ceinture fléchée. Traffic: VE2DR 133, AGM 53, BG 38, EC 34, CP 12, BDV 6, AZF 2.

**ALBERTA**—SCM, Harry Harrold, VE6TG—SEC: FS, PAM: PV, OO: HM, OBS: HM, OPS: CA, RM: AEN, OESs: DB, HO, ORS: WG, ECs: IU, SS, FK. The Calgary Emergency Corps already has 27 members. You fellows are not helping AEN, our RM, very much. What's the matter, boys? UK is moving and taking up cattle ranching and soon should be heard *saddle horse mobile*. JI is having driver transformer troubles. AAX now is working s.s.b. CO still is rebuilding s.s.b. We now have a Western Canada s.s.b. net on Sun. at 2100 MST on 3797 kc. Check in, boys. AEN and ABE have jr. operators; both have boys. ABV has a very nice fist on c.w. Keep it up, Joyce. WK has gone north to work in the bush for a couple of months. DY is taking his equipment out to start road building. Anyone outside of Alberta making ten contacts with Calgary stations will receive a beautiful certificate. No cards are required; just send your ten station calls to P.O. Box 592, Calgary. SEC FS reports ECs are doing very well. Our OBS sends all Official Bulletins over the air. OESs did not do much during February. AEN now is on phone. Traffic: VE6HM 207, IB 21, CA 20, FS 15, AEN 9, ABE 6, SS 5, TT 4, UH 4, ADZ 3, NF 3, PV 3, AAX 1.

**BRITISH COLUMBIA**—SCM, H. E. Savage, VE7FB—The Old Timers Night will long be remembered as one of the highlights of 1962. Many thanks to BQ and the committee for a job well done. Even 10 meters is being

*(Continued on page 138)*

# LEO SAYS: NO MONEY DOWN!

Leo I. Meyerson
WØGFQ

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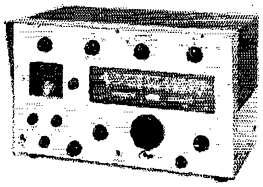

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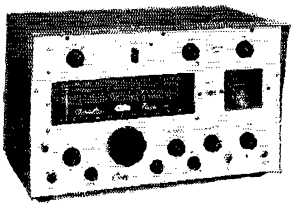
Many other features, let us fill in the details.



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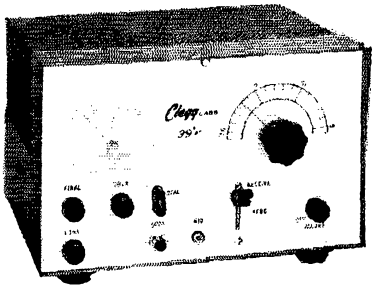

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kind these days and many members of the old 10-meter VE7 gang are appearing. 160-meter activity also is increasing and some nice DX has been recorded. VE2AQQ ex-7TX, is back to stay. BEN is a new call in Chilliwack. AKE now has two jr. operators. JD's son has won the Queen Scout Award. BBB tried hard to make the BPL by originating 81; 19 more, Eva, and you would have made it. Royal City ARA officers are AAA pres.; DZ, vice-pres.; NE, secy. The Boy Scout Jamboree is in high gear with the appointments of VJ as B.C. and Yukon Regional Coordinator and DBR as Vancouver Metro Coordinator. The PROs are AOD and ALE. They are encouraging all amateurs to start working for the 5th International Boy Scout Jamboree and any information or questions can be sent via the BCEN or AREC nets to any of the above executives. The dates are Oct. 19-20-21. The Vancouver Club held its annual auction with many good buys and improved the treasury. I wish to say many thanks to the few clubs that see we get a monthly note. How about your club, please? Traffic: VE7AAF 109, BBB 93, BGE 90, BFK 37, BAZ 20, AMW 17, AOY 3.

**MANITOBA**—SCM, M. S. Watson, VE4JY—New licenses recently were issued by D.O.T. to BC at Manitou, GH at Beausejour, RD at Lynn Lake, KC and LP at Winnipeg. The University station, UM, is again active and participated in the Jan. Science Fair. A Manitoba noon net recently was organized operating a.m. and c.w. at 12:40 CST *on 3760 kc.* Remember the Hamfest at Dauphin Labor Day week end. NW has a new title of Deputy C.D. Coordinator for Flin Flon. EF, pres. of the Manitoba Trustees Assn., is attending the Educational Conference at Montreal. While a citizens' band soon will be authorized there is no Novice band contemplated. Happy to know that HW is well again after his recent illness. Because of other activities AN has resigned as OBS and IW has been appointed in his stead. At the Feb. meeting of the ARLM CX, head of the technical committee, gave an excellent lecture and demonstration of the uses and value of the oscilloscope. A Manitoba DX club has been organized with XO, pres., and OX, secy. IF has offered a $5.00 award for the best technical article submitted to the ARLM *Satellite.* Traffic: VE4EF 28, JY 16, JV 8, KN 8, MN 4, MK 3, AK 2, AN 2, JQ 2, QD 2.

**SASKATCHEWAN**—SCM, Jack Robinson, VE5BL—VE5QSO is the call of the SARL station in Saskatoon so listen for bulletins in regard to the coming hamfest June 30, July 1 and 2. Make your plans now to be in Saskatoon on these dates and take in the fun and a chance at the many contests and prizes. Bring along any piece of old-time radio equipment to add to the display. Don't forget to mention the hamfest over the air to all your contacts. JU and JI report that playing chess over the air while baby-sitting is quite a change from ragchewing and working DX. BL has completed a new shack in the basement and moved the rig in. How about sending some reports, gang, and helping to fill the space allotted to this section. Traffic: VE5LM 72, HP 61, HQ 11, NX 10, RE 6, GC 5, JU 4, PJ 4.

## YL News and Views

*(Continued from page 68)*

write Bernell Johnson, K5GBX, 1822 S.W. 3rd St., Grand Prairie, Texas.

*PORTLAND ROSES* — YL plans for the ARRL National Convention scheduled Labor Day week end at Portland, Oregon, are being prepared by club president Bettie Mayer, K7BED. Mrs. Bernie Bean, XYL of W7VBH, will organize activities for non-licensed women attending the convention.

### *KEEPING UP WITH THE GALS*

*Oscilloscope* is the name of a new newssheet edited by K9YIC, Amy, published monthly primarily for W9 ham interest. . . . Station WHFS in *Washington, D. C. has a* weekly 15-minute program devoted to ham radio. Recently WAYLARC members W4TVT and W3CDQ were heard in interviews. . . . VE7BBB, Eva, relays that OM K6BX has sanctioned the organization by KØRGU, Tillie, of a Certificate Hunter's Club for YLs only. There are at least 25 YLs who are CHCers. . . . Evelyn Scott, W6NZP, recently accepted as a member of the Quarter Century Wireless Association, is the first and only YL in the So. California Chapter of the Association. . . . K6ENL, Aleta, President of the California CHIRPS, the new bride of W6QXJ, was surprised with shower given by her club. . . . The foreign

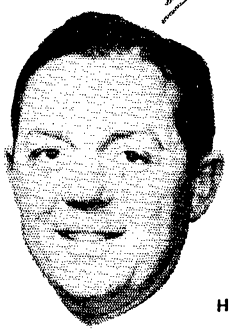
*(Continued on page 140)*

# "CALL ME for Personal Service"

Bob Henry
WØARA
Butler, Mo.
ORchard 9-3127

ON

# "CALL ME for Personal Service"



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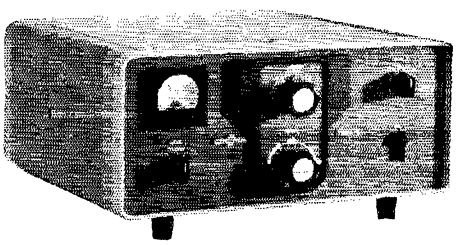

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adoptee of WRONE is Ursula Beurger, DL3LS (12 Fuerberger St., Remscheid, Germany). Ursula is reported to be an interesting and faithful correspondent, and WRONE members are urged to write to her. . . . K1LQZ, Angie, is the new chairman of the New England Barnyard net. . . . New DX YLs heard on 15 are F9WK, Jeanette, DJ4XLC, Lisa; DJ1YL, Renate; 5N2DMS, Doris; 9G1YL, Ruth; DJ6IN, Renate — all are looking for stateside YL contacts. . . . K4RCQ, Elsie, became the 100th member of the Floridora YLC. . . . An interesting article about Dot Saunders, W4UF, research biologist, appeared in two Florida papers recently. Dot's research work, which has as a goal the determination of whether fish and birds are reservoirs of human parasites, earned for her an American Philosophical Society grant, a Fulbright Postdoctoral Research scholarship, and was the subject of seven of her 40 published scientific articles. She has been listed in the new second edition of *Who's Who in American Women* (information from *Florida Skip*).

We are sorry to record the passing of the following YLs — Miriam Fisher Brown, W7JFB, Mukilteo, Washington, Nov. 12, 1961; Beverly Robison, W7HGS, Amity, Oregon, Jan. 10, 1962; Elvena O'Leath, K9WGC, Carthage, Illinois, Feb. 6, 1962. QST

## Simple Wavemeters

(*Continued from page 19*)

lamp will noticeably dim or go out. The setting of the wavemeter dial will show the frequency that the circuit being checked is tuned to.

Still another method of checking is with a light-bulb dummy load on the rig. If a light-bulb load is used, couple the wavemeter to each of the circuits in the rig, checking each one in turn. Any setting of the wavemeter that causes the light-bulb load to dim or change brightness is the setting that the circuit being checked is tuned to.

Always keep in mind in using the wavemeter that you are checking "live" circuits. Be careful not to come in contact with the circuit or you might get a dangerous shock. That is why it is important to use an insulated panel and knob on the units. QST

## Correspondence from Members

(*Continued from page 79*)

### LEASE PROBLEM

¶ . . . I live in a "residential community" owned by the Metropolitan Life Insurance Company and outside antennas of all types are forbidden by the lease. The officials of Parkchester, (the community in which I live) are sending notices to anyone who has a wire leading out from a window to cut down the antenna immediately or suffer the consequences. . . .

I would appreciate hearing from any member of the League who has successfully battled a "no antennas" clause in a lease, especially in a Metropolitan Life community. — *Bill Phelan, WA2KSY, 1480 Parkchester Road, Bronx 62, New York.*

### WORTH ITS WEIGHT . . .

¶ Oftimes, when I read a current issue of *QST* I feel that it isn't what it used to be. In other words, articles that might interest me greatly are not included in the current magazine.

But when I decide I want to read up on amplifiers, or receivers, or transmitters, or anything else under the ham sun, and I begin to read the past issues, I suddenly realize what a wealth of information is packed into each and every issue. Yes sir, *QST* is great in retrospect: it is then I realize that sometimes I harp about *QST* only because my current interest and the current issue don't coincide. — *Joseph M. Hiznay, K2RST, Vestal, N. Y.*

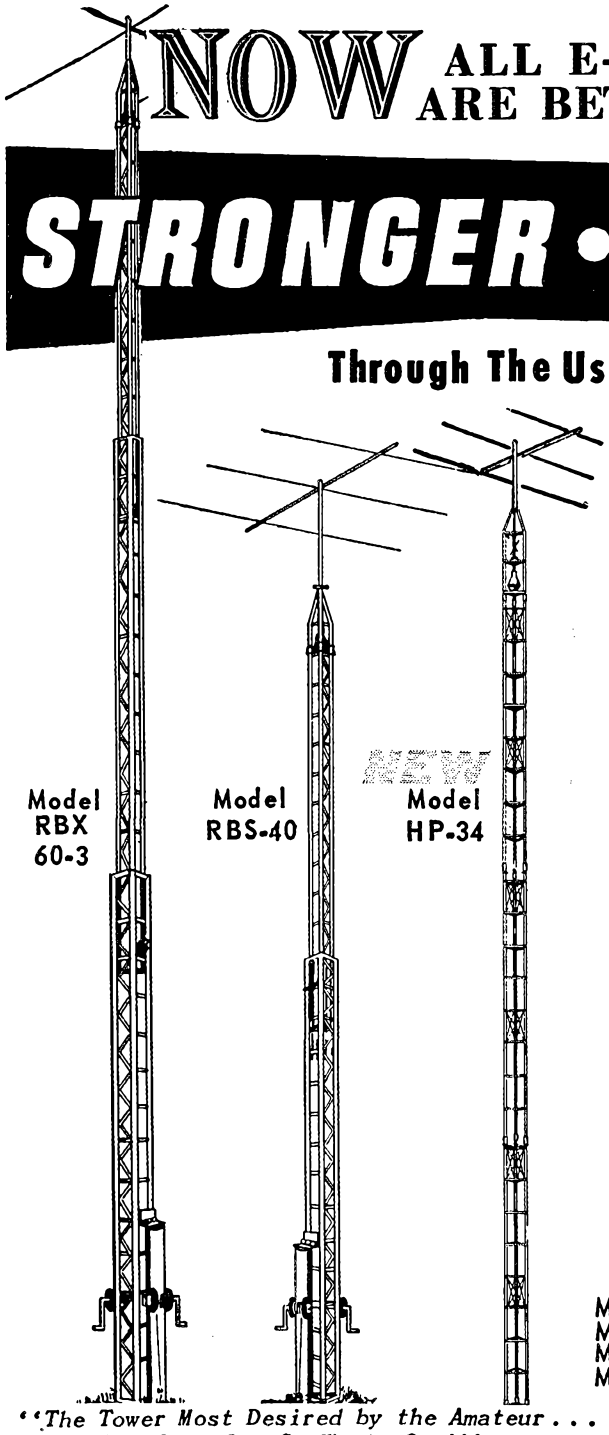
¶ I have been a licensed ham for 23 years now, and when I was first getting interested in "hamming," the first text to

(*Continued on page 142*)

# NOW ALL E-Z WAY TOWERS ARE BETTER THAN EVER!

# STRONGER • LIGHTER

## Through The Use Of 55,000 PSI Steel!




*"The Tower Most Desired by the Amateur . . . He Either Owns One Or Wants One!"*

### Available At HARVEY

Our deluxe line of Crank-up and Tilt-over Towers are now built with 55,000 PSI steel rod and tubing! Now. . . 40% STRONGER and 20% LIGHTER.

*More Value - No Increase In Price!*

### NEW "HP" Economy Series

Here is a low-cost, light-weight, super strong tower made with 55,000 PSI steel. Top quality features include: Hot dipped galvanizing after fabrication, Diagonal bracing, Electric arc welding, and the famous E-Z Way Rotor Head.

Fast, easy erection . . . 10 ft. sections weigh only 29 lbs. Self supporting or building attached models are available in three most desired heights.

| | |
|---|---|
| Model HP-34 | $84.95 |
| Model HP-44 | $101.90 |
| Model HP-54 | $118.85 |

Complete with Rotor Head and Mounting Kit for self supporter or building attached.

| | |
|---|---|
| Model RBS-40P | $169.50 |
| Model RBS-40G | $209.50 |
| Model RBX-60-3P | $335.00 |
| Model RBX-60-3G | $410.00 |

**MOUNTING KITS**

| | |
|---|---|
| Model GPK-S40 Ground Post | $75.00 |
| Model BAK-S40 Wall Bracket | $10.50 |
| Model GPK-X60-3 Ground Post | $125.00 |
| Model BAK-X60-3 Wall Bracket | $17.00 |

hrc **HARVEY** ESTABLISHED 1927 **RADIO CO., INC.**

103 West 43rd Street, New York 36, N. Y./JUdson 2-1500

which I was referred was *QST*. I was an avid fan then, and still have all those old issues. Since that time, several new ham magazines have come, and a couple have gone, and I have even left the active ranks and returned several times. But *QST* has remained, stable and stalwart through all the world's upheavals. Each time as I renew my interest, I come back to *QST*, and find that the format is basically the same, the features still in familiar places, and many of the names still present.

It is a great comfort to return to an "old friend" and know that things are still where they were. Plaudits to *QST*, reliable, undaunted and ubiquitous. I hope to be reading you when you have completed another forty years. — *Robert S. Houston, K2SRT/KS4, Swan Island, West Indies.*

## QRV ON 10 METERS

¶ It seems to me, now that 10 meters isn't open much, there should be more interest on 10 meter ground-wave. Why put the load on 75 meters and try to make across town QSOs through all the QRM? . . . — *Bob Claycomb, K9FIC, Cumberland, Indiana.*

## HAM CLASS

¶ The study class for the Boys Centre has been very successful this winter. A class of from ten to fifteen boys (from twelve to sixteen years of age) have been attending with surprising regularity. It is expected that there will be seven or eight of them ready for their amateur grade certificates early in the summer.

Your suggestions and literature contributed greatly to the success of this class, and I wish to convey the sincere thanks of the boys and their parents for your kind and thoughtful assistance.

In my 30-odd years of membership with the A.R.R.L. I have always been pleasantly surprised and pleased with the attention and assistance offered. — *Howard A. Walker, ex-VE5BN, Edson, Alberta, Canada.*

# Technical Correspondence

(*Continued from page 49*)

The calculated signal-to-noise power ratio using:

$P_T$ — 400 watts
$K$ = 3 db./100 ft.
$l$ = 100 ft.
$\lambda$ = 6 meters
$G_R$ = 64
$G_T$ = 64
$F$ = 2
$B$ = 20

gives $\left(\frac{S}{N}\right)$ = 1:1.

A possible explanation for lack of consistent (although weak) echoes may be that the image antenna produced by ground reflection (assumed perfect for sake of argument) is causing cancellation and reinforcement[3] of the circularly polarized radiation in such a manner that alternate zones of radiation are produced where the polarization changes from being completely vertical to being completely horizontal. When the moon is in a zone where the radiation is predominantly linearly polarized, Faraday rotation may cause loss of signal, when transmitting with circular polarization.

A comparative test between VE3BZS/2 and another local station, with distant stations using horizontally polarized antennas, gave signals several db. lower than expected. Probably this was due, in part at least, to ground reflection producing predominantly vertically polarized radiation at low angles, when using circular polarization at VE3BZS/2.

The results of these 50-Mc. tests seem to show that 50 Mc. is not too practical under present conditions for amateur moonbounce work. Also circularly polarized antennas may suffer a loss in efficiency under conditions of good ground reflection in combating Faraday-rotation effects.

The narrow-band methods used in the receiver and transmitter should be adaptable for use on higher frequency amateur bands to allow use of existing equipment with little modification and cost. — *Alan Goodacre, VE3BZS*

[3] *The A.R.R.L. Antenna Book*, pp. 46–48.

# *Your Ham Headquarters — WASHINGTON to FLORIDA*

**SPECIALIZING IN THE BEST AT EASY TERMS**
**HIGH TRADES AND LOW DOWN PAYMENTS**
**WRITE FOR DETAILS OF OUR TIME PAYMENT PLAN**

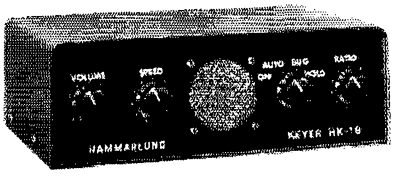
## *general coverage...*

## *IN A CLASS BY ITSELF!*

## HAMMARLUND HQ-180

A superb 18-tube superheterodyne that offers professional performance in every mode of reception from 0.54 to 30 MCS. This is the receiver that has been judged the quality standard of the industry and the outstanding performer in SSB, AM and CW. Packed with features for every operational trick in the book!

only **$429.00**
24 hour clock-timer $10 optional




## *"Personal Touch"* ELECTRONIC KEYER HK-1B

- All transistorized. Self contained battery supply.
- Instantly adjustable speed range.
- Sidetone signal with adjustable volume for monitoring or code practice.
- Only 7" wide, 4½" deep and 2⅜" high.

Half the price—twice the value. Fully comparable to keyers costing twice as much. Individual dot/dash control, automatic, semi-automatic (bug) or straight key operation.

only **$39.95**
less battery

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**DALTON-HEGE, INC.**
938 BURKE ST., WINSTON-SALEM, N.C. • Phone PArk 5-8711

# Sweepstakes Results

*(Continued from page 88)*

| | | | |
|---|---|---|---|
| K3DUW | 645- | 108- | 2-A-28 |
| K3MNT | 578- | 18-11- | A- 3 |
| W3DJW | 561- | 17-11- | A- 2 |
| K3QDU | 540- | 60- | 3-A-15 |
| K3NCC | 504- | 24- | 7-A- – |
| W3BRU | 387- | 42- | 3-A-15 |
| K3LBM | 360- | 14-10- | A- 4 |
| W3JLI | 234- | 13- | 6-A- 2 |
| K3KYK | 210- | 35- | 2-A- 3 |
| W3NHX | 144- | 8- | 6-A- 1 |
| K3DEV | 108- | 20-20- | A- 2 |
| W3FWC | 75- | 25- | 1-A- 3 |
| W3NTD | 72- | 8- | 3-A- 1 |
| W3BUR | 60- | 5- | 4-A- 1 |
| K3OUP | 48- | 8- | 2-A- 1 |
| K3IPK | 24- | 4- | 2-A- – |
| W3ZXV | 18- | 6- | 1-A- 1 |
| K3BUZ | 6- | 2- | 1-A- 1 |
| W3MKA (4 oprs.) | 11,057- | 137- | 27-A- – |
| W3CMD (2 oprs.) | 4554- | 66- | 23-A-13 |
| K3JSJ (K3JSJ, W3IVQ) | 1122- | 34- | 11-A- 8 |

*Md.-Del.-D. C.*

| | | | |
|---|---|---|---|
| W3ZKH | 87,435- | 435- | 67-A-40 |
| W3MSK | 32,277- | 203- | 53-A-25 |
| W3AYD | 7410- | 65- | 38-A-11 |
| K3OKJ | 4350- | 52- | 29-A-12 |
| K3MTC | 2310- | 39- | 20-A-15 |
| W3TMZ | 1632- | 34- | 24-B- 1 |
| WØBPO/3 | 27- | 9- | 1-A- 2 |

*Southern New Jersey*

| | | | |
|---|---|---|---|
| WA2NEO | 27,989- | 199- | 47-A-33 |
| W2BLV | 22,344- | 152- | 49-A- – |
| W2QKJ | 14,433- | 143- | 51-B-28 |
| W2LBX | 12,474- | 95- | 44-A-21 |
| WA2IEK | 8022- | 97- | 28-A-11 |
| WA2UYC | 3978- | 51- | 26-A-30 |
| WA2GSO** | 3300- | 110- | 10-A-13 |
| W2EIF | 3042- | 169- | 9-B-18 |
| WA2EIY | 2772- | 42- | 22-A- 5 |
| WA2EMB | 2400- | 100- | 8-A-13 |
| W2OSD | 1647- | 61- | 9-A-15 |
| K2MKD | 1512- | 42- | 12-A- 7 |
| WA2GJE | 1491- | 71- | 7-A- 8 |
| WA2KRX | 1260- | 85- | 5-A-12 |
| K2SQM | 966- | 46- | 7-A- 8 |
| K2OHM | 792- | 66- | 4-A-11 |
| WA2ONB | 720- | 48- | 5-A- – |
| W2REB | 690- | 46- | 5-A- 3 |
| WA2KWO | 624- | 52- | 4-A-11 |
| WA2OCR | 459- | 17- | 9-A- 3 |
| WA2HSP | 420- | 14- | 10-A- 1 |
| K2HBY | 120- | 20- | 2-A- 2 |

*Western New York*

| | | | |
|---|---|---|---|
| K2GXI | 129,824- | 613- | 71-A-40 |
| W2VDX | 37,422- | 231- | 54-A-25 |
| WA2FUE | 2200- | 44- | 25-B-29 |
| W2AMY | 2109- | 37- | 19-A-19 |
| WA2PQG | 1836- | 52- | 12-A-20 |
| WA2KIZ | 1683- | 34- | 17-A- 8 |
| WA2FYH | 222- | 38- | 2-A-21 |
| K2ZSE | 162- | 9- | 6-A- 2 |
| K2TXG | 99- | 33- | 1-A-33 |
| W2PFA | 96- | 18- | 2-A- 4 |
| W2LBO | 90- | 30- | 1-A- – |
| W2PED | 75- | 25- | 1-A-13 |
| WA2OXJ/2 | 51- | 17- | 1-A- 2 |
| W2PJO | 36- | 12- | 1-A- 3 |
| W2IYB | 3- | 1- | 1-A- 1 |

*Western Pennsylvania*

| | | | |
|---|---|---|---|
| K3AHY | 28,440- | 198- | 48-A-34 |
| K3BLG | 3465- | 55- | 21-A-19 |
| W3SAY | 3300- | 55- | 20-A-11 |
| K3GHK | 2988- | 42- | 24-A-13 |
| K3LYK | 273- | 13- | 7-A- 4 |
| K3AKR | 138- | 23- | 2-A-24 |
| K3POG | 126- | 21- | 2-A-22 |
| W3KJM | 108- | 18- | 2-A- 2 |
| W3CPN/3 | 45- | 15- | 1-A- 3 |
| K3LVO | 42- | 14- | 1-A- 5 |
| W3EWX | 39- | 13- | 1-A- 2 |
| W3HCN | 39- | 13- | 1-A- 2 |
| K3LVA | 30- | 10- | 1-A- 2 |
| W3IRT/3 | 18- | 6- | 1-A- 1 |
| W3RNH | 18- | 6- | 1-A- 1 |
| K3LUX | 12- | 4- | 1-A- 1 |
| W3SYY | 12- | 4- | 1-A- 1 |
| W3SLX (W3s SLX WLF) | 183- | 31- | 2-A-14 |
| K3QBM/3 (K3s BWI QBM) | 36- | 12- | 1-A- 6 |

## CENTRAL DIVISION

*Illinois*

| | | | |
|---|---|---|---|
| W9NZM | 87,840- | 407- | 72-A-35 |
| W9QXO | 55,590- | 275- | 68-A-33 |
| W9RHV | 48,296- | 253- | 61-A-39 |
| W9PNE | 35,280- | 203- | 60-A-23 |
| W9GQY | 32,516- | 205- | 53-A-30 |
| W9KLD | 27,972- | 224- | 63-B-16 |
| K9LRK | 26,496- | 188- | 48-A-28 |
| K9TKY | 24,888- | 204- | 61-B-33 |
| W9PNY | 23,556- | 151- | 52-A-31 |
| K9KHZ | 8856- | 82- | 36-A-13 |
| W9CRN | 8493- | 75- | 38-A-14 |
| W9JJT | 7874- | 91- | 29-A-16 |

| | | | |
|---|---|---|---|
| K9ZBY | 7626- | 94- | 41-B-11 |
| K9TBA | 6804- | 81- | 28-A-13 |
| K9PQI | 3384- | 47- | 24-A- – |
| K9UZX | 3347- | 50- | 23-A-17 |
| K9UIT | 2599- | 48- | 15-A- 2 |
| W9IVG | 1976- | 38- | 26-B- 3 |
| K9VJS | 1710- | 38- | 15-A-18 |
| K9WMU | 1701- | 32- | 18-A- 4 |
| K9CBT | 1560- | 40- | 13-A-11 |
| W9EDY | 1428- | 28- | 17-A- 4 |
| K9TXN | 1365- | 36- | 14-A- 7 |
| K9ZSY | 1080- | 30- | 12-A- 4 |
| K9M8D | 975- | 25- | 13-A- 8 |
| K9IYV | 96- | 8- | 4-A- 2 |
| KN9EIV | 48- | 8- | 2-A- 2 |
| K9ISP | 18- | 3- | 2-A- 1 |
| W9TLC | 9- | 3- | 1-A- 1 |
| K9VON (K9s RXD VON) | 29,892- | 214- | 47-A-30 |
| W9EJX (5 oprs.) | 1848- | 44- | 21-B- 7 |

*Indiana*

| | | | |
|---|---|---|---|
| K9PNV | 61,560- | 320- | 64-A-35 |
| W9LKI | 25,938- | 198- | 44-A-32 |
| W9EPI | 20,592- | 143- | 48-A-28 |
| K9ATY/9 | 648- | 19- | 12-A- 6 |
| K9UKM | 84- | 7- | 4-A- 1 |

*Wisconsin*

| | | | |
|---|---|---|---|
| K9HOL | 66,240- | 460- | 72-B-32 |
| W9VZP | 57,339- | 277- | 69-A-35 |
| W9NUW² | 47,214- | 260- | 61-A-19 |
| W4VRD/9 | 29,574- | 186- | 53-A-35 |
| K9CLZ | 22,032- | 147- | 51-A-22 |
| K9MTM | 12,691- | 130- | 49-B-20 |
| W9GIL | 7560- | 70- | 36-A- – |
| K9VYM | 6825- | 65- | 35-A-10 |
| W9VSO | 3111- | 61- | 17-A- 2 |
| K9QHR | 2907- | 57- | 17-A- 8 |
| W9VCM | 360- | 12- | 10-A- – |
| K9VER | 171- | 11- | 6-A- 1 |
| W9DYC | 126- | 7- | 6-A- 5 |
| W9PBB/9 | 96- | 8- | 6-B- 1 |
| W9DOS | 90- | 6- | 5-A- 1 |
| K9ELT | 18- | 3- | 3-B- 1 |
| W9GRF | 3- | 1- | 1-A- 1 |
| W9HHX (12 oprs.) | 52,932- | 401- | 66-B-36 |
| W9YT (7 oprs.) | 43,428- | 329- | 66-B-29 |

## DAKOTA DIVISION

*North Dakota*

| | | | |
|---|---|---|---|
| KØVWG | 18,450- | 123- | 50-A-26 |
| WØCGM | 3069- | 50- | 31-B- 7 |
| KØRSA | 66- | 6- | 4-A- 1 |
| WØHSC (6 oprs.) | 32,234- | 191- | 57-A-21 |
| WØJME (9 oprs.) | 18,423- | 135- | 46-A-22 |

*South Dakota*

| | | | |
|---|---|---|---|
| WØPRZ | 87,162- | 600- | 73-B-35 |
| KØWEM | 35,154- | 279- | 63-B-21 |
| KØYVC | 31,620- | 255- | 62-B-18 |
| KØWEN | 6160- | 88- | 35-B- 3 |

*Minnesota*

| | | | |
|---|---|---|---|
| KØVIG/Ø | 864- | 33- | 9-A-13 |
| KØAYU | 12- | 2- | 2-A- 1 |
| KØQQS (KØs QQS QVF) | 30,276- | 176- | 58-A-31 |
| WØYC (KØUXQ, WØs QDZ VII) | 3822- | 49- | 28-A-11 |

## DELTA DIVISION

*Arkansas*

| | | | |
|---|---|---|---|
| K5ALU | 109,935- | 531- | 70-A-39 |
| K5USE | 1740- | 29- | 20-A- 1 |

*Louisiana*

| | | | |
|---|---|---|---|
| W5KC | 134,784- | 625- | 72-A-38 |
| K5QXR | 69,546- | 352- | 67-A-34 |
| K5KLA | 62,037- | 339- | 61-A-25 |
| K5MOJ | 60,171- | 335- | 62-A-18 |
| K5WTL | 43,648- | 344- | 64-B-21 |
| K5UNP | 5760- | 64- | 30-A-10 |
| W5HWB | 3738- | 86- | 14-A-16 |
| K5CDC | 3318- | 80- | 14-A-17 |
| W5LDH | 912- | 19- | 16-A- 2 |
| W5QPS | 819- | 20- | 14-A- 2 |
| W5MXQ | 3- | 1- | 1-A- – |
| K5QXV (K5s QXV TKT) | 36,366- | 209- | 58-A-26 |

*Mississippi*

| | | | |
|---|---|---|---|
| K5MDX | 131,958- | 603- | 73-A-16 |
| K5VAN | 7898- | 68- | 39-A-10 |

*Tennessee*

| | | | |
|---|---|---|---|
| K4LPW | 130,782- | 614- | 71-A-35 |
| K4CVQ | 22,248- | 155- | 48-A-14 |
| W4OGQ | 2730- | 46- | 20-A- 5 |
| K4ZIN | 2343- | 36- | 22-A- 8 |

## GREAT LAKES DIVISION

*Kentucky*

| | | | |
|---|---|---|---|
| W4SFN | 34,161- | 194- | 59-A-32 |
| K4RZK | 11,808- | 96- | 41A-26- |

*(Continued on page 146)*


In this World-famous

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## YOU GET MORE FOR YOUR MONEY—ALL-WAYS!

**No matter what equipment or model you want, it's a safe bet you'll find it here . . . and for less than you would expect to pay for such good condition gear.**

Here, in the world's greatest trading center you always get more real value for your money. Here, at Harrison's, you can save with complete safety because every piece is plainly green-tagged, fully covered by our 90 day Warranty of free service in our Lab.

**What's more, if you are not delighted with your purchase, you can:**

- **A** Get full credit toward any new equipment for 90 days.
- **B** Get full credit toward other used equipment within 30 days.
- **C** Ship it back for full cash refund within 15 days.

**You can spread payments up to 18 MONTHS, on our EASIEST TERMS.**

**Because we have such brisk turnover, we can give you TOP ALLOWANCE for your present gear!**

TNX 73

*Bil Harrison*

W2AVA

**VISIT THE NEW HARRISON**
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**IN BOTH GREAT STORES**
**8:30 to 6:15—*Saturdays, too***
**EASY PARKING**

## For example . . .

here are just a few of the many "real gone" bargains in "hot" receivers, and transmitters that are "cool," man!

### TRANSMITTERS

| | |
|---|---|
| **B&W** | |
| 5100 | $199.00 |
| 5100-B | 249.00 |
| **CENTRAL** | |
| 20-A | 159.00 |
| 600-L | 269.00 |
| **COLLINS** | |
| 30S-1 | 995.00 |
| 312B-2 | 79.00 |
| 32S-1 | 499.00 |
| 32V-3 | 299.00 |
| KWM-1 | 495.00 |
| KWM-2 | 869.00 |
| KWS-1 | 995.00 |
| **ELMAC** | |
| A54 | 49.95 |
| A54-H | 54.95 |
| AF67 | 99.50 |
| **GONSET** | |
| G-50 | 209.00 |
| G-76 | 285.00 |
| GSB-100 | 299.00 |
| **COMMUNICATORS** | |
| II-2M | 139.00 |
| III-2M | 189.00 |
| II-6M | 139.00 |
| III-6M | 189.00 |
| **HALLICRAFTERS** | |
| HT-32 | $369.00 |
| HT-32A | 475.00 |
| HT-32B | 545.00 |
| HT-33 | 295.00 |
| HT-33A | 425.00 |
| HT-37 | 369.00 |
| HT-40 | 79.95 |
| **HEATH** | |
| DX-35 | 39.00 |
| DX-40 | 69.00 |
| DX-100 | 159.00 |
| MT-1 | 99.00 |
| TX-1 | 229.00 |

| | |
|---|---|
| **JOHNSON** | |
| Challenger | 89.00 |
| Navigator | 119.00 |
| Pacemaker | 219.00 |
| Ranger | 189.00 |
| Thunderbolt | 379.00 |
| Valiant | 329.00 |
| Viking II | 149.00 |
| 500 | 495.00 |
| **WRL—GLOBE** | |
| Chief 90 DEL | 59.00 |
| Scout Deluxe | 119.00 |

### RECEIVERS

| | |
|---|---|
| **COLLINS** | |
| 351D-1 | $ 29.50 |
| 51J-4 | 995.00 |
| 75A-1 | 199.00 |
| 75A-2 | 259.00 |
| 75A-3 | 329.00 |
| 75A-4 | 545.00 |
| 75S-1 | 389.00 |
| KWM-1 | 495.00 |
| KWM-2 | 869.00 |
| **DRAKE** | |
| 1A | 179.00 |
| 2A | 199.00 |

| | |
|---|---|
| **HALLICRAFTERS** | |
| S-85 | 79.00 |
| SX-62 | 199.00 |
| SX-71 | 119.00 |
| SX-96 | 149.00 |
| SX-99 | 99.00 |
| SX-100 | 179.00 |
| SX-101 | 229.00 |
| SX-101A | 299.00 |
| SX-110 | 119.00 |
| SX-111 | 189.00 |
| SX-140 | 89.00 |
| **HAMMARLUND** | |
| HQ-100 | 129.00 |
| HQ-110 | 169.00 |
| HQ-129X | 119.00 |
| HQ-140X | 159.00 |
| HQ-145 | 199.00 |
| **NATIONAL** | |
| HRO-50T1 | 229.00 |
| HRO-60 | 329.00 |
| NC-98 | 99.00 |
| NC-109 | 129.00 |
| NC-173 | 129.00 |
| NC-183D | 199.00 |
| NC-300 | 229.00 |
| **R.M.E.** | |
| DB-23 | 35.00 |
| VHF-126 | 195.00 |

**They move fast** (but more come in almost every day), so send $5.00 right away, and state your **second choice**, please! This small deposit (*returnable any time you say*) will enable us to hold the equipment for you while arranging terms, trade-in.

You make your final decision only when you come in and see it, or you tell us OK to ship.

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**NEW YORK 7, N. Y.**
**• PHONE: BARCLAY 7-7777**
**[LONG ISLAND—144-24 HILLSIDE, JAMAICA]**

| | | | |
|---|---|---|---|
| W4VWU | 5346- | 54-33-A-10 | |
| *Michigan* | | | |
| W8AEI | 32,928- | 224-49-A-38 | |
| W8FWG | 24,180- | 155-52-A-29 | |
| W8YFE | 24,180- | 195-62-B-26 | |
| K8GFC | 22,890- | 152-50-A-35 | |
| K8CHS | 8190- | 98-28-A-22 | |
| K8MSF | 5880- | 56-35-A- 6 | |
| K8LZF | 3750- | 50-25-A-11 | |
| K8AVB | 1560- | 26-20-A- 9 | |
| W8DM | 920- | 23-20-A- 3 | |
| W8BNF | 703- | 16-15-A- – | |
| K8BEB | 527- | 20- 9-A- 6 | |
| K8SFZ | 510- | 17-10-A- – | |
| K8ROD | 120- | 8- 5-A- 6 | |
| *Ohio* | | | |
| K8NPD | 77,610- | 405-65-A-30 | |
| W8AJW | 72,666- | 369-66-A-31 | |
| W8HQK | 55,377- | 294-63-A-38 | |
| K8NPH/8 | 54,090- | 303-60-A-30 | |
| K8AAG | 50,841- | 269-63-A-30 | |
| W8KZH | 37,968- | 226-56-A-38 | |
| K8MZT | 31,494- | 272-58-B-30 | |
| K8OZJ | 31,236- | 274-57-B-37 | |
| W8ODJ/8[6] | 29,946- | 161-62-A- 9 | |
| W8IKM | 16,215- | 115-47-A-15 | |
| K8YCM | 10,863- | 109-34-A-11 | |
| W8NCV | 10,530- | 135-39-B-24 | |
| W8BVE | 9828- | 117-42-B-12 | |
| K8MMM | 9184- | 174-28-B- – | |
| W8KXP | 9120- | 95-32-A-17 | |
| W8QBJ | 6724- | 83-41-B-14 | |
| W8KCK | 6392- | 68-47-B-11 | |
| K8ZPK | 4095- | 65-21-A-11 | |
| W8IJZ | 3456- | 64-27-B-12 | |
| K8KCD | 2867- | 46-21-A-13 | |
| K8K8N | 2850- | 50-19-A- 9 | |
| W8BFH | 2646- | 42-21-A- 7 | |
| K8EML | 2280- | 38-20-A-12 | |
| W8BIM | 2244- | 34-22-A- – | |
| W8TLT | 2214- | 41-18-A- 6 | |
| W8TWZ | 1848- | 42-22-B-10 | |
| W8YAB | 1815- | 55-11-A-29 | |
| W8SJU | 1566- | 29-18-A- 6 | |
| K8UQA | 1524- | 127- 4-A-11 | |
| K8SPU | 1395- | 31-15-A- – | |
| K8YUK | 1269- | 141- 3-A-23 | |
| W8QYV | 954- | 53- 6-A- 9 | |
| W8IY | 832- | 26-16-B- 3 | |
| W8NAL | 525- | 35- 5-A- 7 | |
| K8HTM | 504- | 21- 8-A- 4 | |
| W8IMF | 432- | 16- 9-A- 5 | |
| W8FSM | 324- | 27- 4-A- 7 | |
| K8ASW | 306- | 17- 6-A- 2 | |
| K8EBF | 243- | 9- 9-A- 2 | |
| K8YLK | 240- | 16- 5-A- 6 | |
| K8CFH | 216- | 12- 6-A- 1 | |
| K8JZN | 216- | 18- 4-A- 4 | |
| K8UTD | 174- | 29- 2-A- 4 | |
| W8ACQ | 126- | 7- 6-A- – | |
| K8DWQ | 84- | 7- 4-A- 1 | |
| W8DOG | 48- | 4- 4-A- 3 | |
| W8RZG | 30- | 5- 3-B- 2 | |
| W8CZM | 21- | 7- 1-A- 1 | |
| W8BAA/8 | 6- | 2- 1-A- 2 | |
| K8PVU/8 (8 oprs.) | 6816- | 71-32-A-15 | |
| K8WBL (7 oprs.) | 5220- | 58-30-A-11 | |
| K8BUN (2 oprs.) | 1071- | 26-14-A- 6 | |

## HUDSON DIVISION

*Eastern New York*

| | | | |
|---|---|---|---|
| WA2OCW | 3744- | 48-26-A- 7 | |
| WA2LPF (WA2s EKH HZS LPF) | 55,521- | 301-62-A- – | |
| WA2PPE (WA2s OMO PPE) | 288- | 12- 8-A- 1 | |
| *N. Y. C.-L. I.* | | | |
| K2TAP | 87,750- | 460-65-A-35 | |
| WA2FFV | 34,821- | 224-53-A-26 | |
| W2LYW | 26,015- | 185-47-A-36 | |
| W2QFN | 25,452- | 203-42-A-21 | |
| WA2LXB | 20,586- | 147-47-A-20 | |
| W2KOY | 18,963- | 157-43-A-17 | |
| K2MSY | 17,028- | 132-43-A-27 | |
| W2MGV | 14,391- | 123-39-A-30 | |
| W2TUK | 10,908- | 101-36-A- 6 | |
| W2JFU | 10,500- | 100-35-A-21 | |
| K2HQR | 9690- | 85-38-A-12 | |
| W2JGQ | 8736- | 91-32-A-15 | |
| WA2FBC | 7740- | 86-30-A-12 | |
| W2OQI | 5952- | 93-32-A-36 | |
| K2RYI | 5913- | 74-27-A- 8 | |
| K2TAQ | 5766- | 82-31-A-12 | |
| WA2GLU | 5100- | 70-25-A-10 | |
| WA2MXZ | 3209- | 47-27-A- 6 | |
| WA2QMC | 2821- | 50-16-A- – | |
| WA2RSB | 2808- | 52-18-A-12 | |
| W2OME | 1512- | 28-18-A-16 | |
| WA2QEB | 1440- | 36-15-A-20 | |
| WA2AP | 1275- | 25-17-A- 6 | |
| W2FEI | 1092- | 28-13-A-24 | |
| WA2CZG | 1092- | 26-14-A- 2 | |
| WA2BEI | 1044- | 29-12-A- – | |
| K2CTK | 750- | 25-10-A- 3 | |
| K2JWT | 750- | 50- 5-A-10 | |
| W2JTZ[8] | 450- | 23-10-B- 3 | |
| WA2HRX | 384- | 16- 8-A- 3 | |
| WA2EER | 378- | 21- 6-A- 3 | |
| WA2TAQ | 330- | 11-10-A- 3 | |
| K2OGJ | 324- | 18- 6-A- 6 | |
| WA2ITR | 240- | 16- 5-A- 4 | |
| K2VBJ | 198- | 11- 6-A- – | |
| WA2NXO | 168- | 14- 4-A- 2 | |
| WA2IUQ | 140- | 16- 3-A-12 | |
| K2OGJ | 324- | 18- 6-A- 6 | |
| WA2KCM | 60- | 5- 4-A- 1 | |
| K2AAP | 50- | 6- 3-A- 2 | |
| K2LOT | 24- | 8- 1-A- – | |
| WA2DSR | 21- | 7- 1-A- – | |
| WA2PQV | 21- | 7- 1-A- – | |
| WA2PEK | 15- | 5- 1-A- 4 | |
| W2KLS | 12- | 4- 1-A- 5 | |
| WA2PJL | 12- | 2- 2-A- 1 | |
| K2JOG | 3- | 1- 1-A- 1 | |
| K2JOK | 3- | 1- 1-A- 1 | |
| WA2BWO | 3- | 1- 1-A- 1 | |
| WA2IHC (WA2s IHC KIM) | 43,407- | 348-62-B-40 | |
| W2CLE/2 (WA2s BWQ PZG) | 531- | 59- 3-A-12 | |
| WA2SEM (2 oprs.) | 36- | 6- 2-A- 1 | |
| *Northern New Jersey* | | | |
| W2JKH | 56,916- | 308-62-A-20 | |
| W2PEV | 31,668- | 183-58-A-33 | |
| WA2PWI | 1494- | 83- 6-A-11 | |
| WA2QPV | 216- | 24- 3-A- 7 | |
| WA2MYB | 180- | 15- 4-A- 4 | |
| WA2LBP | 162- | 18- 3-A- 4 | |
| WV2ROF | 8- | 2- 1-A- 5 | |

## MIDWEST DIVISION

*Iowa*

| | | | |
|---|---|---|---|
| WØMLY | 156,366- | 714-73-A-32 | |
| WØAXE | 102,027- | 482-71-A-35 | |
| KØAAR | 22,752- | 160-48-A-39 | |
| WØSQN | 13,080- | 109-40-A- 8 | |
| KØMMS | 12,600- | 100-42-A-14 | |
| KØZLN | 11,583- | 100-39-A-10 | |
| KØEXN/Ø | 4830- | 70-23-A-11 | |
| WØEMI | 4130- | 59-35-B-13 | |
| KØSLY | 3825- | 51-25-A- 6 | |
| KØMMQ | 1632- | 34-16-A- 8 | |
| WØBVR | 1102- | 29-19-B-12 | |
| KØVND | 864- | 24-12-A- 3 | |
| KØPLH | 570- | 19-10-A-10 | |
| KØJFZ | 228- | 19- 4-A- 8 | |
| KØGVC | 63- | 7- 3-A- 3 | |
| WØSDV | 36- | 6- 2-A- 2 | |
| WØJAQ | 6- | 2- 1-A- 1 | |
| KØDYC | 3- | 1- 1-A- 1 | |
| WØMHC (KØIIL, WØMHC) | 27,750- | 185-50-A-25 | |
| *Missouri* | | | |
| KØLTK | 64,019- | 319-67-A-38 | |
| KØUWZ | 62,790- | 337-65-A-38 | |
| KØZHY | 29,677- | 252-59-B-24 | |
| KØFZT | 17,221- | 135-43-A-16 | |
| WØFLN[4] | 726- | 22-11-A- 1 | |
| KØOCB/Ø | 180- | 10- 6-A-12 | |
| KØJPL | 60- | 6- 5-B- 1 | |
| WØENR/Ø (4 oprs.) | 47,439- | 252-63-A- – | |
| KØWKZ (3 oprs.) | 10,692- | 106-36-A-21 | |
| WØQEV (4 oprs.) | 2952- | 41-24-A- – | |
| *Nebraska* | | | |
| WØJDJ/Ø | 31,992- | 263-62-B-23 | |
| KØQII/Ø | 120- | 10- 4-A- 5 | |
| KØFBD (6 oprs.) | 38,060- | 351-55-B-39 | |
| KØSIC (KØSIC, WØFBY) | 22,207- | 211-53-B-37 | |

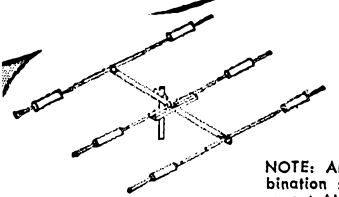
## NEW ENGLAND DIVISION

*Connecticut*

| | | | |
|---|---|---|---|
| K1PNS | 16,610- | 152-55-B-29 | |
| K1ANV | 11,400- | 100-38-A-10 | |
| W1AW[5,6] | 5320- | 70-38-A- 3 | |
| K1QBG | 135- | 15- 3-A- 6 | |
| K1JGK | 105- | 7- 5-A- 1 | |
| *Maine* | | | |
| W1DIS | 11,638- | 128-46-B-11 | |
| *Eastern Massachusetts* | | | |
| W1HKK[7] | 108,953- | 500-73-A-37 | |
| W1BOD | 24,302- | 210-58-A-20 | |
| K1LXQ | 8712- | 88-33-A-19 | |
| W1TRC (K1GSK, W1TRC) | 46,800- | 309-52-A-40 | |
| *Western Massachusetts* | | | |
| W1DXS | 5436- | 76-24-A- 8 | |
| K1JQT | 306- | 34- 3-A-14 | |
| *New Hampshire* | | | |
| K1RTB | 40,256- | 323-64-B-33 | |
| W1ET[8] | 32,630- | 251-65-B-20 | |
| K1DFO | 29,399- | 211-47-A-20 | |
| K1JJL | 14,160- | 120-40-A-24 | |
| W1WCR | 13,940- | 172-41-B-23 | |
| K1PIA | 105- | 7- 5-A- 1 | |
| K1NQH | 96- | 8- 4-A- 1 | |
| *Rhode Island* | | | |
| K1TXK | 578- | 18-11-A- 8 | |
| W1HIK | 168- | 8- 7-A- 2 | |
| K1BKM | 18- | 3- 2-A- 2 | |
| W1AWE | 12- | 2- 2-A- – | |

(*Continued on page 148*)

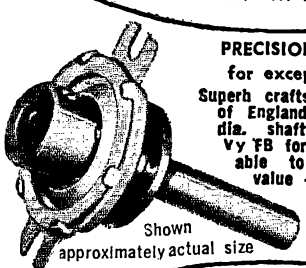
# BULLSEYE BUYS at ARROW!



## Buy it Today

NOTE: Any beam plus tower package combination shipped pre-paid anywhere in U.S. except Alaska and Hawaii.

| | | | | | |
|---|---|---|---|---|---|
| MOSLEY | TA-33 | $99.75 | TELREX | TC-88 | $99.75 |
| MOSLEY | TA-36 | $129.50 | TELREX | TC-99 | $159.00 |
| HY-GAIN | TH-3 | $89.95 | | | |
| HY-GAIN | TH-4 | $117.50 | | | |

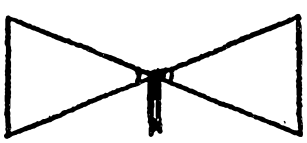


Shown approximately actual size

**PRECISION PLANETARY-VERNIER**
**for exceptionally fine tuning**

Superb craftsmanship by Jackson Bros. of England. Ball bearing drive, ¼" dia. shaft, 1⅛" long, 6:1 ratio, Vy FB for fine tuning. Easily adaptable to any shaft. Comparable value — $5.95.

**Amateur Net $1.50 ea.**
**10 for $13.50**



**"Wonder Bar" 10 Meter Antenna**

As featured in Nov. 1956 QST. Complete with B & W 3013 Miniductor. Only 8 ft. long for 10 meters. Wt. 5 lbs.

**Amateur Net $7.85**

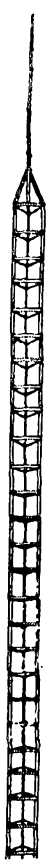
**Versatile Miniature Transformer**

Same as used in W2EWL SSB Rig — March 1956 QST. Three sets of CT windings for a combination of impedances: 600 ohms, 5200 ohms, 22000 ohms. (By using center-taps the impedances are quartered.) The ideal transformer for a SSB transmitter. Other uses: interstage, transistor, high impedance choke, line to grid or plate, etc. Size only 2" h. x ¾" w. x ¾" d. New and fully shielded.

**Amateur Net $1.39**

**3 for $3.49** **10 for $10.75**

**ARROW Authorized distributor of HEATHKIT equipment**



## ARROW'S PRICE BUSTER PACKAGE

30 ft. Rohn tower complete with fabulous HAM-M Rotator, hinged base plate and inside tower mounting rotor plate.

Reg. **$185.95**

**Save $31.00 on PACKAGE DEAL**

**PRICE**

**$154.95**

F.O.B. Mineola, N. Y.

***Additional accessories available only with package***

10 ft. tower sections, add **$15.65** each

8 conductor rotor cable.....@ **5¢** ft.

RG-8U Coax.....@ **10¢** ft.

NOTE: Any beam plus tower package combination shipped pre-paid anywhere in U.S. except Alaska and Hawaii.

**MAIL ORDERS PROMPTLY PROCESSED**
**SAME DAY SHIPMENT FROM STOCK**

**TO SAVE C.O.D. CHARGES, PLEASE INCLUDE SUFFICIENT POSTAGE WITH YOUR ORDER. ANY EXTRA MONEY WILL BE RETURNED.**

**ALL PRICES F.O.B. N. Y. C.**
**Arrow's Export Dept. Ships To All Parts Of The World!**
**Prices Subject To Change Without Notice.**

**Send for Arrow's New 1962 Catalog FREE**

## ARROW ELECTRONICS, INC.

65 Cortlandt Street, New York 7, N. Y. • Digby 9-4730
525 Jericho Turnpike, Mineola, N. Y. • Pioneer 6-8686

**NUTMEGGERS! *Watch for Arrow's opening soon in Norwalk, Conn.***

*Vermont*

| | | | |
|---|---|---|---|
| K1MVV | 2936- | 52-19-A-10 | |

## NORTHWESTERN DIVISION

*Alaska*

| | | | |
|---|---|---|---|
| KL7WAF° | 13,046- | 112-39-A-17 | |
| KL7DEH | 5904- | 82-24-A-22 | |

*Idaho*

| | | | |
|---|---|---|---|
| W7SGS | 28,143- | 177-53-A-24 | |
| W6FEQ/7 | 3780- | 42-30-A- 7 | |
| W7IY | 75- | 5- 5-A- – | |

*Montana*

| | | | |
|---|---|---|---|
| W7CBY | 38,592- | 201-64-A-22 | |
| K7KME | 7992- | 73-37-A- 9 | |

*Oregon*

| | | | |
|---|---|---|---|
| W7UGQ | 41,085- | 254-55-A-33 | |
| K7MLO | 25,599- | 162-53-A-27 | |

*Washington*

| | | | |
|---|---|---|---|
| W7ESK | 160,218- | 782-69-A-37 | |
| W7UWT | 72,384- | 380-64-A-29 | |
| W7DQM | 43,848- | 252-58-A-28 | |
| W7NLB | 12,201- | 83-49-A-10 | |
| K7CBD/7 | 6660- | 74-30-A-17 | |
| W7OVJ | 4746- | 58-28-A- 6 | |
| K7HYC | 3692- | 55-23-A- 7 | |
| K7MQA | 2691- | 39-23-A-10 | |
| K7JCA | 2193- | 43-17-A-13 | |
| K7QJN | 1080- | 23-16-A- 3 | |
| W7IKG | 1080- | 36-10-A- 3 | |
| K7PKB | 912- | 38- 8-A-14 | |
| K7HEF** | 837- | 75- 2-A-24 | |
| K7LPU | 450- | 75- 2-A-24 | |
| K7NKZ | 180- | 20- 3-A-10 | |
| K7ATD | 120- | 15- 4-B- 3 | |
| K7CYZ | 93- | 31- 1-A-16 | |
| W7MEA | 63- | 7- 3-A- 1 | |
| W7OS | 30- | 10- 1-A- 1 | |
| W7BQG | 27- | 3- 3-A- 2 | |
| K7OKE | 8- | 3- 1-A- 1 | |
| K7AYD (K7S AYC AYD) | 12,321- | 111-37-A-18 | |
| W7DK (K7GCK, W7LKG) | 2583- | 41-21-A- 4 | |

## PACIFIC DIVISION

*Hawaii*

| | | | |
|---|---|---|---|
| KH6DKI | 63,000- | 364-60-A-17 | |
| W5BJZ/KH6 | 46,500- | 310-50-A-26 | |

*Nevada*

| | | | |
|---|---|---|---|
| W7YKC | 12,996- | 114-38-A-21 | |
| W7KOI | 12,814- | 151-43-B-13 | |

*Santa Clara Valley*

| | | | |
|---|---|---|---|
| K6VGW | 84,576- | 449-64-A-39 | |
| WA6KSB | 32,319- | 210-54-A-35 | |
| W6YX | 27,140- | 232-59-B-21 | |
| WA6QGC | 3774- | 51-37-B-15 | |
| WA6KED | 294- | 15- 7-A- 3 | |
| WA6QDP | 9- | 3- 1-A- 1 | |

*East Bay*

| | | | |
|---|---|---|---|
| W6VNH | 48,870- | 274-60-A-25 | |
| W6IPH | 270- | 10- 9-A- 1 | |

*San Francisco*

| | | | |
|---|---|---|---|
| WA6AUD | 19,951- | 142-47-A-26 | |
| WA6MDL | 824- | 31- 7-A- – | |

*Sacramento Valley*

| | | | |
|---|---|---|---|
| WA6PVT | 18,093- | 163-37-A-35 | |
| W6SFH | 13,899- | 116-41-A-21 | |
| WA6HGP | 6264- | 77-29-A- 8 | |
| WA6NDB | 1328- | 30-15-A- 6 | |
| WA6JDT/6 | 648- | 18-12-A- 5 | |
| WA6JAN | 126- | 7- 6-A- 1 | |

*San Joaquin Valley*

| | | | |
|---|---|---|---|
| W6TZN | 28,500- | 192-50-A-18 | |
| K9PKJ/6 | 17,492- | 150-39-A-19 | |

## ROANOKE DIVISION

*North Carolina*

| | | | |
|---|---|---|---|
| W4HEI | 18,370- | 171-55-B-17 | |
| WA4ASO | 15,183- | 123-42-A-23 | |
| W4TS | 13,332- | 101-44-A-16 | |
| W8EXZ/4 | 3- | 1- 1-A- – | |

*South Carolina*

| | | | |
|---|---|---|---|
| K4MSK | 55,269- | 267-69-A-29 | |
| K4ZDK | 28,905- | 206-47-A-19 | |
| K4WJT | 22,260- | 210-53-B-24 | |
| W4HNW | 19,966- | 149-67-B-16 | |
| W4WOU | 5418- | 66-28-A- 8 | |
| K4FWB | 2016- | 48-14-A-11 | |
| W0YFT/4 | 561- | 17-11-A- 1 | |
| K4MQL (2 oprs.) | 3240- | 45-23-A- 7 | |

*Virginia*

| | | | |
|---|---|---|---|
| W4BVV | 82,398- | 386-72-A-40 | |
| K4JQO | 45,788- | 281-55-A-37 | |
| K4VCL | 15,300- | 100-51-A-13 | |
| K4CEK | 4650- | 50-31-A- 9 | |
| K4VCY | 3938- | 53-25-A-23 | |
| K4IAU | 3168- | 44-24-A-10 | |
| K4DYW | 3150- | 51-21-A- 8 | |
| K4LUA | 2772- | 42-22-A- – | |
| K4RDT | 2754- | 51-27-B-14 | |
| K4WYR | 2070- | 46-15-A-10 | |
| W4YHD | 147- | 7- 7-A- 1 | |
| K4DBD | 9- | 3- 1-A- 1 | |
| WA4AJG (2 oprs.) | 3195- | 71-15-A-20 | |

*West Virginia*

| | | | |
|---|---|---|---|
| K8PRC/8 | 7344- | 68-36-A- – | |
| W8UMR | 5208- | 56-31-A- 6 | |
| K8QYG | 1200- | 25-16-A-13 | |

## ROCKY MOUNTAIN DIVISION

*Colorado*

| | | | |
|---|---|---|---|
| KØVGN | 68,310- | 330-69-A-27 | |
| KØPXR | 65,016- | 532-63-A-30 | |
| KØVCK | 50,850- | 285-60-A-23 | |
| KØTBC | 38,081- | 240-53-A-21 | |
| WØBWJ | 17,415- | 110-54-A-24 | |
| W3CEQ/Ø | 616- | 22-14-B- 2 | |
| KØSPT | 3- | 1- 1-A- 1 | |

*Utah*

| | | | |
|---|---|---|---|
| K7BLR | 13,365- | 150-45-B- 8 | |

*New Mexico*

| | | | |
|---|---|---|---|
| W5MYM | 101,184- | 503-68-A-22 | |
| W5NXF | 70,389- | 359-66-A-21 | |
| W5FHL | 19,602- | 121-54-A-10 | |
| W5JXN | 15,317- | 147-53-B-12 | |
| K5UYF | 297- | 11- 9-A- 1 | |

*Wyoming*

| | | | |
|---|---|---|---|
| K7IAY | 65,892- | 323-68-A-39 | |
| W7LKQ | 52,461- | 264-67-A-20 | |
| K7DUT | 2808- | 36-26-A- 8 | |

## SOUTHEASTERN DIVISION

*Alabama*

| | | | |
|---|---|---|---|
| W4DS | 15,860- | 130-61-B-25 | |
| K4UWR | 2244- | 34-22-A-16 | |

*Eastern Florida*

| | | | |
|---|---|---|---|
| K4WIS | 81,710- | 457-61-A-33 | |
| W4USQ | 81,315- | 419-65-A-31 | |
| K4VSA | 35,501- | 245-49-A-14 | |
| K4KXX | 31,588- | 298-53-B-18 | |
| WA4CIP | 8385- | 100-43-B-14 | |
| W4IME | 147- | 7- 7-A- 1 | |

*Western Florida*

| | | | |
|---|---|---|---|
| K4ZAC | 15,312- | 117-44-A-12 | |

*Georgia*

| | | | |
|---|---|---|---|
| K4MYC/4 | 57,702- | 326-59-A-38 | |
| K4KAZ | 49,500- | 276-60-A-24 | |
| K4BEM | 49,848- | 268-62-A-30 | |
| WA4AKD | 18,480- | 140-44-A- – | |
| K4ZIM | 2772- | 42-22-A- 8 | |

*West Indies*

| | | | |
|---|---|---|---|
| KP4AWH | 35,577- | 203-59-A-14 | |
| KP4BCA | 1326- | 26-17-A- 8 | |
| KP4CH | 27- | 3- 3-A- – | |

*Canal Zone*

| | | | |
|---|---|---|---|
| KZ5SW | 104,910- | 544-65-A-38 | |

## SOUTHWESTERN DIVISION

*Los Angeles*

| | | | |
|---|---|---|---|
| W6UGA | 69,632- | 512-68-B-30 | |
| WA6MWG | 50,736- | 305-56-A-34 | |
| W6CFM | 30,072- | 180-56-A-26 | |
| WA6KNE | 18,762- | 160-59-B-14 | |
| WA6FRA | 15,420- | 132-40-A-15 | |
| WA6GDS | 7141- | 104-23-A-23 | |
| K6ICS | 4278- | 62-23-A- 6 | |
| W6KZL | 3612- | 43-42-B- 6 | |
| K6ZTZ** | 702- | 117- 2-A-15 | |
| W6ANB | 702- | 18-13-A- – | |
| K6JBV | 9- | 3- 1-A- 1 | |
| WV6UTB | 6- | 2- 1-A- 1 | |
| WA6HGC (WA6s HGC MRK) | 51,344- | 338-52-A-18 | |
| WA6KGA (K6s ARM EEZ) | 3564- | 66-27-B- 5 | |

*Arizona*

| | | | |
|---|---|---|---|
| K7PXI | 70,036- | 381-62-A-25 | |
| K7QRI | 63,189- | 357-59-A-39 | |
| W7WUC | 41,664- | 250-56-A-33 | |
| W7SEI | 231- | 11- 7-A- 5 | |

*San Diego*

| | | | |
|---|---|---|---|
| W6KBJ | 22,216- | 198-57-B-23 | |
| W6LQN/6 | 16,758- | 134-42-A-10 | |
| W6PDE | 6- | 2- 1-A- – | |

## WEST GULF DIVISION

*Northern Texas*

| | | | |
|---|---|---|---|
| K5ZAI | 1311- | 23-19-A- 5 | |
| K5ZOM | 1032- | 22-16-A- 8 | |

*Oklahoma*

| | | | |
|---|---|---|---|
| W5IWL | 71,154- | 356-67-A-26 | |
| K5FSU | 4500- | 63-24-A- 6 | |

*Southern Texas*

| | | | |
|---|---|---|---|
| K5MVK | 135,474- | 702-67-A-36 | |

(Continued on page 150)


# EXCLUSIVE HAM STORE FEATURING LIKE-NEW EQUIPMENT AT FANTASTIC SAVINGS

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7361 WEST NORTH AVENUE PHONE PR 1-8616

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All our merchandise is EXTRA CLEAN with few hours of use. Each unit is carefully checked. Tubes, capacitors and components that do not come up to manufacturers' specs are replaced with the best. Receivers and transmitters are completely realigned and calibrated. Units you receive are in top-notch condition.

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★ TWO-WEEK TRIAL—You must be completely satisfied or return for FULL REFUND, less transportation charges.

★ GUARANTEE—All gear carries a 90 day guarantee.

★ TRADES—Trade your present gear on a like-new receiver or transmitter.

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| 20A | $172.00 |

### COLLINS

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| 75A1 | $199.00 |
| 75A4 | 595.00 |
| 75S1 | 399.00 |
| 32S1 | 479.00 |
| 32V3 | 299.00 |

### DRAKE

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|---|---|
| 1A | $179.00 |
| 2A | 239.00 |

### EICO

| | |
|---|---|
| 720 | $ 72.00 |
| 730 | 39.00 |

### ELMAC

| | |
|---|---|
| PMR8 | $149.00 |
| AF67 | 99.00 |
| AF68 | 149.00 |
| M1070 | 49.00 |

### GLOBE

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|---|---|
| 40A | $ 39.00 |
| 65A | 49.00 |
| LA1 | 69.00 |
| UM1 | 29.00 |

### GONSET

| | |
|---|---|
| COMM III 2MTR | $199.00 |
| G28 | 159.00 |
| G66B 3 WAY SUP | 149.00 |
| G76 | 319.00 |
| G77A | 189.00 |
| GSB100 | 299.00 |
| GSB101 | 199.00 |

### HARVEY-WELLS

| | |
|---|---|
| TBS50 | $ 49.00 |
| APS SUPPLY | 27.00 |

### HALLICRAFTERS

| | |
|---|---|
| S38E | $ 39.00 |
| S53A | 59.00 |
| S85 | 77.00 |
| S94 | 27.00 |
| R48 | $ 14.00 |
| HT18 | 39.00 |
| HT30 | 199.00 |
| HT32 | 389.00 |
| HT40 | 69.00 |
| SR34 | 289.00 |
| TO KEYER | 49.00 |
| S108 | 99.00 |
| SX62 | 199.00 |
| SX71 | 147.00 |
| SX99 | 109.00 |
| SX100 | 199.00 |
| SX101A | 289.00 |
| SX110 | 129.00 |
| SX111 | 184.00 |
| SX140 | 77.00 |
| R46B | 9.00 |

### HAMMARLUND

| | |
|---|---|
| HQ100 | $119.00 |
| HQ105TRC | 169.00 |
| HQ110C | 169.00 |
| HQ140XA | 159.00 |
| HQ145C | 199.00 |
| HQ150 | 189.00 |
| HQ160 | 229.00 |
| HQ170 | 269.00 |
| HQ170C | 274.00 |
| HQ180C | 349.00 |
| HC10 | 87.00 |
| S100 | 9.00 |
| S200 | 14.00 |

### TEST EQUIPMENT

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|---|---|
| EICO 315 generator | $ 39.00 |
| KNIGHT 5" SCOPE | 49.00 |
| SUPERIOR sig tracer & RC bridge | 34.00 |
| HEATH OP-1 SCOPE | 139.00 |

### GOODIES

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|---|---|
| B&W GDO & COILS | $ 34.00 |
| 75A2 XTAL CAL | 9.00 |

### HEATH

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|---|---|
| DX20 | $ 34.00 |
| DX35 | 39.00 |
| DX40 | 57.00 |
| DX60 | 79.00 |
| SB10 | 89.00 |
| CHEYENNE | 99.00 |
| MOHICAN | 129.00 |
| VF-1 | 17.00 |
| BALUN COILS | 8.00 |
| UT-1 | 27.00 |
| MP-1 | 39.00 |
| HP10 | 42.00 |

### JOHNSON

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| 500 | $589.00 |
| PACEMAKER | 249.00 |
| VALIANT | 279.00 |
| RANGER | 197.00 |
| NAVIGATOR | 139.00 |
| CHALLENGER | 97.00 |
| ADVENTURER | 37.00 |
| AD SCREEN MOD | 9.00 |
| MOBILE | 59.00 |

### NATIONAL

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|---|---|
| SW54 | $ 27.00 |
| NC57 | 77.00 |
| NC60 | 39.00 |
| NC98 | 87.00 |
| NC109 | 117.00 |
| NC125 | 109.00 |
| NC183 | 159.00 |
| NC183D | 227.00 |
| HRO-50T | 219.00 |
| HRO-50T1 | 267.00 |
| HRO-60 | 320.00 |
| NC300 | 199.00 |
| NC303 | 349.00 |
| 6 MTR CONV | 27.00 |
| 2 MTR CONV | 27.00 |
| CONV CABINET | 10.00 |
| NC303 SPKR | 9.00 |
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| HRO 50-60 COILS EACH | 10.00 |

### P & H

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|---|---|
| LA 400 | $109.00 |
| LA 400B | 149.00 |


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(suburban Chicago)

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ADDRESS .....
CITY ..... ZONE ..... STATE .....

**ORDER BLANK** to *trade ur present gear *ordering above units
* selling ur gear for cash

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|---|---|---|---|---|---|
| K5PFL | 89,880- | 430-70-A-39 | | | |
| K5CWS | 87,067- | 467-65-A-34 | | | |
| W5BKM | 47,872- | 354-68-B-29 | | | |
| K5VUZ | 27,600- | 205-46-A-17 | | | |
| W5TOG | 26,700- | 223-60-B-29 | | | |
| W5IFM | 20,600- | 215-50-B-20 | | | |
| K5BDY | 4257- | 66-22-A-16 | | | |
| **CANADIAN DIVISION** | | | | | |
| *Quebec* | | | *Ontario* | | |
| VE3RM/2 | 26,010- | 170-51-A-32 | VE3ES | 14,364- | 114-42-A-12 |
| | | | VE3CRM | 10,148- | 104-33-A-20 |
| | | | W8JKD/VE3 | 9792- | 102-48-B-22 |
| | | | VE3BHW | 2400- | 40-20-A- 4 |
| | | | *Saskatchewan* | | |
| | | | VE5NX | 960- | 21-16-A- 5 |
| | | | *British Columbia* | | |
| | | | VE7VT | 11,544- | 104-37-A-26 |
| | | | *Yukon-N. W. T.* | | |
| | | | VE8BY | 3219- | 57-29-B-12 |

[1] W3DVB, oprs. [2] K9PQT, oprs. [3] WA2GCV, oprs. [4] K0GJD, oprs. [5] W1WPR, oprs. [6] Hq. staff, not eligible for award. [7] K1KTH, oprs. [8] K0ITF, oprs. [9] K9GOS, oprs. [10] W8GKB, oprs.

*ARRL thanks the following amateurs for submitting their logs for checking purposes:* C.W.: *W1s* KXU NS PDN/1, *K1s* DAF IPA LQD MBM MPM NEB OME SDX, W2s DQN FAB HOI MWN, NCG WAS, K2MMS, WA2KXX, *W3s* BXM LC NDO, *K3s* AJT OJM PDE, *W4s* FOA HBO/2 WHK, K4AYC, W5CA/7, WA6NNN, K6PBX, WV6RWM, K7JWM, W7ZN, *W9s* TAL YAC ZLD/6, *K9s* GCH/8 MKX WRD, *W0s* AWB BIW, PBL, VE3BRR. PHONE: W1PDN/1, K1TQC, WV2OMP, W3RWJ, W5KNA, K6EE, *W7s* HWO FOL, W6NAZ, W9AOW.

## World Above 50 Mc.

*(Continued from page 78)*

p.p. 2N301's — *a six-volt* transistor modulator. W1VNH near Springfield is on 432 nightly (2000 to 2100) and being heard weakly by W1EHF in Cambridge. W1EHF has been running 1½ watts out of a varactor doubler on 432 c.w. So far he's driving the varactor with a 6360, but soon it may be all solid-state.

Speaking of 432, we received a note from K3CLK of Philadelphia, Pennsylvania. Eugene feels that we should do something about discouraging the use of high-power drivers at two meters for tripling to 432. Of course, he has a point. If your high-power driver is not properly shielded and filtered, your two-meter signal is quite likely to be received, at least in the local area, quite strongly. I would feel that in general it would be better to have an undesired signal in the two-meter band than at 216 in the Channel 13 segment. Obviously, a signal radiated at either frequency not being used for communication is illegal and should be suppressed to the best of your ability. Of course, it is often much simpler to use an existing 144-Mc. driver stage to start your 432 transmitter with than it is to build a completely separate installation. However, in general the two-meter driver stage, may not have been particularly well shielded and the radiation from this stage would not be observable when the two-meter final is in operation. However, if it is used to drive a tripler to 432, the incidental radiation may be objectionable and certainly could be cured with a modest amount of shielding and filtering. It might pay for 432-Mc. operators to ask for a check on their 144-Mc. spurious radiation.

W4PLK of Shalimar, Florida has installed a 13-element beam and has been listening for any activity in a northerly direction. No results to date but Conrad is looking for schedules; anybody for Florida on 432! Just to the north of Florida K4LOZ is looking for schedules either north or south, or locally on frequencies from 1296 up. Charles is actively engaged in experimenting on 1296, 3500 and 10 kMc. Any local interest in the College Park, Georgia area would be greatly appreciated. VE2UQ, Dorval, Quebec, informs us that his regular schedule with ZS1SW indicates a considerable amount of interest in moonbounce type operation from South Africa. Anyone interested in satellite or scatter or moonbounce efforts address either VE2UQ in Dorval, Quebec, or ZS1SW.

### *1296-Mc. Moonbounce Activities*

As a culmination of the long winter nights' activities, we have received a sudden increase in enthusiasm on 1296 moonbounce. W6AY, headed by Hank Brown, and the rest of the Eimac Radio Club have their new eighteen-foot dish installed and ready to operate; more contacts with this group are quite likely to occur within the next month. At the same time W2CXY and his group of basement engineers, which includes such notables as W2AZL, K2TKN, K2GQI, W2HAC and others too numerous to mention, are also on the air both transmitting and receiving. As a matter of interest I did receive a short transmission from them by way of the moon on the night of March 15 — the first moonbounce signal we have heard at W1BU since August of 1960.

*(Continued on page 152)*

# LAFAYETTE RADIO

## AMERICA'S HEADQUARTERS FOR HAM EQUIPMENT

### THE LAFAYETTE HE-30

**Professional Quality Communications Receiver**

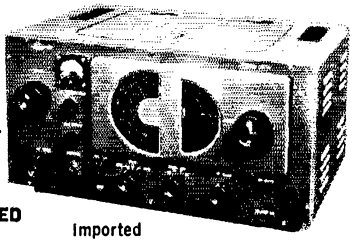
Imported

**99.95** NO MONEY DOWN

- TUNES 550 KCS TO 30 MCS IN FOUR BANDS
- BUILT-IN Q-MULTIPLIER FOR CROWDED PHONE OPERATION
- CALIBRATED ELECTRICAL BANDSPREAD ON AMATEUR BANDS 80 THRU 10 METERS • STABLE OSCILLATOR AND BFO FOR CLEAR CW AND SSB RECEPTION • BUILT-IN EDGEWISE S-METER

Sensitivity is 1.0 microvolt for 10 db, Signal to Noise ratio. Selectivity is ± 0.8 KCS at —6db with Q-MULTIPLIER. TUBES: 6BA6—RF Amp. 6BE6 Mixer, 6BE6 OSC., 6AV6 Q-Multiplier—BFO, 2-6BA6 IF Amp., 6AV6 Det-AF Amp. ANL, 6AQ5-Audio output, 5Y3 Rectifier.

### TOP VALUE COMMUNICATIONS RECEIVER



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**KT-200**
in Kit Form
**64.50**

**HE-10**
**79.95**
WIRED AND TESTED

- SUPERHET CIRCUIT UTILIZING 8 TUBES AND RECTIFIER TUBE • BUILT-IN "S" METER WITH ADJUSTMENT CONTROL • FULL COVERAGE 80-10 METERS • COVERS 455KC TO 31 MC • VARIABLE BFO AND RF GAIN CONTROLS • SWITCHABLE AVC AND AUTOMATIC NOISE LIMITER

The Communications Receiver that meets every amateur need—available in easy-to-assemble kit form. Signal to noise ratio is 10 db at 3.5 MC with 1.25 microvolt signal. Selectivity is —60 db at 10 kc, image reflection is —40 db at 3 MC. Tubes: 3—6BD6, 2—6BE6, 2—6AV6, 1—6AR5, 1—5Y3.

## NEW! LAFAYETTE HE-45A DELUXE 6-METER TRANSCEIVER

- Highly Sensitive Superheterodyne Receiver Section for 50-54 Mc
- Effective Series Gate Noise Limiter
- 3-Stage, 12-Watt Transmitter with 2E26 Final
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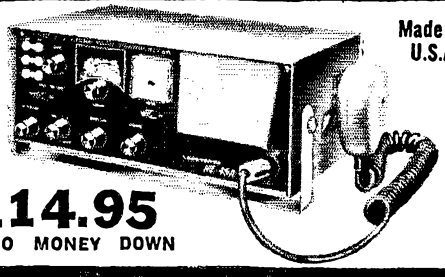
Provides maximum convenience and flexibility in either mobile or fixed operation.



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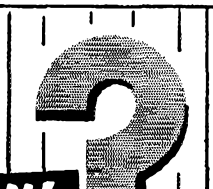
**LAFAYETTE HE-50 10-METER TRANSCEIVER**
Similar to above except for 10 meter operation

### WATCH FOR THE SENSATIONAL NEW LAFAYETTE 90-WATT TRANSMITTER

**COMING SOON!**

- Phone or CW, 80 to 10 meters
- 3 Stage low pass filter
- Grid block keying



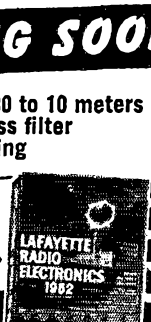
### LAFAYETTE 6-METER VFO

- Highly Stable Oscillator Circuit
- 8 MC Output
- Illuminated Dial — 50-54 MC Range
- Fully Wired — Not a Kit

**19.95** MADE IN U.S.A.

HE-61 6 Meter VFO ..... Net 19.95
HE-62 10 Meter VFO ..... Net 19.95

**FREE!**

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K9KEH and company, consisting of W9ZOG, K9CNN and W9SQE, are on the air operating from Doc's QTH in Chicago, Illinois. K9KEH will be running the ubiquitous Eimac 3K25001X in the transmitter and is using a polar-mounted dish complete with parametric amplifier in the receiving department. This installation should be operational by the first of April. W8LIO, who now has his 24-foot polar-mounted dish on automatic track and has been hearing the moonbounce signals from W1BU for the past two years, will be operational on transmit by the end of April. Jack, to date, is the king of the do-it-your-selfers with everything homemade including the dish. Latest information from W6NLZ indicates that he will be operational moonbounce before the 1st of April. He has been on the air with a fixed dish for the past year. We understand that Tommy, KH6UK, is also operational on 1296 with a twenty-eight foot dish capable of being aimed at the moon. This would be the farthest DX presently set up to operate and naturally everyone is holding his breath waiting to hear the signal. W1BU is operational using our old equipment into the 18-foot polar mounted dish and at this writing the only station capable of receiving its own echoes from the moon. We feel that the most important factor in hearing your own signals is having your dish on automatic track. Efforts to receive echoes before our dish was automatic were singularly unsuccessful. W8LIO was never successful in hearing our signals until he could actually track the moon. In view of the fact that there is as much work involved in making your antenna automatically track the moon as there is in all the rest of the installation, I can understand why many groups are loath to go to the additional effort involved. The fact remains, however, that successful moonbouncing is extremely difficult without this additional refinement of your gear. DL3FM has his transmitter and receiving system completed, his polar mount and tracking system is built and as of the last letter he is only awaiting the spring thaw to mount the dish on the polar mount, at which time he will be in operation. HB9RG has his transmitter and receiver in operation and is presently using an 8-foot parabolic dish on a non-tracking mount. Contacts with both Switzerland and Germany are practically insured for this summer, however, as both HB9RG and DL3FM will be operational before the end of June. WA6JZN and his crew in the northern California area have been more or less operational for the past six months. Cooperation from the east coast end has been rather poor due to the extreme winter conditions involved. W8LIO had his dish buried in snow for the past two months and only last week was able to get into his operating position without the use of dogsleds. K6MIO from Fresno, California, is making completions on his 1296 receiving set-up and expects to be operational, receive only, by the middle of April. All stations are operating as closely as possible to 1296.0 Mc. As Hank Brown says: "Well, what da ya know, QRM on 1296." QST

## Hamfest Calendar

*(Continued from page 10)*

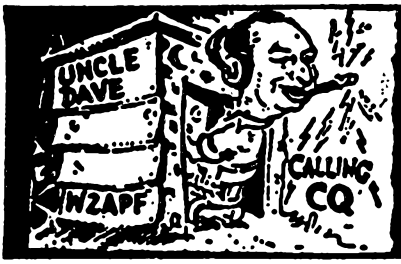
is included in the $5.75 registration fee. Hamfest registrations available through the Fresno ARC, P.O. Box 783, Fresno. Room reservations available through the Towne & Country Lodge, 3093 North Freeway 99, Fresno, Calif. Further info available from Jake Mirigian, W6JXY, 5415 E. Mono St., Fresno.

**District of Columbia** — The second annual hamfest of the National Capital VHF Society will be held on Sunday, May 27, at Marshal Hall Park, south of Washington, in Charles County, Maryland. Picnic grounds and amusement park. Displays and contests. For further info, contact Clarence Carvell, 2820 Curtis Drive SE, Washington 21, D. C.

**Illinois** — The Eastern Illinois RC will hold its annual hamvention on Saturday, May 19, at the Flamingo Restaurant, Quincy. For further info, contact Paul Gabriel, 1520 Chestnut St., Quincy.

**Illinois** — The Mississippi Valley Hamfest, sponsored by the Quad City ARC, will be held on Sunday, May 27, at the Rock Island County Fair Grounds in East Moline, Ill. Advance reservations are $1.50, or $2.00 at the gate. For further info, contact Jim Freiband, WA9AGS, 319 2nd St. W., Milan, Ill.

*(Continued on page 154)*

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| NC98 | 98.00 |
| NC173 | 125.00 |
| HRO50T | 195.00 |
| HRO60 | 325.00 |
| NC188 | 100.00 |
| NC57 | 55.00 |
| NC98 | 79.50 |

### TECHNICAL MATERIEL CORP. RECEIVERS

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|---|---|
| GPR90 w/spk. Excelnt. Cond. | $350.00 |

### HALLICRAFTERS XMTRS. AND RECEIVERS

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| SX62A Rec. | $269.50 |
| HT32A SSB Xmtr. | 495.00 |
| HT31 Linear | 195.00 |
| HT32 SSB Xmtr. | 395.00 |
| HT33 Linear | 450.00 |
| SX100 Rec. | 219.00 |
| S108 Receiver | 104.50 |
| SX110 Receiver | 129.50 |
| SX111 Receiver | 229.50 |
| HT20 AM Xmtr. | 175.00 |
| HT30 SSB Xmtr. | 195.00 |

### GONSET XMTRS—REC.—CONV.

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|---|---|
| Series III 2 or 6M Comm. | $175.00 |
| GSB100 SSB Xmtr. | 375.00 |

### ELMAC XMTRS. AND RECEIVERS

| | |
|---|---|
| AF67 Mobile Xmtr. | $95.00 |

### COLLINS XMTRS. AND RECEIVERS

| | |
|---|---|
| KWM-1 Xceiver | $600.00 |
| 32V2 Xmtr. | 250.00 |
| KWS-1 | 1095.00 |

### JOHNSON XMTRS. AND ACC.

| | |
|---|---|
| Mobile Xmtr. | $ 69.50 |
| Thunderbolt Linear | 450.00 |
| Viking 1-w/VFO 122 Xmtr. | 175.00 |
| Valiant Xmtr. | 350.00 |
| Viking 1—Xmtr. | 125.00 |
| Ranger Xmtr. | 195.00 |
| Pacemaker SSB Xmtr. | 250.00 |
| Viking II Xmtr., CDC Model | 175.00 |

### "WRL"—GLOBE XMTRS.

| | |
|---|---|
| DSB100 DSB Xmtr. | $ 74.50 |
| LA-1 Linear Amp. | 85.00 |
| VOX10 Voice Relay | 22.50 |

### HEATH XMTRS. AND ACC.

| | |
|---|---|
| SB10 SSB Adapters | $ 75.00 |
| MT-1 Mobile Xmtr. | 99.50 |
| VF-1 VFO | 15.00 |
| TX-1 AM Xmtr. | 275.00 |

### BARKER AND WILLIAMSON XMTRS., ETC.

| | |
|---|---|
| 5100 AM Trans. | $250.00 |
| 51SB | 150.00 |

### CENTRAL ELECTRONICS XMTRS., ETC.

| | |
|---|---|
| "Q" Multiplier | $ 24.95 |
| "A" Slicer | 44.95 |
| 20A Exciter, Like New | 175.00 |
| 20A Exciter | 150.00 |

### EICO XMTRS. AND ETC.

| | |
|---|---|
| 720 (Transmitter) | $ 74.95 |
| 730 (Modulator) | 39.95 |

### HAMMARLUND RECEIVERS

| | |
|---|---|
| HQ160 | $295.00 |
| HQ110 | 195.00 |
| HQ150 | 175.00 |
| HQ100 | 145.00 |

**USED, EXTRA SPECIAL**

| Checked and Guaranteed | As Is |
|---|---|
| Sonar CD-2.. $199.95 | $149.95 |
| Sonar CD-6.. 199.95 | 149.95 |
| 100 Watt VHF 2 or 6 Meter Trans. | |

### MISCELLANEOUS USED

| | |
|---|---|
| HE35 Lafayette (6 meter transceiver w/Xtal & Mic.) | $ 44.95 |
| Mon-Key (Electronic Key) | 18.00 |
| SSB100A Eldico w/PWR Supply (as is) | 149.50 |
| VFO44 Knight | 34.95 |

### WRL—GLOBE XMTRS.

| | |
|---|---|
| VOX-10 Voice OP Relay | $19.50 |
| QT-10 Anti-Trip Unit | 5.95 |
| PA-1 Power Reducer | 7.95 |

### VANTRON

| | |
|---|---|
| 300A Linear Amp. | $75.00 |

### MOBILCON

| | |
|---|---|
| H302—Mobile Power Supplies (350V—125MA) | $29.50 |

### TECRAFT

| | |
|---|---|
| C3/26 (CB) Conv. Cit. Band | $27.50 |
| P1 (P.S.) Conv. Pwr. Sup. | 12.50 |

### BEAMS—NEW AND USED (AS INDICATED)

| | |
|---|---|
| Mosley V-27GP (CB) new | $29.95 |

**We have more beams and verticals at very special prices—write us about your needs and we will quote.**

| | |
|---|---|
| Mosley VPA1520 (New) | $109.50 |
| Mosley VPA1020 (New) | 99.50 |
| Telrex 3EL. 20 mtr. (Used) | 49.50 |
| Telrex 3EL. 10 mtr. (Used) | 39.50 |
| Mosley V144GP (2 mtr.) used | 17.50 |
| Mosley VPA20-2 (New) | 39.50 |
| 5A-6M Taco (New) | 9.95 |
| BA6M (Baluns-for-above) | 3.95 |
| Mosley TA33 (New) | 84.95 |
| Mosley V3 (New) | 19.95 |
| Mosley V3 Jr. (New) | 15.95 |
| Mosley TA32 (New) | 59.95 |
| Mosley TA32 Jr. | 42.95 |
| Mosley A320 | 66.95 |
| Mosley S153 | 42.50 |
| Cushcraft AGP15 | 11.95 |
| Cushcraft AGP10 | 10.95 |
| Cushcraft ATGP3 | 24.95 |
| Cushcraft A28A | 21.95 |
| Hy-Lite 3E10F | 49.50 |
| Gonset 3220 | 94.50 |
| Hy-Gain 203G | 49.95 |
| Hy-Gain 113G | 39.95 |

## EXTRA SPECIALS

**New Items—Overstock and Discontinued**

***SPECIAL***

| | |
|---|---|
| COLLINS RECEIVER FILTER 35U1 (New) | $ 10.00 |
| HAMMARLUND XTAL CALIB. OR BFO UNIT WITHOUT XTAL | 5.00 |
| COPPERWELD WIRE (Nos. 12-14-16) per 100 ft. | 2.85 |
| GLASLINE—Standard per 100 ft. | 3.08 |
| per 600 ft. | 17.84 |
| Heavy Duty per 100 ft. | 5.89 |
| per 600 ft. | 34.75 |

### TUBES—NEW—GUARANTEED

All individually boxed except where noted in bulk.

| | Reg. | Each | Dozen |
|---|---|---|---|
| 6H6 | $3.50 | $1.05 | $11.50 |
| 6SJ7 | 3.75 | 1.15 | 12.65 |
| 6J7 | 4.55 | 1.25 | 13.75 |
| 45 (Bulk pack). | 2.05 | .65 | 7.15 |
| 2A6 (Bulk pack) | 3.65 | 1.10 | 12.10 |
| 6A8G | 5.80 | 1.75 | 19.25 |
| 6AE6G | 2.05 | .65 | 7.15 |
| 6S8GT (Bulk pack) | 2.75 | .85 | 9.35 |
| 6C4 (Bulk pack) | 1.50 | .45 | 4.95 |
| 6J6 (Bulk pack). | 2.35 | .75 | 8.25 |

1962 Calendar and Schedule Pad Free with purchase of 5 Receiving Type Tubes.

Write Uncledave W2APF with your needs and problems.

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**BANK FINANCING**

**TIME PAYMENTS** 18 Months to pay. Life Insurance at no extra cost

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**Illinois** — The annual hamfest of the Starved Rock Radio Club will be held on Sunday, June 3, at the LaSalle Country 4-H Home and picnic area near Ottawa, some 70 miles southwest of Chicago, and a short drive from Starved Rock State Park. Registration begins at 1000, and there will be equipment displays, swap tables, contests, ladies' program, etc. Old Timers will be honored, and the registration list of the Starved Rock Radio Club's first hamfest in 1934 will be on display. Any attending ham whose call is on that first list will be given the red-carpet treatment, says W9QLZ. For further info, contact George Keith, W9QLZ, R.R. #1, Box 171, Oglesby, Ill.

**Kansas** — The 15th annual CKRC Hamfest will be held in Kenwood Park, Salina, on Sunday, June 3. Registration ($1.00) begins at 0900. Bring a covered dish and your own silver. Free pop and coffee. Hidden transmitter hunt, bingo, gabfests — something for everyone. For further info, contact Bob Neal, KØYEM, 343 Woodlawn, Salina, Kansas.

**Kansas** — The Kaw Valley Radio Club of Topeka is sponsoring its annual "Hamarama hamfest picnic" on Sunday, May 13, at Garfield Park in North Topeka. This was formerly known as "Christy's Picnic." Hidden transmitter hunts and other contests. Talk-in stations on 3920 and 29.6. It is suggested that everyone bring a covered dish. Registration is $1.50. For further info, contact Willie Saylor, KØTMO, 825 Webster, Topeka, Kansas.

**Kansas** — The Neosho Valley ARC celebrates its 28th anniversary on Sunday, May 6, with a covered-dish picnic, in Hammond Park, Emporia. No registration fee. Pop and soda free. Further info from Lee Craig, WØTSA, 728 Elm St., Emporia.

**Maryland** — The Confederate States Rebel Net will sponsor a hamfest on June 3 at Marshall Hall, Md. No other details currently available, so contact David F. Danser, W4GVQ, 4900 Bristow Drive, Annandale, Va.

**Missouri** — The Missouri Hamfest/Picnic will be held on Sunday, June 3, at the Missouri State Fairgrounds in Sedalia, under the sponsorship of the Sedalia ARC. Soft drinks and coffee available — all you can drink for a registration fee of 25¢, but bring your own lunch. Swap shop. For further info, contact C. O. Gosch, WØBUL, 711 S. Oakland St., Webb City, Mo.

**Nebraska** — The Pine Ridge ARC will hold its annual ham family picnic at Nebraska State Park, 10 miles south of Chadron, on Sunday, June 3. Activities start at noon, with no charge to visiting hams and their families. Each family to bring food and utensils, with the food to be placed on the tables and served family style. Coffee and soft drinks to be furnished by the club. Swap table, two hidden transmitter hunts (one for OMs, one for YLs) on 3850 kc., SWOOP initiation. For further info, contact Lynn Bilyeu, KØODF, 406 Henkens Drive, Chadron, Nebraska.

**New York** — A western New York hamfest will be sponsored by the Rochester ARA on May 12 at the Doud Legion Post in Rochester. Registration only, $2.50; with banquet, $4.75. Tickets and info from C. C. Unruh, WA2EOQ, 25 Castlebar Rd., Rochester 10.

**New York** — The Antique Wireless Association, hosted by the Radio Amateurs of Greater Syracuse, will hold an Old Timer's Nite at 1945 on Tuesday, May 8, at GE's Electronics Park. Antique gear will be demonstrated, to tickle the memories of the oldsters and entrance the youngsters. No admission fee.

**New York** — The 10th annual Rome Ham Family Day will be held at Beck's Grove, Rome, starting at noon on Sunday, June 3. A prominent speaker is scheduled, along with 6- and 2-meter transmitter hunts, a ham auction, and mobile judging. Steak and chicken dinner family style: $4.00 before June 1, $4.50 at the gate; children $1.25. Mobile talk-in on 3.9, 50.6 and 145.38 Mc. For reservations write to Rome Radio Club, Box 721, Rome, New York.

(*Continued on page 156*)

**Ohio** — The North East Ohio VHF Group will hold a banquet at Terrace Gardens in Barberton on May 5. No further details at hand.

**Pennsylvania** — The annual banquet of the Lancaster Radio Transmitting Society will be held on Saturday, May 12, at Hostetters Banquet Hall, Barbara and Pine Streets, Mt. Joy, with festivities beginning at 1830. Entertainment for all. Make advance registration by contacting Arthur C. Jacoby, W3OY, 136 Springhouse Rd., Lancaster, phone EXpress 2-6093.

**Pennsylvania** — The 8th annual Breeze Shooters Hamfest will be held on Sunday, May 20, at the North Park Lodge, near the Butler Valley Interchange of the Pennsylvania Turnpike, from 0900 to 1800. For further info, contact Jim Howard, K3JVM, 321 Broadmoor, Pittsburgh 34, Pa.

**Rhode Island** — The annual dinner dance of the Providence Radio Association will be held on Saturday, May 19, at Johnson's Hummocks in Providence. For further info, contact Edward L. Sullivan, K1NVS, 9 Nancy Ct., Coventry, R. I.

**Texas** — The 2nd annual North East Texas Emergency Network hamfest picnic will be held at the Dangerfield State Park on Sunday, May 20. The state park is located 2 miles southeast of Dangerfield on Highway No. 49. Mobile talk-in on 3970. For further info, contact Luther E. Harrison, W5LR, 2110 Salerno Drive, Dallas 24, Texas.

**Texas** — The Permian Basin ARC will hold its 2nd swapfest on Sunday, June 3, at the Ector County Coliseum, Odessa, Texas. Activities for the whole family — bridge and canasta for the XYLs, movies for the children. Preregistration $2.00, at the gate $1.00. That's right(!) but there's a special deal for the early-birds. Famous west Texas barbecue served at a nominal charge. For further info and pre-registration, contact Permian Basin Amateur Radio Club, Box 1106, Odessa, Texas.

**Washington** — The Amateur Radio Association of Bremerton will hold its annual hamfest and banquet on Saturday, May 19, at the Sons of Norway Lodge Hall. Registration opens at 1300, dinner at 1900. "Bunny" hunts, QCWA meeting, technical talks, c.w. contest, swap shop, rag chews, etc. After the banquet, entertainment and dancing. Registration prior to May 14, $4.00 per person, $4.50 after that date and at the door. For reservations and further info, contact Ray H. McCausland jr., W7UWT, 2812 Hayton Ave., Bremerton, Washington.

## How's DX?

*(Continued from page 74)*

VERON Contest Mgr., Keizerstraat 54, Gouda, postmarked no later than June 15, 1962, per sample forms available at that address. At the same time you might inquire about VERON's worthy PACC certification . . . . . In connection with consecration of the new Coventry Cathedral, GB3COV will swing into action from the 25th of this month to mid-June. G3HCM mentions souvenir QSLs upcoming for contacts on 10 through 160 meters . . . . . June 9th-11th should see EI0AB active again from the Aran isles off Galway, a multiband-multimode DXpedition manned by EIs 2X 3B 4AI 4BC 4R 5AJ 6AH 6X 7BD 9AD and s.w.l. friends. Gear will include a DX-100, Globe Scout, Viceroy, three HROs, a batch of dipoles and a Mosley twirler . . . . . SV1AA, assembling a 250-watt linear, tells K1AQI that suitable components are sadly scarce in Greece . . . . . DL5CS (W9UIN) gads about much of Europe for the Immigration and Naturalization Service. Joe looked up CT2AH recently and found Fernando inactive and awaiting transfer to CR4-land where he hopes to fire up at Sal airport. Cousin CT2AK will remain active on voice, friend CT2BO on c.w., but CT2AC is QRT for the most part. DL5CS looks for back-home buddies with 120 watts on 14,050-kc. c.w., Sundays around 1700 GMT . . . . . HB9JJ tells W8KX he will spend four days in New York commencing May 5th, then journey to Buffalo, Toronto, Detroit, Chicago, Dayton and Washington. Karl may take his KWM-2 to Liechten-

*(Continued on page 158)*

stein later in the year. Meanwhile, HB9JJ's favorite hangout is 14,025-kc. c.w. . . . . International Short Wave League of London is now 1700 members strong . . . . . PA0AA, Holland's W1AW, transmits ham bulletins in English on 3625-kc. a.m., 1115 and 1415 GMT on Sundays.

**Hereabouts** — RSB (Bermuda) invites the indulgence of W/K/VE/VOs in the 1962 Bermuda Amateur Radio Contest slated for 0001 GMT, May 13th, to 0200, May 14th, and May 27th-28th, same hours — choose your mode. It's a single-operator 3.5-through-28-Mc. shindig wherein Yanks and Canadians strive to catch as many VP9s as possible, each once per band. Our side sends RS or RST reports, VP9s send RS or RST plus parish names (e.g., "59, Hamilton") and each successful QSO counts 3 points. For final score W/K/VE/VOs multiply total QSO points by the number of band-parishes collected. Official log sheets and unabridged instructions are available at Radio Society of Bermuda, P.O. Box 275, Hamilton. To be eligible for interesting performance awards, entries must be filed at that address no later than June 30, 1962 . . . . . South Trinidad A.R.S. (VP4NC) supplies VP4 news: Famous British lass G2YL, VP2SX and YV6BC recently visited the island. . . . VP4LP earned commendation for locating a strayed HMS *Lynx* seaman through fixed- and mobile-station maneuvers. . . . The club's public amateur radio exhibition, VP4KR prime mover, opens on the 5th of this month. . . . Newcomer VP4KE prepares for DX with a 90-watt Heath rig and vertical. . . . VP4NC attempts to fill KP4AEB's empty NCS shoes on the Antilles Emergency Weather Net, aided by PJ3AF, VP2s DA and DJ at 1045 GMT on 7245 kc. . . . . W6CG of the RTTY Society of Southern California reports lively response from DX ops interested in long-haul radioteletype . . . . . W8KX gave up on bamboo quad supports after a recent unsatisfactory experiment. His finalized aluminum version survived a 50-foot free-fall test without damage. Walt also has done exhaustive research on mast-climbers' safety belts for those who prefer leather to rope above, say, 30 feet . . . . . W1RAN, though harrassed by superseasonal weather, managed an outstanding late-winter FP8BX performance. Ned caught W3ECR on six bands, VE3BWY on five, G3KMQ on four, and had a barrel of DX fun on good old 160 . . . . . NCDXC and VERON chorus local tidbits: HH2P, W8NWO, K8s NZD and OHG are mentioned in connection with that large March VP1WS outburst. . . . W6ITH puts the finishing touches on his FS7RT domicile and manages occasional QSOs from PJ2MC, VP2MR and VP8RT (Anguilla). . . . KG1CC is nuclear-powered and has a signal befitting . . . . . Interesting correspondence accumulates in response to the Project Pile-up commentary in March "How's" including worthy observations by W1s NJM RAN, K1AA, W6AM, W8KX, W9KQB and VE7EII. How do *you* see it?

**Ten Years Ago in "How's DX?"** — In your May 1952 eye-opener Jeeves tangles with some patently peculiar poetry . . . . Twenty phone seems to be the newsiest DX band with F3WV/FF8, HC8MM, KT1DD, MF2AA, MI3NA, OE13GK, ST2GL, TA2EFA, ZD4s BF BL and 9S4AD on tap. C.w. 14-Mc. values include FD8s AA AB, MI3s LK US, OE13s DC GB, OQ5s LL PE VN, TA3AF, VK1BS, YA1AA, YI3BZL, 4UAJ and 9S4AX . . . . Forty c.w. supplies FF8AC, KH6QY/KC6, VU5AB and ZD9AA . . . . Eighty is rife with EA9AP, OX3EL, VK9KK, VR2CG, ZB2I, ZC4XP, ZD4AB and ZK2AA. Even 75 phone catches the DX spirit with CT1BW, KH6PA/KJ6, TG8III, a bunch of VPs, YN1AA, ZLs 2BE 3JO, ZS6s DW and KD . . . . Ten phone is still good enough for KJ6AR, KW6AR, VR6s AC AL and AY . . . . The 1951-'52 160-meter season is adjudged far below DXpectations but OH3NY and ZC4XP report hearing W1BB . . . . Prominent PK4DA visits our shores en route Holland, and LABRE (Brazil) throws a 21-Mc. DX contest we can only listen to . . . . Jeeves is shocked by ancient club-auction plunder, while pictures of HB9HK, VP6PV and PY2DV enter your *QST* DX album. QST


## *May 1937*

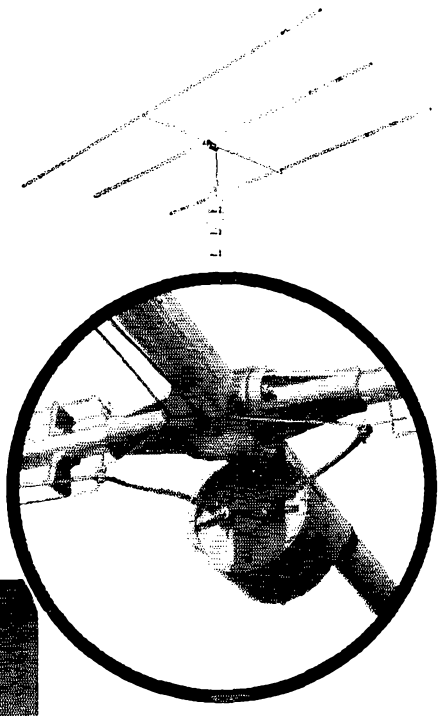
. . . Technical articles included a 100-kc. oscillator for frequency checking, a low-power modulator, a universal exciter with variable-frequency crystal control, some ultra-midget equipment for the ultra-highs (56 Mc.), an oscilloscope, a medium-power transmitter for 28 Mc., designs for Vee's and rhombics, graphical calculation of skip distance, and a couple of pages of hints and kinks.

. . . On the operating side, there was a preview of the results of the 1937 DX Contest, with many still well-known

(*Continued on page 160*)

# NEW FROM HY-GAIN

## 7-30mc Power Rated BALUNS



The Balun serves an important function when used with any coax fed 52 ohm impedance antenna. It improves the transfer of energy from the feedline to the antenna, eliminates stray RF from the feedline and supporting tower, and allows a total transfer of energy which improves the radiation pattern and reduces the possibility of TVI.

The Hy-Gain Baluns are easily installed, accepting PL259 coax connector on the input side. Up to 2½ KW with SWR less than 2:1.

BN12 — frequency range 13.8-30.5mc .....**$13.50**
BN24 — frequency range 6.8-14.5mc .....**$13.50**

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## FOR GOVERNMENT AND COMMERCIAL POINT-TO-POINT COMMUNICATIONS

- Six Crystal Controlled Channels, 1.6 to 16 Mc.
- Power Output—125 Watts P.E.P.
- Mains Supply—115/230 VAC, 50-60 Cycle
- Weight—48 Pounds
- Size—9½H x 18¼W x 17D Inches
- Compatible A.M.—50W., Carrier
- Simple Operation—7 Controls
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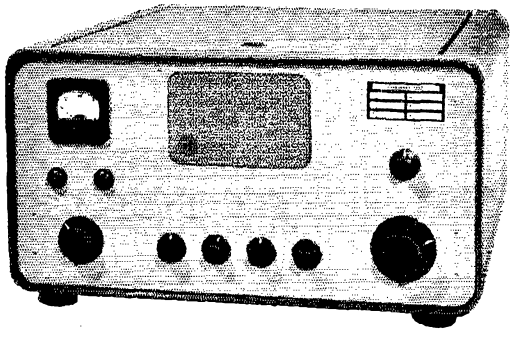
- Designed To Operate Under Extremes Of Temperature And Humidity
- CW and Teletype Capability
- Advanced Engineering Throughout

**COMPLETE WITH DESK TYPE TELEPHONE HANDSET OR DYNAMIC MICROPHONE**

**MODEL SB-6F**
**BASE STATION SSB TRANSCEIVER**



*Also available: 12 & 24 VOLT MOBILE SSB TRANSCEIVERS AND A COMPLETE LINE OF ANTENNA COUPLERS & ACCESSORIES*

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names having been high scorers. The scores of the seventh annual SS were reported, and special mention was made of W6ITH, the first operator to work all ARRL sections during any contest. He turned the trick on phone, incidentally. High scorer nationally was W1EZ, followed closely by W6KFC (now W4KFC) and W3BES.

. . . In the dirty linen department, some 160 stations were disqualified from the official results of the 1937 DX Contest because of off-frequency operation. It was a serious problem that year, and *QST* for May, 1937, devoted considerable editorial space in exhorting amateurs to observe the band edges. QST

## Silent Keys

It is with deep regret that we record the passing of these amateurs:

W1CQR, Arthur R. Boeder, Feeding Hills, Mass.
W1GCM, Joseph L. Caffery, Boston, Mass.
K1GTV, William A. Richards, Worcester, Mass.
W1MP, Ervin L. Crandell, North Abington, Mass.
W1SLD, Clarence M. Lowd, Sterling Junction, Mass.
W1VF, William B. Andrews, West Baldwin, Me.
W2API, Alfred W. Costello, Closter, N. J.
W2BUI, Harold F. Daniel, Camden, N. J.
W2GTK, Edward Cillick (Zielig), Bogota N. J.
K2JFR, William H. Mills, Ulster Park, N. J.
W2RHM, Harold F. Graves, Beaver Falls, N. Y.
W2SSH, Raymond L. Cassell, Bound Brook, N. J.
K3JHU, Albert F. Buchignani, sr., Weissport, Penn.
W4FKJ, Roy E. Roby, Staunton, Va.
W4FYX/5, Hayden B. Whitehouse, Enid, Okla.
W5EGJ, H. Herbert Key, Perryton, Texas.
W5EYI, Glen B. Peck, Tecumseh, Okla.
W5JBW, Amos C. Burkett, Sulphur, La.
W6KDX, Edwin D. Kilbourne, Los Altos, Calif.
W6ROG, David S. Ballou, Los Angeles, Calif.
W6UTJ, Ren M. Del Rio, Sonoma, Calif.
W7AES, Chris Munsen, Seattle, Wash.
K7ASE, Roy E. Neas, Clarkston, Wash.
W7HGS, Beverly D. Robison, Amity, Oreg.
WA8BGZ, Ralph O. Kachenmeister, Toledo, Ohio
W8GAD, Harry G. McCabe, Fairmont, W. Va.
W8LMB, Herman E. Schreiber, Barberton, Ohio
W8RZS, Carmen W. Lax, Inkster, Mich.
W8UUA, Walter F. Lindon, Gnadenhutten, Ohio
K9CKN, Norbert J. Zavesky, Chicago, Ill.
W9EEO, Warren L. Wright, Valparaiso, Ind.
W9KDP, Francis L. Hunsley, Edinburg, Ill.
K9WGC, Elvena E. O'Leath, Carthage, Ill.
W9WSR, Albert L. Striegel, Joliet, Ill.
WØAOF, Robert V. Letterly, Holdrege, Neb.
WØKAA, Richard F. Burns, Dubuque, Iowa
WØKZI, Lester E. Cook, Ottumwa, Iowa
WØREF, Ben G. Fairhurst, Bettendorf, Iowa
WØWBT, Charles M. Berry, Kansas City, Mo.
F3QT, Eugene Neel-Duchene, Vendee, France

## Recent Equipment

*(Continued from page 61)*

The power supply uses silicon rectifiers in a voltage doubler furnishing a bit over 400 volts under load. The doubler capacitors are 40 μf. each, and the output is further filtered by a

*(Continued on page 162)*

150-ohm resistor and 20-μf. capacitor.

The cabinet is a one-piece wrap-around of quite heavy metal. It does not, however, make good enough electrical contact with the chassis to function as a really tight shield, and there is no internal shielding in the transmitter. The a.c. line has r.f. chokes and bypass capacitors on each side.

There is the usual accessory socket on the rear of the chassis. One pair of terminals offers switched 115 volts for operating an antenna relay. Filament (6.3 volts) and plate (about 400 volts) power are also available, along with a ground terminal. Another pair of terminals is in series with the key jack, so a jumper plug must be used in normal operation of the transmitter.

The model we tried out was furnished wired, so there is nothing we can say about assembly of the kit except that it looks no more difficult than others of the same order of circuit complexity. The instruction book seems quite detailed, and is well got up with large, clear illustrations and a couple of inserts having larger-than-life pictorials. — *G. G.*

**T-60 Transmitter Kit**

**Height:** 5 inches.
**Width:** 12 inches.
**Depth:** 7 inches.
**Weight:** App. 12 pounds.
**Power requirements:** 110 watts at 105–125 volts a.c., 60 cycles.
**Price class:** $50.
**Manufacturer:** Allied Radio Corp., 100 North Western Ave., Chicago 80, Ill.

## Strays

There has been much publicity of late concerning the poor morale of various Reserve units called to active duty last fall. This hasn't been true on the USS Coates, a destroyer-escort manned entirely by Selected Naval Reserve personnel. A big plus factor on the Coates is W1QJM, the ship's chief radioman. Stan (above) regularly handles phone traffic from members of the ship's crew back to their families, with the help of K1CLR, another of the Coates' radiomen.

## Get Out the Vote

*(Continued from page 62)*

at State College, which explains how a town can come to have such a ridiculous name. Penn State's Delta Zeta sorority worked along with the NARC by providing nine of its members to serve as free baby-sitters for voters. Each mobile was provided with Delta Zeta baby-sitter, so if a voter being taken to the polls needed one, she would be available at no cost.

At 2000, when the polls closed, a mobile contacted each voting place and checked on the unofficial number of voters casting their ballots. This information was transmitted to K3HKK, where it was compiled and telephoned to the local broadcast station, making the results available within fifteen minutes after the polls closed — considerably sooner than if any other method had been used.

Amateurs participating in this club activity were K3AKR, W3CDR, W3EWX, W3JTS, K3KEM, K3KMO, K3LUX, K3LVA, KN3-MYB, W3NEM, W3SAY, W3SYY, and W3UTI. In addition, we had many non-licensees helping out — the Delta Zetas, XYL's logging incoming telephone calls, etc. The NARC wishes to express its thanks to all who helped make this effort a success.

### *Publicity*

The publicity given the club by local news services serves as an example of how easy it is for ham clubs to obtain good publicity. The announcement in the local newspaper, *The Centre Daily Times*, on the day prior to the election, was short and to the point, running only 4½ column inches — but was located front page center. When you consider the issues and vote forecasts that were pushing most other news from the front page the day before election, you will realize this was an impressive location for local news. On election day, the newspaper carried a two-column picture of the club station in operation, with the caption giving pertinent information on the NARC campaign. Then a follow-up article told of the results of the campaign.

A press release was prepared for the local broadcast station, WMAJ, and was carried on all local news broadcasts, before and during election day. During the three hours the campaign was in effect, WMAJ carried spots approximately every eight minutes, ranging in length from ten to twenty seconds each.

A 16-mm. film was prepared for use on WFBG-TV, Altoona, Pennsylvania. This one-minute film clip was carried on the late newscast the night before, and as a separate spot on election day, just as the club effort got under way.

The fact that should be pointed out is that this publicity was *there for the asking*. All three news services used everything the NARC released to them, and were happy to have it. To the NARC it was good publicity, but to the news services it was NEWS! QST

# HAM-ADS

(1) Advertising shall pertain to products and services which are related to amateur radio.

(2) No display of any character will be accepted, nor can any special typographical arrangement, such as all or part capital letters be used which would tend to make one advertisement stand out from the others. No Box Reply Service can be maintained in these columns nor may commercial type copy be signed solely with amateur call letters. Ham-ads signed only with a box number without identifying signature cannot be accepted.

(3) The Ham-Ad rate is 35¢ per word, except as noted in paragraph (6) below.

(4) **Remittance in full must accompany copy, since Ham-Ads are not carried on our books. No cash or contract discount or agency commission will be allowed.**

(5) Closing date for Ham Ads is the 20th of the second month preceding publication date.

(6) **A special rate of 10¢ per word will apply to advertising which, in our judgment, is obviously non-commercial in nature.** Thus, advertising of bona fide surplus equipment owned, used and for sale by an individual or apparatus offered for exchange or advertising inquiring for special equipment, takes the 10¢ rate. Address and signatures are charged for. An attempt to deal in apparatus in quantity for profit, even if by an individual, is commercial and all advertising so classified takes the 35¢ rate. Provisions of paragraphs (1), (2) and (5), apply to all advertising in this column regardless of which rate may apply.

(7) **Because error is more easily avoided, it is requested copy, signature and address be printed plainly on one side of paper only. Typewritten copy preferred but handwritten signature must accompany all authorized insertions.**

(8) No advertiser may use more than 100 words in any one issue nor more than one ad in one issue.

*Having made no investigation of the advertisers in the classified columns except those obviously commercial in character, the publishers of QST are unable to vouch for their integrity or for the grade or character of the products or services advertised.*

HAMFEST! Starved Rock Radio Club, June 3rd/For details write SRRC/W9MKS, G. E. Keith, Secretary, RFD No. 1, Box 171, Oglesby, Ill.

KAW Valley Radio Club Annual Hamorama, Topeka, Kansas, Sunday, May 13 rain or shine. Garfield Park Shelter House. Covered dish dinner, mobile hunts, bingo for ladies. UHF prizes, direction info all bands.

CALLING All East Texas Hams! Attend all-day outing Sunday May Twentieth Dangerfield Statepark Talkin 3970 Kcs. Bring Your lunch kids XYL.

ROCHESTER, N.Y. is again Hamfest Headquarters for W.N.Y. on May 12. See Hamfest Column this issue for details.

WANTED: Early wireless gear, books, magazines, catalogs before 1922. Send description and prices. W6GH, 1010 Monte Dr., Santa Barbara, Calif.

MOTOROLA used FM communications equipment bought and sold. W5BCO. Ralph Hicks, Box 6097, Tulsa, Okla.

RECEIVERS: Repaired and aligned by competent engineers using factory standard instruments. Factory service at reasonable prices on Collins, Hallicrafters, Hammarlund, Gonset, National, Harvey-Wells. Our 26th year. 90 day guarantee. Douglas Instrument Laboratory, 176 Norfolk Ave., Boston 19, Mass.

DON'T Fail FCC tests! Check yourself with a time-tested "Sure-check Test". Novice, $1.50; General $1.75; Extra, $2.00. We pay the postage. Amateur Radio Specialties, 1013 Seventh Ave., Worthington, Minn.

TRIGGER. Cash paid for ham equipment. 7361 W. North Ave., River Forest, Ill. PR 1-8616, Chicago #TU 9-6429.

TOROIDS: Uncased 88 Mhy, like new. Dollar each. Five/$4.00 P.P. DaPaul, 309 So. Ashton, Millbrae, Calif.

SOUTHERN California: Transmitters and receivers repaired, aligned. Bandwidth, frequency, harmonics measured. Used ham gear bought, sold, traded. Robinson Electronics, 922 W. Chapman, Orange, Calif. Tel. KEllog 8-0500.

WANTED: All types of aircraft or ground radios. 17L, 618S, 388, 390, GRC, 51V, 51X2 units. Especially any item made by Collins Radio whatsoever. Also large type tubes and test equipments. For fast action write Ted Dames, W2KUW, 308 Hickory, Arlington, N.J.

WANTED: Two or more 304TL tubes. Callanan, W9AU, P.O. Box 155, Barrington, Ill.

ATTENTION Mobileers! Leece-Neville 6 volt 100 amp. system, $50; 12 volt 50 amp system, $50; 12 volt 60 amp system, $60; 12 volt 100 amp syst. $100. Guaranteed no ex-police car units. Herbert A. Zimmermann, Jr. K2PAT, 1907 Coney Island Ave., Brooklyn 30, N.Y. Tel. DEwey 6-7388.

WANTED: Military or Industrial laboratory test equipment. Electronicraft, Box 399, Mt. Kisco, N.Y.

WANT 1925 and earlier ham and broadcast gear for personal collection. W4AA. Wayne Nelson, Concord, N.C.

MICHIGAN Hams! Amateur supplies, standard brands. Store hours 0830 to 1730 Monday through Saturday. Roy J. Purchase W8RP, Purchase Radio Supply, 327 E. Hoover St., Ann Arbor, Michigan. Tel. NOrmany 8-8262.

HAM TV Equipment bought, sold, traded. Al Denson, W1BYX, Rockville, Conn.

WE Buy all types of tubes for cash, especially Eimac, subject to our test. Maritime International Co., 199 Front St., Hempstead, N.Y.

QSLS? WPE? Finest and largest variety samples 25¢ (refunded). "Rus" Sakkers, W8DED, Box 218, Holland, Michigan.

C. FRITZ QSLs guarantee greater returns! Samples, 25¢ deductible. Box 1684, Scottsdale, Arizona (formerly Joliet, Ill.).

QSLS—$2.00 per 100 postpaid U.S. only. Glossy, red and green. All orders mailed within 10 days. Free sample. Hobby Print Shop, Umatilla, Fla.

QSLS Three and four colors on lustre coat stock. 100 $3.85 or 200 for $6.90 combination mixture—fast service—satisfaction guaranteed or order our sample catalog showing over one hundred designs. $1.00 (refundable). Constantine Press, Bladensburg, Maryland.

QSL-SWL-WPE. Finest. Since 1946. Largest assortment. Priced right. Send 10¢ for samples to: Glenn Print, 1103 Pine Heights Ave., Baltimore 29, Md.

QSLS "Brownie." W3CJI, 3110 Lehigh, Allentown, Penna. Samples, 10c; with catalog, 25c.

QSLS-SWLS. Samples 10¢. Malgo Press, Box 375 M.O., Toledo, 1, Ohio.

DELUXE QSLS. Petty, W2HAZ, Box 27, Trenton, N. J. Samples, 10c

QSLS-SWLS, 100 2-color glossy, $3.00; QSO file cards, $1.00 per 100. Samples, 10¢. Rusprint, Box 7507, Kansas City 16, Mo.

QSLS: samples 25¢ (refundable). Schuch, W6CMN, Wildcat Press, 6707 Beck Ave., North Hollywood, Calif.

QSLS, SWLS, WPE. Samples 5¢. Nicholas & Son Printery, P.O. Box 11184, Phoenix 17, Ariz.

QSL's 100 glossy 4 color $3.70 Postpaid. Samples 10¢, or send 25¢ for large assortment and "Danger, High Voltage" sign. Dick, W8VXK, Rt. 1, Gladwin, Michigan.

QSLS, SWLs, XYL-OMs (sample assortment approximately 93¢) covering designing, planning, printing, arranging, mailing; eye-catching, comic, sedate, fantabulous, DX-attracting, prototypal, snazzy, unparagoned cards (Wow!). Rogers, KØAAB, 961 Arcade St., St. Paul 6, Minn.

DON'T Buy QSLs-SWLs until you see my free samples. Bolles, W5OWC, Box 9445, Austin, Texas.

SPACE AGE 3-D QSL cards. Don't miss out! Free sample brochure. 3-D QSL, Dept. Q-Y, 5 Wood End Road, Springfield, Mass.

SUPERIOR QSLS, samples 10¢. Ham Specialties, Box 823 Bellaire, Texas

ATTRACTIVE QSLS: Large variety of styles, cartoons, Multicolored same price. Personal ham stationery. Samples 25¢ (deductible). Paul Levin, K2MTT, 1460 Carroll St., Brooklyn 13, N.Y.

QSLS, 3-color glossy, 100—$4.50. Rutgers VariTyping Service, 7 Fairfield Rd., Somerset, N.J.

PICTURE QSLs. Cards of your shack, home, etc., Made from your photograph. 1000, $13.00. Raum's, 4154 Fifth St., Philadelphia 40, Penna.

QSLS, 300 for $4.35, Samples 10¢. W9SKR, "George" Vesely, Rte. #1, 100 Wilson Road, Ingleside, Ill.

QSLS-SWLS. Samples free. W4BKT Press, 123 No. Main, McKenzie, Tenn.

QSLS. Samples free. Phillips, W7HRG, 1708 Bridge St., The Dalles, Oregon.

QSLS. Samples dime. Rubber stamps: name, call and address $1.35. Harry Sims, 3227 Missouri Ave., St. Louis 18, Mo.

QSLS, $2.50 and up. Samples 10¢. RBL Print M.R. 12, Phillipsburg, N.J.

QSLS. Free Samples. W7HZ Press, Box 183, Springfield, Oregon.

QSLS. Kromkote-3 color. Order 200, get 25 each of 8 different styles—many styles. Samples 10¢. Progress Printing, Box 1154, Biloxi, Miss.

QSLS, SWL's that are different, colored, embossed card stock, and "Kromekote". Samples 10¢. Home Print, 2416 Elmo, Hamilton, Ohio.

RUBBER Stamps, $1.00. Call and Address. Clint's Radio, W2UDO, 32 Cumberland Ave., Verona, N. J.

HUNDRED QSLS: 80¢. Samples, dime. Meininger, Jesup, Iowa.

CERTIFIED QSLS-SWLS, unique designs, speedy service. Catalog 25¢ (refundable) Certified Printing, Box 1023, Whittier, Calif.

QSLS. Kromekote 2 & 3 colors, attractive, distinctive, different. Free ball point pen with order. Samples 10¢. K2VOB Press, 62 Midland Blvd., Maplewood, N.J.

1½" Call QSLs (2 sides printed). 100, $2.75; sample free. Gariepy, 2624 Kroemer, Ft. Wayne, Ind.

QSL Specialists. Distinctive. Samples 15¢. DRJ Studios, 2114 N. Lavergne Ave., Chicago 39, Ill.

QUALITY QSLS. New designs monthly. Samples 10¢. Giant, 25¢. Savory, 172 Roosevelt Rd., Weymouth, Mass.

100 QSL's, $1.00 (2 color, $1.50). Lewalski, 1367 Perklomen, Reading, Penna.

QSLS. Samples, dime. Printer, Corwith, Iowa.

RUBBER Stamps for hams, sample impressions, Hamm, W9UNY, 542 North 93, Milwaukee, Wis.

QSLS. Outstanding. Dime. Filmcrafters, Box 304, Martins Ferry, Ohio.

QSLS 2 color glossy, 100, $2.50 samples dime. Ramsbottom Print Shop, Box 237F, Kirksville, Mo.

QSLS SWLS 3-colors, 100 $2.00. Samples dime. Bob Garra, Lehighton, Penna.

QSLS. Stamp and call brings samples. Eddie Scott, W3CSX, Fairplay, Md.

QSLS. Priced right. Samples (stamp appreciated). K2ZMH Press, Box 55, Copake Falls, N.Y.

QSLS. Samples no charge. Blanton's, Box 7064, Akron 6, Ohio.

YLRL Specials, OMs, reasonable, nice designs, samples dime, W2DJH Press, Warrensburg, N.Y.

MAKE Your own QSLs with quality rubber stamps. Sample impressions (stamp appreciated). Vanguard Industries, Box 1386, St. Thomas, V.I.

CANADIAN Used, surplus and new gear. Giant catalog. 25¢. Low prices, thousands of items. ETCO, Box 741, Montreal, P.Q., Canada.

CANADIANS! QSLS in fluorescent colors, by silk screen process. Free samples. Martin. 314 Delatre St., Woodstock, Ont.P., Canada.

CANADIANS: Sell Viking Invader 2000, never used. No duty into U.S.A. Also, 75A4, excellent. VE3BVX, 11 Sussex N., Lindsay, Ont., Canada.

SELL: Heathkit AR-3 with cabinet (wired). In exc. condx, $55.00. E. Kopulos, General Delivery, Red Deer, Alta., Canada.

CANADIANS! CE2OA, BC458, 80-10 VFO, Vantron 300 linear amplifier, like new, $275 complete. Mike, VE2ANV, 7922 Mackle, Cote St. Luc, P.Q., Canada.

NC-303 with calibrator, $410, Johnson TR switch, $35. Contact VE8RX, Box 65, Ft. Smith, NWT, Canada.

WANTED: 7JP4 or 8BP4 elec. static. Defl. pix tube. VE5JT, Box 69 Glenside, Sask P., Canada.

WANT: 2 variable condx, 6 Kv and 200 mmf or more. WØAIH P. Bittner, Desboro, Ont. P., Canada.

CANADIANS: Globe Scout, $100; Heath VFO, $15. Jim Clarke, VE3CSY, Rte. 5, Peterborough, Ont. P., Canada.

CANADIAN Hams! Collins 75A4, brand new, not used, with 2 filters, still have guarantee tag, $675.00; Communicator IV 2-meter with cubical quad also attached to it, a Nuvistor Ameco pre-amp, $390; Gonset G-76 with AC and DC power supply of Gonset and bracket, $575.00; 2-meter 40-watt RCAF surplus made by RCA with instruction book, $145.00. VE-2 NZ, 4240 St. Denis, Montreal, Canada.

WANTED: KWM-2 Transceivers and any old issues of QST from inception through 1925. Al T. O'Neil, Camp Lakeview, Lake City, Minn.

TOROIDS: 88 mhy with mounting hardware. Uncased; like new. Information sheet included. $1 ea. 5/$4.00 postaid. KCM, Box 88, Milwaukee 13, Wisconsin.

ANTENNA Farm 20 acres. Tall sky hooks. Trout brook, 7 miles to capitol. $2000. W1THM

FOR Sale: Gonset G-76 transceiver with A.C. power supply; booklet included. Less than 50 hours use. Good condition $450.00 W3CWP, M. Conroy, 1117 E. Price St., Phila. 38, Penna.

SALE: Collins SSB station 32S-1, 312B-4, 516F-2 and 75S-2 rcvr with 500 cycle c.w. filter and 20 extra xtal positions. $1250 f.o.b. Baltimore, Md. Also Collins 75A-4 and DX-100. Best offer takes either. Chuck Sprague, K3LNK, 222 Stonewall Rd., Balt. 28, Md.

SELL: B&W 5100 and 51SB. Best offer. John Gillen, 912-50 57th St., Phila. 43, Penna.

S-77 converted, immaculate. Inquire Bob Ensminger, 712 Locust, Lodi, Calif.

KWS1, $900. W2ADD

LOWEST Prices. Factory fresh sealed cartons. Central Electronics, CDR, Dow-Key, Drake, Electro-Voice, Gonset, Gotham, Hallicrafters, Hy-Gain, E. F. Johnson, Mosley, P & H Electronics, Telrex. Self-addressed stamped envelope for lowest quotation on your needs. Gonset G-33 brand new factory sealed cartons, $75.00. Brand new PL-172 and socket, $125.00. Used, perfect Ranger, $150.00; Valiant, $275.00; SX-110, $125.00; SX-100, $180.00; DX-40, $50.00; Sonar-120, $50.00; Adventurer, $35.00; Two brand new Eimac 4CX300A's, both $55; Mosley A-320B, $40. H D H Sales Co., P. O. Box 73, Rowayton, Conn.

PROCEEDINGS Of the I.R.E. 1914 through 1933. Some volumes complete. Will sell any copy or copies. Excellent price on entire lot. (Mrs. Miriam Knapp, W1ZIM, 191 Beechwood Rd., West Hartford 7, Conn. Tel. JAckson. 3-7560.

CASH For your gear! We buy, trade and sell. We stock Hammarlund, Hallicrafters, National, Johnson, RME, Hy-Gain, Mosley and many other lines of ham gear. Ask for used equipment list. H & H Electronic Supply Inc., 506-510 Kishwaukee St., Rockford, Ill.

WANTED: For personal collection: QSTs January through August, 1916; ARRL Handbooks: Editions 1 and 5. W1CUT, Box 1, West Hartford 7, Conn.

CHICAGOLAND Amateurs! Factory authorized service for Hallicrafters, Hammarlund, Johnson, Gonset. Service all amateur equipment to factory standards. Heights Electronics, Inc., 1145 Halstead St., Chicago Heights, Ill. Tel. SKyline 5-4056.

TRAVEL Abroad costs less, and is lots more fun when arranged by The International Ham-Hop Club. Non-profit, non-political. Members in 50 countries. W6THN/1, Gunther, 165 Lloyd, Providence 6, R.I.

SSB Transceiver from the BC-453, 40 or 80 meters. 53 page step by step instructions, $3.00 ppd. WRA, 10517 Haverly St., El Monte, Calif.

SELL swap. Receivers: Skyrider Marine covers b/c and 140kc—18Mc when hi ranges realigned; K80X GE recvr 5 bands no bfo; Hall, S-31 BC-FM Tuner 9x18 panel; Autronic Key(new) $13 fob; For RTTY: WE JA head & Kellogg WU5B distributor, 8x17 oak base; Mod 504 B/W Freq., Mult. in SW3 box; Fld. Strength meter 0-10 micro-v Ch 2-13 Transvision; Heathkit S-2 sig. tracer like new; 522-625A vhf transmitter; QST Xmtr easily updated for new ham 6V6G 6N7G 807 exciter 7x19x¼ Al, panel & 100 ma 3" meter fr ea stage, no pwr supply; Fil. Transf: (2) 12v c.t. one 175w; 5v 25a Thor Type 6420. Best offers. Want: 1200 cy filter for 75A4. Compact linear amplifier for rack mount. W1BDI, 35 Brookline Dr., West Hartford 7, Conn.

SSB Station: Hammarlund receiver HQ-170 with speaker in original cartons, $285; Gonset SSB exciter GSB-100, $330, both in excellent operating condx and appearance. Bryson Lowman, W4TTH, 3212 Park St., Columbia, S.C.

75A4 #4601, perfect, $475. Extra filters available. W2KOY, 1740 Front St., East Meadow, L.I., N.Y.

FOR Sale: One of the largest collections in the country of early wireless parts, commercial and amateur receiving and transmitting gear, broadcast gear, scanning disc, TV sets and tubes, $5,000 and you pack and transport. Not interested in piecemeal sales. A bargain for anyone seriously interested in a museum of early wireless lore. Will consider giving collection to a Middle West school, museum or institution who will properly care for and display same for public benefit. Franklin F. Wingard, 500 Rock Island Bank Bldg., Rock Island, Ill.

SELL: Like new Eldico 100-F, $475. New PL-172 and socket $105; (4) 3B28 $14 power trans. 2800 VDC @ 1 amp. $75. DuMont scope, $30. WA2ELC Al. Samter, 1268 East 12th St., Brooklyn 30, N.Y.

SELL: Johnson Thunderbolt, $400; HT32, $400. Both in like-new condx. Used very few hours. Write for details. K2SIJ/8, 4038 Herman Ave., S.W., Grand Rapids 8, Mich.

GOODIES: Engraved Shack Plaques—Badges—Desk Plates. Printed Call Card Mailing Envelopes, etc. Illustrated list, 10¢ (refundable). K1VRO, Shirley Decker, 36 Hampden Street, Westfield, Mass.

INDUSTRIAL Tubes type 5555, $95 each. AN/URA-6 frequency shift converters, $295 or will swap for other gear. Spera Electronics, 37-10 33 St., L.I.C., N.Y.

FOR Sale or Trade: Federal Model LX-1 U.H.F. signal generator, 115 volts a.c., 60 cycles, 5 bands, 7.5 Mc. to 330 Mc. Output 0-1000 microvolts, 1-20 millivolts, internal or external modulation, excellent condition. Will sell for best offer or swap, what have you? Write L. G. McCoy, W1ICP, c/o ARRL, 38 LaSalle Rd., West Hartford, Conn.

COLLINS 75S-1, 500 cycle filter, all crystals; 32S-1, 516F-2 power supply, 312B-4 console. Last 3 units never used, original cartons. Cost $1,450, sell complete $1,000. Also, mint Ranger, $180.00. QRL work. W4ALR/2, P.O. Box 53, Burlington, N.J.

BEFORE You buy receiving tubes or electronic components, send now for your giant free Zalytron current catalog featuring nationally known Zalytron first quality TV radio tubes, Ham, Hi-Fi Stereo Equipment, Kits, Parts, Special Purpose Tubes, antennas, etc. All priced to Save you plenty. Why pay more? Zalytron Tube Corp., 220-Q W. 42nd St., N.Y.C.

KWM-2 with 516F-2 power supply. Late serial number. Like new, $1050. Mosley TA33 with AR-22 rotator, $100. Both $1125. Charles Cranfill, W3VCN.

KWM-1, $495; 12V 516E-1 power supply and 351D-1 mount, $195. W8KBT, 1417 Holderby Road, Huntington, W. Va.

COLLINS 12 volt power supply, $200; mobile mount, $70 for KWM2. K9OSN, Route 4, Freeport, Ill.

FOR Sale: Like new Eldico Kilowatt linear 1000F and filter SSB exciter 100F. Each $400. Rev. Tom Patterson, K2CIV, 114 Old Country Road, Hicksville, L.I., N.Y.

RCA Oscilloscope, $35.00. K2PHF.

COLLINS 75S-2, $375; URA-8A converter, $225; 51J2, 51J3, 51J4 reconditioned Collins receivers 500 kc.—30-30.5 mc. Teletype and Kleinschmidt equipment takes in trade for new amateur equipment. Write Tom, W1AFN, Alltronics-Howard Co., Box 19, Boston 1, Mass. Tel. Richmond 2-0048.

SELL: B&W 5100 and 51SB. Best offer. John Gillen, W3ARI, 912 So. 57th St., Phila 43, Penna.

FOR Sale: Lettine 242 6M. $49.50; Adventurer $24.95; Hallicrafters 8R40 rcvr, $49.50; VF-1, $12.50; QF-1, $6.00; AC-1, $7.50; GD-1, $12.50; FCV-1, $10. Also Telrex 4-el. beam, other misc. items. K4JCX, P.O. Box 162, Oak Ridge, Tenn.

SALE: Refinished panel for Viking II xmtr, $4.00; ARC5 xmtr, 7 to 9 Mc., $8.00. Want AF67. J. Winward, 7423 Claridge St., Phila. 11, Penna., RA 5-1047.

HRO-7 receiver, in mint condx: $125.00; Heath Cheyenne Mobile xmtr., $95. Brand new, W2MHH, Joe Jeransky, 426 Secatogue Ave., Farmingdale, L.I., N.Y.

SELL: Quantity 700 receiving tubes. Best offer. List for stamped envelope. W2POG, 188 Concord Drive, Paramus, N.J.

KW Linear, PS components, complete, $75; new Hy-Gain 14-AVS vert. ant., 14-RMK mtg. kit, $29; new 813's, $5 ea; Heath OL-1 'scope, $15; AV-3, acvtvm, $15; Raytheon portable marine RDF, $15; E-V Cardax mike, $5.00. Carl King, 641 Topton Place, Blue Bell, Penna.

HALLICRAFTERS SX-62A receiver with R-48 speaker. Excellent condition. $200.00. Harold Feldman, 83-60 Vietor Avenue, Elmhurst 73, L.I., N.Y. Phone HA 6-4028.

TUBES: New 4-400A, $20; new 4X250B, $10; two 416B's, in gud condx, $7 ea. Jared Wolf, K3ATX/2, 1451 Lenox, Schenectady, N.Y.

HY-GAIN 18HT Hy-Tower antenna, 6 months old, neighbors complaining, $80; Cheyenne mobile transmitter, $80, Bob, W2QPP, Rosedale, N.Y.

ELECTRONIC Kits wired and tested, finest quality work. Hammond, KØHWE, 1533 D Ave. Northeast, Cedar Rapids, Iowa.

SELL: HT-37, $345.00. K2EHR.

LAMPKIN 103-B MFM in dandy shape, $190.00. WWV cal. chart. Consider even swap NC-183D, P.S. Hello to all my old ham pals! Oleg, KL7DQD, (ex-W2MRL), 4303 Lois Drive, Spenard, Alaska.

WANTED: Gonset VFO Model 3024. Sell; Collins 75S-1, serial No. 3357 with F455Q-5 mechanical c.w. filter, in mint condx, original carton and manual, $420.00. Robert Kelemen, WA2-PJU, 384 Lakeview Ave., Clifton, N.J. Tel. GR 3-1966.

SELL: Hallicrafters SX-100, like new, $185. WA2QMN, 186 Java St., B'klyn 22, N.Y. EV 3-0956 after 5 PM.

WANTED: Viking Valiant. Henry Cherney, 852 Walnut St., Elyria, Ohio.

KNIGHT R-100 spk. and S-meter. In A-1 condx, $100. WA2-QON. R. Paul, D'Amore, Dorothy, N.J.

SELL: NC-300 serial 481-1323, $219.00; Poly-comm, 62B, inc. mic. cords, bkts, etc. Serial 32B852, $209; Finco 62A beam (bent), $15. All exc. condx, all plus shipping. K2BPT, RD 3, Butler, N.J.

WANTED: S19R Hallicrafters in gud wkg. condx on four bands. No modifications. John R. Ottinger, 814-62 St., Brooklyn, N.Y.

VFO-Knight VFO, $29; Globe Scout 65-A, $50; rotary inductor from BC-375, $4; transmitting condensers, meters, relays, dynamotor; 12v inp., 625V at 225 mils outp., $7; lots more . . . free list! Want: a used DX-100B. K3LIZ, 239 W. 21 St., Chester, Penna.

JOHNSON Thunderbolt, used 20 hours, $350.00; power attenuator, 115 volt blower. Offers? WA2ANN, P.O. Box 2548, Cheektowaga 25, N.Y.

MOBILE: Regency ATC-1 transistorized tunable converter, 10-80, $35; Tecraft 10 and 15 mtr. xmtr, $30. Local deal. WA2GFO, YO 9-0867, Carteret, N.J.

RANGER with PTT, in exc. condx, $175.00. Real good rig! Robert Urich, Garner, Iowa.

SELLING Station: SX-100 rcvr with R47 spkr, in mint condx, $150.00; LT Ham rotator, $75; 1 Hy-Gain Thunderbird 3-el. full size Tribander slim taper traps, $70; 1 MicroMatch complete $20; 1 B&W low-pass filter, $10; 1 RME DB23 Preselector, mint, $25. 1 Dow-Key relay antenna 110 volts, $5.00. Robert Dunham, W3ARR, 12 Fenwood Place, Yardley, Penna.

SELL: Eico 720 xmtr and 730 mod. Both for $70.00. K8RCU/9, Gary Hultman, 5000 N. Spaulding Ave., Chicago 25, Ill.

WANTED: Johnson Matchbox with SWR meter model 250-23-3. State price and condx. W5JZL, Rte. 1, Box 163, Luling, La.

A-1 RECONDITIONED equipment. On approval. Trades. Terms. Hallicrafters S-85 $79.00, SX-99 $99.00, SX-100 $199.00, SX-111 $179.00, SX-101A, HT-32, HT-37; Hammarlund HQ-100 $129.00, HQ-110 $179.00, HQ-160 $229.00, HQ-170 $289.00; HRO-60 $345.00; Gonset G-50 $229.00; Central 20A $149.00, Viking II $159.00, Valiant $279.00; Collins 75S-1, 32S-1, 32V-1, 32V-3, 75A-4, KWM2; Elmac, Globe, Gonset, Heath, Johnson, RME, other items. List free. Henry Radio Company, Butler, Missouri.

COLLINS 51J3 receiver. Excellent condx. Extra parts, $495. Doug, W7PGT, 608 Fern St., Nampa, Idaho.

WANTED: Sideband filter Burnell S-15000. Write Clem Sepanski, 3557 14th Ave., Kenosha, Wis. State price and condition.

SACRIFICING DX-20 with modulator. Works very FB. $39.00. K4YSC, 1285 Centreville Rd., Manassas, Va.

COMPLETE Station: Apache (new), Mohawk, spkr, DB23, Preselector, Matchbox w/directional coupler (new); D-104 w/G-stand, $700. Will deliver personally or meet within 100 miles radius this QTH. Will not ship, sry. K1GAW.

SELL: DX-100, FS meter; TR relay, SX-71, 3 el. 10-meter beam; TT-30 mic, Johnson bug, all in gud oprtg condx. Write K2SEB, George Tekirian, 851 Bogert Road, River Edge, N.J. $315 takes all!

WANTED: Hallicrafters R-42 speaker. State price, condition in your first letter. W5OSX, 222 Duncan Ave., Jackson 2, Miss.

FOR Sale: Valiant, factory wired, blemishless, exc. condx, $275.00; Heath SB-10 brand new, $75; Globe LA-1 400 watt factory-wired linear, never used, $60; RME DB-23, new condx, $30: Heath DX-20, gud but scratched, $25. W4TAI, 12 Golden Isle Drive, Mount Dora, Fla.

SELL: Mohawk, Apache and accessories. In exc. condx: $475.00. Bob Snicer, 217 Osborn Road, Albany, N.Y.

MOBILE For sale: All Gonset. Instructions included. Commander transmitter, $65.00; VFO, $25; Super Six converter, $30; Superceiver, $65.00. All in exc. condx. W7EBG, Frank Shopen, 4411 No. 47 Drive, Phoenix 31, Arizona. Postage must be added!

FOR Sale: MOBILE Elmac AF67 xmtr, PMR7 rcvr; 12V power supply and dynamotor. Best offer over $180 takes all. Good condition. Marty Feins, K2RXH, 103 Wecquahic Ave., Newark, N.J.

KWM-2, exc. condx and appearance. All factory mods are installed. Serial number 48. $875. Also PM-2 supply, $120. W4NDB, 3410 Loma View Dr., Altadena, Calif.

WANTED: Two sets B&W HDVL coils, Jack bar, link assembly, all or part. W7RGL, Rte. 1, Box 438, Poulsbo, Wash.

KW Final c.w., FM, SSB. PP 250TH's, plug-in coils 80 thru 10. Two spare tubes. Jumbo power supply. All for $100. W1LPG, Observatory, Harvard, Mass.

APACHE, like new condx, SX-99, spkr, Heath Q-mult., mike, baluns, coax relay, bug, $350.00. K8NNK, 904 Delaware St., Mt. Hope, W.Va.

WANTED: Complete transmitting-receiving station. Must be new or in perfect condition, also mobile rig. Paying cash and pick up your location. Send complete information in your first letter. Calleja, Box 2807, Mexico City.

SELL: HT-37, $350.00; SX-100, $199, exc. condx. New Roberts stereo tape deck, $100. Lt. Robt. W. Sawyer, USAF, 207 Park Belton, Mo.

WANTED: Gonset G77B R.F. unit only. State condition and price. W1JLX, 7 Sheffield Rd., Danvers, Mass.

FOR Sale: Hallicrafters SX100, like new, in carton: $225.00; two 6V FM mobile transceivers, $40 ea; Eico 315 signal generator, like new, $35. Cleaning house, send for list. E. K. Taggart, Box 373, Nashville, Ind.

FOR Sale: Collins 75A-2 rcvr w/spkr, $275.00. Need money for college. Joe McCormick, 819 Columbus, Pacific, Mo.

SELL: AF67, 530 D3 CB dynamotor, PMR6A and pwr. supply, Dow-Key relay, Web-Wip Band Spanner ant., hvy. duty spring and chain bumper mount, all 12 volt: $225.00. W3EQK, HO 7-3905, Balto, Md.

KWM2, 110 v.a.c. pwr. supply, Astatic 10-C mic & G-stand, Hy-Gain TH-4 ant., 100 ft. RG/8U, AR-22 rotor and 100 ft. 4-conductor cable, speaker, SWR bridge. Complete station $1000. S. A. Clifton, 1814 Main St., Fortuna, Calif. RA 5-2660.

SX-111, brand new condx, $210. First offer takes. Paul Perrello Atran, K2VAH, VT-24 Avionics, Chase Field, Beeville, Texas.

AMECO Senior code course, Smith code course, oscillator and key, Electricians course, CIRE math course, NRI TV course, Rider Q & A. No reasonable offer refused. Witmer, Colonial Pk. 201 Byron Avenue, Harrisburg, Penna.

SELL: New HRO-60T (#555-0086) 10 hrs. use, in original carton: coils and instruction book. Cost $745. Make an offer. Consider new HQ-170C with speaker, exchange, plus a few bucks. Brunner, 55 No. Mills, Lodi, Calif.

MUST Sell: Lafayette KT-200. In perf. condx: $70.00. WA2-IBG, 30 S. Maple Ave., Marlton, N.J.

ALUMINUM for every ham need. Write to Dick's, 62 Chery Ave., Tiffin, Ohio, for list of tubing, angle, channel, castings, plain and perforated sheet, and complete beam kits.

SALE: Western Electric Mod. 17B oscillator 0-150 Kc. In A-1 condx: $500 or your best offer. F.o.b. Red Bank, N.J. WA2-OZL, John Wyman, P.O. Box 220, Middletown, N.J. Tel. OS 1-0292.

BRITISH Commonwealth areas including VE's, VK's and ZL's needed for 15 meter Two Way SSB with WØCVU. Will listen each week-end 21,425 Kc. Large colored QSL sent airmail for QSO.

RECEIVER, Pierson KE-93, with speaker, mobile power supply and home brew AC pwr. supply, $170; carbon microphone, Astatic 11M5. Unused, $5. Ron White, 210 Alden Rd., Hayward, Calif.

SX-101 very good condition. $225. L. E. Springer II, Oakridge Rd., Auburn, N.Y.

FOR Sale: 500 watt Class C amplifier 4E27 complete with separate bias, screen and 250 watt high voltage supply. Crystal oscillator will drive, complete $150.00. Prefer to sell locally. WØ-IWV, 5945 Estes St., Arvada, Colo.

75A-4, KWS-1, mint condition. High serial numbers, all modifications, vernier tuning knobs, and antenna relay. Original cartons. $1150.00. W7YWR, 11015 S. E. 9th Bellevue, Washington.

WANTED: RA-20 (rectifier unit for BC342). R. Mugge, 260 Henry St., Brooklyn 1, N.Y.

SELL Like new, one owner, factory wired, Johnson Viking Courier, Ranger, 6N2 transmitter, 6N2 VFO, 6N2 converter (14-18 mc), Hallicrafters SX-100, Ham-M rotor. Make legitimate offer for all or part. WA2HTA.

HALLICRAFTERS HT-37, used two months, $350.00, NC-300, $200, K7JLF, 2020 Walker Lane, Salt Lake City 17, Utah. Tel. CR 7-3451.

FORCED To sell: Immaculate Apache; 2 months old; beautifully wired; without a scratch. Guaranteed perfect. Best offer over kit price takes this spotless unit. Jim, KØFRT, 53 Stanford, Pueblo, Colo.

WANTED: Commercial or surplus airborne ground, transmitters, receivers, test sets, 18S, 17L, 51R, 618S, BC611, BC1000, GRC, PRC, RT77GRC, Bendix, Collins, others. RITCO, Box 156, Annandale, Va.

WANTED: All types military aircraft ground radios, teletype and test equipment, GRC, PRC, etc. Have all types amateur gear for trading, purchases or cash. Phil Rickson, K2HJC, Morrisonville, N.Y.

WANTED: BC348 and BC312; give condition and lowest cash price. Dan Lee, 3167 E. Green Street, Pasadena, Calif.

WANTED: Gonset VHF adapter 108-125 Mc #3014 or #3015; or Kuhn #348A or 307X; or similar for aircraft band for car. Alex Calder, 1261 Merriam, Bronx 52, N.Y. Tel. Jerome 8-0485.

SELL: Jennings variable cond. UCS 10-300 mmf. Brand new, $25.00. WØWSB, 215 E. Buffalo, Duluth 11, Minn.

CAMP Counselor wanted. Must operate ham station. Instruct kit building. Write Joel Kates, Rye Colony, Rye, N.Y.

HQ-110C, practically unused, mint condx, with clock, $170. U pay shppg. K2EQA, Tom Daniel, 66 Bay State Rd., Boston, Mass.

SALE: Globe Chief Deluxe, like new, used only 6 months, $45.00 or your best offer. KØFHS, 3230 Quintin, Pueblo, Colo.

1961 Factory wired Valiant, $350.00 cash. Max Voigt, 1073 Burnett Road, Chicopee Falls, Mass. Tel. LY 2-5434. W1QXV.

FOR Sale: BC221P with modulation, 115VAC powered, original calibration book, $50; BC348H, built-in 115VAC, spkr, $50; BC779 Sup. Pro 115VAC supply and speaker $50. W5EDX, 645 East Woodlawn, San Antonio, Texas.

BUY my KWM-2A and PM2 supply for only $1100. Guaranteed tip-top condition. No time to operate. Certified check or money order. Robert D. Corbett, 46 Prospect St., Torrington, Conn.

CHANGE xtal frequency, etch, safe method, everything needed, ammonium bi-floride, containers, holder, instructions, guaranteed, $1.00 Ham-Kits, Box 175, Cranford, N.J.

SELL: Quantity 700 receiving tubes. Best offer. List for stamped envelope. W2PQG, Sears, 188 Concord Drive, Paramus, N.J.

COLLINS 75S1 receiver, perfect condition and appearance. Used very little, $345.00. WØQFZ, 2318 Second Ave., Council Bluffs, Iowa.

HEATH DX-20, all new tubes, has clamp tube added for VFO keying. $25.00. WØPHZ, 2252 No. 2nd St., North St. Paul, Minn.

RANGER: Factory wired, exceptional physical and electrical condx: $150.00 F.o.b. K6EJY/1, J. M. Kootsey, Physics Dept., Brown University, Providence 12, R.I.

FOR Sale: Collins KW-1, in excellent condition, $2400. Elmer Ford, WØMPF, 5422 Bermuda, Normandy Mo. Tel. EV 2-2077.

HEATH Mobile: Cheyenne-Comanche, 110VAC and 12VDC power supplies, $250. Dick Johnston, K1QJD, Box AR-51, Stonington, Conn.

BEGINNERS: Code bothering you? Now learned in one hour. New method. Quick approach towards ham ticket. Used in Armed Services, Ham Radio, Scouting. "Ketchum's Hour Code Course," $1.00 postpaid. Guaranteed. Oaks Ketchum, 10125 Flora Vista, Bellflower, Calif.

SELL: Excint condx, Hallic, S-107 and new Health DG-11 Q-mult, $80. Bill, K5FNV, RFD 1, Brooksville, Miss.

WANTED: BC224, BC348, R-320/AR88, DX-40 in gud condx. W4ZJM, 3070 N W. 186 Tr., Card City, Fla.

MUST Sell: KWM-1 with 516-F pwr. sup. and spkr. Best offer. K8HMV, 8018 Essen Ave., Parma 29, Ohio.

NC-300 with matching speaker, calibrator, and 2-meter converter, original carton. ART-13 with P/S. Best cash offers. SASE for list of books, mikes, miscellaneous. Howard Oakley, WA2NRG, 26 Highlander Drive, Scotch Plains, N.J.

SELL: 316 copies QST from 1930; 129 copies CQ from 1948; 30 copies Radio from 1936. Best offer for all or part. W8SA.

SELL: Tecraft 10-meter converter; Calrad preamp; unused VF-1, best offer. Write George Sucich, WA2JHN, 6000 Tyler Place, West New York, N.J.

SELL: Heathkit VFO, $10; high voltage supply 750-1500 volts 200 Ma., 866's. All necessary quality components, $25.00 plus shipping. Orcutt, W2GWT, 105 Indian Pines, Penn Yan, N.Y.

FOR Sale: Collins 30S1 linear amplifier, new condx, in orig. packing case. Very reasonable. Will ship. WØLIL, 1863 De-Sota, St. Paul 17, Minn.

NOVICE Transmitter: Hefty 65-watt c.w. rig complete w/500 volt power supply. ARRL design, ideal for beginners, only $25.50. C. D. Austin, Box 269, Hamilton, N.Y.

SELL: 32S-1, 516F-2, Drake 1A, 10-D, Hornet TB-600, AR-33 rotor with 30 foot steel tower. All in like-new condx, $795. Sry, will not ship. WØFNU, Robert Kerl, 81-B Bastogne Road, Ft. Lee, Va.

SELL: Elmac AF67 xmtr, Elmac PMR6 rec, with 12V Dynamotor-Vibrapack pwr. supply, $175; James 6-12V supply, $15. New DM-49-AX dynamotor. Input 12V output 500V at 400 Ma., $15.00. K4CLW, Box 846, Orange, Va.

SELL: Heathkit Comanche mobile receiver. In excellent condition. $100. W2YCS, Ridgewood, N.J.

JOHNSON Kilowatt with left-hand desk, Pacemaker, Speech amplfr, and swamper, $1250.00. George L. Keen, KØDGC, 810 E. Atkinson Ave., Pittsburg, Kansas.

15¢ Gets a 20-card QST Packet. See astounding offer page 150. John B. Thomas, K4NMT, P.O. Box 198, Gallatin, Tenn.

FOR Sale: Viking Valiant xmtr, $325.00; SX-99 rcvr. with Heathkit Q Multiplier, $90.00. 3-element 15-meter beam, $15. Complete rig—$410. All in like-new condition. K4IQI, 9540 Byron Avenue, Miami Beach 54, Fla.

SSB Rig complete: Central Electronics 10A, with VFO and coils for 80, 20 and 15. Also QT-1 and Ham Kits D1200, exc. condx. You pay shipping. $110. R. Higgins, 308 Edgar Ave., Cranford, N.J.

SELLING Out: A-1 FW Central 20-A, 458 VFO, QT-1, and special TR switch, $200; like new DX-40, VF-1, and Dow TR switch, $85; unused Heath reflectometer, $10. Also have beautiful 120-bass accordian for possible trade. K9RII, Hennepin, Ill.

FOR Sale: Complete 6 mtr. station, going mobile; Tecraft TR 20/50, PTR 2, SX140K, Shure 707A, CDR rotor, 5-el. beam, 85 ft. RG58/U, 85 ft. rotor cable, misc. Best offer over $200. Steven Cohen, 102-45 62 Rd., Forest Hills 75, N.Y. Tel. TWining 6-4363.

FOR Sale: Collins 75A4 with 500 cycle 2.1 Kc and 3 Kc filters, $700; Hallicrafters HT-37, $350; both for $1000. Cash or certified check only! Mark Grossman, K2CON, 1665 Monroe Ave., New York 57, N.Y. Tel. TR 8-1174.

TWO Collins 75A4 mechanical filters 1200 cycles wanted. Also two 75 microamp meters. W8YAE.

WANTED: Handbook of operating instructions for radio transmitting set AN/ART-13A. Theo. Garrison, 736 Vermilya, Flint, Mich.

SELL: Complete mobile or fixed station—Morrow MBR5, Morrow 560, RTS600 pwr. supply, with speaker, jiffy mounts, SH7 spkr, cables for mobile or fixed, RVP250 pwr. sup, instruction manuals, $300. Also: 500V, 200 Ma. dynamotor, $10. All in A-1 condx. F.o.b. Clarendon Hills, Ill. L. H. Hoover, W9MEN, 321 Park Ave.

SELL: F/W Neil 20-watt 6M transmitter, power supply, 3 xtals, International converter, $75. Ship collect. K5PLD, 1609 Houston Drive, W. LaMarque, Texas.

SELL: KWM-1, AC and DC pwr. supp., mobile mount, cables, Mosley Triband whip, $650.00 or your best offer. F. R. Prahl, K4PKF, 4322 Umatilla, Denver 11, Colorado.

SELL: Viking 6N2, $90; HQ-170, $275; Ameco six meter, 28 Mc. I.F. converter with Ameco pwr. supp., $25.00; Ameco six meter preamp, $10. All gear in excint condx. K2UMH, 53 Louise St., Delmar, N.Y.

TECHNICIANS, Hams, New Twirl-Con tool for rapid, easy condenser, resistor replacement. Nothing like it for printed and conventional wired circuits. Saves hours of valuable time. Hundreds of uses. Guaranteed satisfaction. $2.00 postpaid. Texans include tax. Twirl-Con, 1101 N.E., Edna, Texas.

MAY Tube special! 2C39As, $6.00@, 4-125A's, $14.00@, 4X-150A, $7.50@, 813s, $8.00@, 5894s, $9.50@, 6146s, $2.47@. All guaranteed, boxed. Send for free tube bulletin. Lou-Tronics, Inc., 131 Lawrence St., Brooklyn 1, N.Y.

COMANCHE, Cheyenne, HP-20, mike, manuals, $250. Bob McMeekin, K4MUT/1, Yale Medical School, New Haven, Conn.

DX-110B like new. Complete mobile rig, transistor power supply, Gonset converter, antenna, etc. Other items. Best offer. Gordon Finley, W4LGU, 632 Cedar Ave., Chula Vista, Calif. Tel. HA 0-6129.

SX-100, $199; Elmac AF67, $99; PMR 7, $99. W9PST, 1829 N. 56th St., Milwaukee, Wis.

QUICK Sale necessary! Johnson Courier and RME Preselector, both in truly immaculate condx. Name a price. W2BAC, 4 Bayard St., Larchmont, N.Y.

FOR Sale: HT-32, $280; SX-100, $125.00; R-388, $290; RTTY-0-39, CV-182, C-808, PP-712A, RA-87A, with manuals; all for $350.00. Lynn Griffith, Ohio Ave., Harrisonburg, Va. Tel. 434-8114.

COMPLETE Mobile, forced to sell, illness in family. Heath, Comanche, Cheyenne, HP-10, HP-20 power supplies. AK-7 speaker, AK-6 mounting, Bandspanner, chain bumper mounting, all cables included. $235.00. Will ship prepaid. Sid Waters, K8-TLR, 14517 Oxford, Plymouth, Mich.

WANTED: Crystals marked 163.95 kc. Also need indicator unit IP-173/U. Operative or inoperative. Need for spare parts. Also need TS-175/U. Sell or trade Heath WAP-2 pre-amp; T-3 signal tracer; SQ-1 square wave generator; SP-2 stereo pre-amp; and viscous damped tone arm with G-E cartridge. W7TYR, Deane E. Kidd, 12235 S.W. James St., Tigard, Oregon.

GONSET Twins, in fair condx. $125.00 each; *C E model B* slicer, fwt, $60. John Evans, W2DMF, 65 W. Oak St., Ramsey, N.J.

KWS-1, #970, overhauled Oc. 1961, extra final tubes, works perfectly, cash and carry. Inquiries invited. W2KOY, 1740 Front St., East Meadow, L.I., N.Y.

R-390, Collins. Fabulous receiver. FB condx. Unmodified, with manual. .5/32 Mcs., 2-RF, 6-IF, 3/8"/kc bandspread. Selectivity 100 cycles to 16 kcs. 800 cycle audio filter. Near ultimate RX. Consider trade; prefer pick-up deal. Also HQ-180, exc. $350.00. K4KTR, P.O. Box 73, Hampton, Va.

LATEST SX-111 Mark I, original carton, $225.00; Drake 1A, increased sensitivity, AM detector, $170; both in A-1 condx, guaranteed. Chester Benson, W9IFB, 732 So. 14th, Richmond, Ind.

FOR Sale: Gonset G-76; 12V pwr. supply; Mosley TM5 antenna; Shure mike, Mobile Mount. All for $450.00, a saving of $200. In exc. condx. KØOTM, 1051 Kenmore Drive, Kirkwood 22, Mo.

GOING SSB. Selling reasonably, Valiant, Ranger PTT, Johnson 6N2 converter, mobile Cheyenne transmitter and Comanche receiver w/custom mounting base and transistorized supply. All in mint condx. WA2LIM, Tel. Flushing, L.I., N.Y. IN 1-1779.

SALE: Absolutely perfect DX-60, factory serviced. S-85 with Heath QF-1, vy gud. Best offers over $85 for each. Emil Pocock, 1225 Elm Ridge Ave., Baltimore 29, Md.

HQ-129X good, $95; PMR-7 w/AC supp., excint condx $115; ART-13, $29; converted SCR-522 transceiver, $29; pretty 80-40-20 VFO/xmtt w/ps, $19; Novice xmtr 6AG7-807, $7. Want: 75A4, Drake 2B, Weiss, Rte. 2, Box 665, Tallahassee, Fla.

LATE 75A4, 200V. Heath Warrior, excint. W1PNM, 130 Purinton, Augusta, Maine.

RTTY Model 15 printer; Johnson Viking I with new spare 4D32, Johnson VFO converted for FSK and rack-mounted Alltronics-Howard converter, $375 complete with rack, extra polar relay, filter, paper, etc. C.o.d. my QTH 90 miles from Philly or New York. R. Scheller, K3GCI, Box 584, Stroudsburg, Penna. Area code 717 HA 1-0160 week days only.

TRAILERITE Hams! Information desired on ham operation in mobile home/trailer parks. W5CA, Tijeras, New Mexico.

SELL: Collins KWM-2 in excint condx, serial 1435, $875. KØEMN, 2015 Teller, Denver 15, Colo.

HRO-50T1, A,B,C,D coils, 3 extra surplus coils; spkr, calibrator, $225; RME HF 10-20 converter, $45. Eldico antenna tuner with 4 coils, $15.00. Heath Q-multiplier, $6.00. Ted Kasper, Rte 1, Grapevine, Texas.

FOR Sale: HT-37, $300; LA400C, $110; 250-watt Matchbox with coupler, $30; in excint condx. Shipping extra. Vern Rush, 208 West Main St., New Concord, Ohio.

SELL: Viking II $135.00. McGee, 58 Campus Dr., No. Buffalo 26, N.Y.

DRAKE 2A rcvr with spkr, perf., $219; prepaid in USA. Excellent 20-A, QT-1, Deluxe VFO, $189 and Globe Linear, $75. K5RSG, 1216 Henry Clay, New Orleans, La.

LIKE New, one owner only, Collins 75A3 with Jensen housed speaker, packed for shipment. F.o.b. $325.00. W4EBM.

KEYER: Eldico EE-3A, $35.00 postpaid. WA6OLQ, 97 Mount Vernon, Atherton, Calif.

SELL: Factory-wired 20-A and 458 VFO, $175.00; SX-100, matching speaker, $175.00; excellent. Original owner, locally W2KOT, SEdgewick 3-2709 evenings.

FOR Sale: Gonset G-66B mobile receiver with 12 volt supply. In mint condx, $175.00; Collins R-388/URR rcvr (51J3) mint condx. Make an offer. PE-103 (less cables) $10; BC-659F 27 to 39 Mc., FM transceiver with PE-120 mobile supply and manual, $30; two Motorola FMTRU-41V front mount 150 Mc. transceivers, make offer. Brettschneider, 2134 Ronaldson, Cincinnati 30, Ohio.

SELLING: Mohawk receiver, $225; Heath 6m. Shawnee, $180; Heath 6m. converter, $20; Heath 2m. converter, $25. K5SGP, 1427 Louisiana Ave., New Orleans 15, La.

BRAND New Collins 75S-3 in original carton with warranty card. Also Collins 32S-1 with pwr. supply, spkr, slightly used but immaculate. The pair, $1,000. Also 32V-1, factory converted to 32V-2, perfect, $175.00. W7MOI, 4901 E. Copper, Tucson, Ariz.

FOR Sale: 75S1 with .5 kc filter and BFO xtal, in mint condx, original carton, $420.00. Erroneously priced at $240.00 in March Ham-Ads (QST's error). K2YEQ, Smith, 57 Melbury Road, Babylon, L.I., N.Y.

GONSET Communicator III, in perfect condx, $200, or your best offer. KN1TGZ, Larry Kenney, Jaffrey, N.H.

BEST Offers take Globe Champion 300-A; HQ-150; DX-35; VF-1; Johnson low-pass, Butterworth, 2708 Gaither, Washington 21, D.C.

JOHNSON 500, $550 and SX101, Mark III, $200, gud condx; 20A and VFO $200, excint condx. Prefer to sell as complete station, accessories included. Can ship if necessary. Welcome to inspect station. Contact KØGVO, Tel. VI 3-5684, Ron Blackburn, Box 687, Lawrence, Kans.

FOR Sale: HRO-7R complete, $90, also Clegg 99'er, $110. K3-NBC, 2205 Jefferson Ave., Scranton, Penna

SALE: NC-300, $175. Will ship, Jim West, W4THR, 315 Sunset Circle, Lookout Mountain, Tenn.

SELL: Globe Chief 90-A, factory-wired, in exc. condx, $40. Will not ship. Mike, WA6NXH, 17005 Brighton Way, Gardena, Calif. Tel. FA 1-5837.

SX-101 Mk III, in exc. condx, best offer. Heathkit Mohican, $90. W2UJJ.

DRAKE 2-B, Q-mult., spkr. like new condx, and GSB-100 SSB xmtr, $495. Ferris, 1768 Fruitdale, Indianapolis, Ind.

COMMUNICATOR III 6 meters, 12-110V, crystal and mike, $150; Poly-Comm 62B, mint, $299.50. "Grid," W4GJO, Box 1294, Sarasota, Fla.

HALLICRAFTERS HT-37, in mint condx: $325.00 F.o.b. K5-YYI, 901 North Evans, El Reno, Okla.

SELL: HRO60 10-15-20-40-75 coils. Vy gud condx; appearance, clean no scratches; best offer over $300. SX101A, used vy little, can ship in factory carton. $325.00. Want: Johnson KW. Will trade one or both receivers. Wilber Cox (K9UFV), 810 Pendleton Ave., Anderson, Ind. Tel. days 642-2233.

COLLINS KWM-1: excellent condx. Sell for $550 plus homebrew A.C. power supply. Mead, K2EBQ, Box 25, Cazenovia, N.Y.

LATE 32S-1 wanted; sell or trade even: New, unopened 30L-1, KWM-1 or 75S-1 with noise blanker. 75A-4, No. 3814, $525. W8WGA.

FOR Sale: Collins 75S-1, $375; Drake Q-multiplier with speaker, $30; Gonset Linear GSB101, $250. Original cartons and instructions. Al Brehm, W8MFW, 5081 Sumter, Cincinnati 38, Ohio.

HY-GAIN TH-4, best offer. WA2QDJ, 525 Beech St., New Hyde Park, N.Y.

FOR Sale: Hallicrafters S-107, $80; S-40B, $70; both vy gud condx; QSTs 6/58-6/60, CQs 11/58-11/60, both runs complete; also assorted manuals. Rodney Ayers, 305 Phyllis Ave., Columbia, Mo.

MAR transceiver: power supply, modulator, and transceiver units. In exc. condx. $35.00 or best offer. WA6COA, 1106 Larch Ave., Moraga, Calif.

HEATH TWOER, in exc. working condx, with mike and 6-volt dynamotor: $35.00. Peter Burk, 41 Lewis St., Cranford, N.J.

JOHNSON Ranger for sale, is excint oprtg. condx, wired for PTT; best bid over $170.00 gets it! Going SSB. KØVBA, Wallace Gingerich, Parnell, Iowa.

SELL: Two 4-400A's, $15.00@. K5DFA/5, Rte. 2, Box 16A Altus, Okla.

NATIONAL NC98 with speaker, $75; Hammarlund Super Pro, $80; BC348N, $35; 3 el. 10M beam $10; brand new Vibroplex bug, $13. No shipping. Ed Pims, 601 E. 80th St., Brooklyn N.Y. Tel. RN 3-3975.

WANT QSTs 1915 to 1922. Sell extras 1922 up. Two Bird wattmeters, one 15/60 watts, and model 67CU 2500 watter-excellent, to best offer. W2DYU, 36 New Lawn Ave., Kearny, N.J.

THUNDERBOLT-F/W used only 5 months. Absolutely in mint condx, original cartons, manual, f.o.b. Detroit. Must sell. Offers over $375.00?? K1UAU/K8KCO, Box 4223, 420 Memorial Drive, Cambridge 39, Mass.

FOR Sale: Complete station: HQ110 receiver, DX-40 with VFO, UM 1 plate modulator, Dow Key ant. change-over; Johnson electronic TR switch, Cush Craft Triband antenna, 3-el. 10 mtr. beam and Alliance rotor. Plus addtl. equipment and many extra tubes. Firm price $250.00. See on air. Pick up deal only. Morton Schwartz, K3DNL.

MAKE Offer: AT-1, Tapetone 417A, two-meter converter, SX-100, Globe King 500. Wanted: Johnson 6N2. Bob Hayes, 108 E. Rowan St., Raleigh, N.C.

STEAL: Sell SX-99 for $69.00. Excellent mechanically but needs minor electrical repair. Need school money. You pay shipping. K1GDN, Craig Lund, Rocky Hill Road, Saco, Maine.

HALLICRAFTERS SX-100, excellent condition, hardly used. Sacrifice for cash: $200.00. Write Benjamin Gold, Box 41, Millington, Maryland.

ASTATIC DN-HZ microphone. Used in hamshack for two months. In excint condx. Highest offer goes. K9BGV, 4646 North Shore, Lincolnwood, Ill.

SALE: Collins 75A4 receiver, serial No. 4921, in excint condx, $525.00. Kenneth H. Engstrom, W5CUM, 833 Oak Forest Dr., Dallas 32, Texas.

2 KW custom-built 4-400A final, illuminated meters, built-in 3750 VDC power supply, regulated bias and screen, panel adjusted, Class $AB_1$, $AB_2$, or C, 80 thru 10 meters. Professional appearance with manual; $385.00; "Sideband Package" June 1958 QST, highest quality, 40 watts, 80 thru 10 meters, professional appearance and workmanship, $185.00; HQ-170C, perfect, with manual, in original carton: $325.00. Other equipment, write for list. Sell, or will trade all for KWM-2 w/AC PS. K2-LSL/5, Fitzpatrick, 6436 "A" St., Keesler AFB, Miss.

NC-188, in exc. condx, complete with Heath Q-multiplier, $80. K1NKV, West Hartford, Conn.

SELL Electronic counter digital inst., Co., model 955.5 digit; counter needs crystal, oven and tubes. Best offer over $200. Heathkit grid dip meter, $15.00; Lampkin 103B freq. meter, used twice, $195.00; new Collins 136A-1 noise blanker, $90.00; Globe Champion 350 transmitter, best offer over $225.00. Robert Ireland, Pleasant Valley, N.Y.

SELL: Multi-Elmac Trans-Citer AF67, 60-watt, $85; Multi-Elmac power supply M1470, $50.00; both in vy gud condx. Beach, 2 Hall's Lane, Rye, N.Y.

30L1 wanted. You must beat dealers price. WØZHJ, 2444 D, Lincoln, Nebr.

RANGER factory-wired, NC-300 with spkr. in exc. condx, $350.00. C. D. Combs, 14 Belgrade Road, St. Joseph, Mo.

WANTED: HRO-7 low frequency plug-in coils, set of three 50 thru 430 Kcs. State price and condition on any of these 3 coils you wish to sell. W5JH, Harry R. Lord, 4143 Sunberry St., Dallas 27, Texas.

FOR Sale: HQ-160, perf. cond, orig. price $379. Must sell, $240.00. K9UKJ, 1927 East 71st St., Chicago 49, Ill. Tel. FA 4-9174.

TECHNICAL Manual TM11-1145 for Beacon Transceiver RT-37/PPN2, $1.25 postage paid. We have transceivers for local sales. Click Radio, 1526 Merced St., Richmond 6, Calif.

FOR Sale: AF67, $90.00; M1070 power supply (new), $60.00; Morrow 3BR converter, $25.00. Will talk trade on Ranger F/W Capt. Johnson, Co. "C," 440th Signal Bn, APO 34, N.Y., N.Y.

STATION For sale: Going mobile. Ranger F/W $190; Dow-Key TR switch, $5.00; TA33 Jr., $50; cables, fittings, filters, etc. $15.00; SX99, $99.00; Q multiplier, $5.00; complete station-one sale, $340.00. Viking 500 kit, original boxes. Sacrifice $500.00 K1MLK, Paul Bray, Jr., Winding Lane, Norwalk, Conn.

WANTED: PR-15 receiver. W6PQQ, 1324 Ninth St., Coronado, Calif.

WANTED: Collins receiver, Viking Ranger transmitter. Mac, 301, 77 St., N. Bergen, N.J.

USED Equipment Bargains! Free Bulletin. Brand's, Sycamore, Ill.

FOR Sale: KWM2, mobile power supply 516E1, new, sealed carton, $195.00; 351D2 mount, new, sealed carton, $95; 312B5 Control like new, used 10 hrs, $250.00. KWM1, Mount, new condx, full length cables, $35.00. Albert J. Bertolisi, 382 Fulton St., Farmingdale, N.Y. CH 9-0923.

COLLEGE Time arriving. SX-101 and DX-100B for sale. Inquiries welcome. K1LEC, RD 1, Springfield, Vt.

SATIN Smooth tuning, National 300 with speaker, calibrator, $249.00. W2ECU, White Plains, N.Y. Tel. 8-8585.

CLEAN-UP Bargains: 55-ft. Rohn tower with rotator plate and 200 ft. of guys, insulators, $65.00: CDR rotator, $24.00; DX-40, $35.00; 1 Kw linear 2500-V, mounted supply, neat, with 2-813s, inductor, etc. $55.00. All in fine shape. Vergne, K2KGU, MO 6-8513. 420 Riverside Dr., New York 25, N.Y.

SELL: Viking II, VFO, D104, $200; Collins 75A4, $500. All excellent condx. Garrahan, W3QZ, 144½ Wyoming, Forty Fort, Penna.

TECRAFT 6M transmitter, 12VDC transistor PS, $50; ARC-5 receiver, 6M converter, 12VDC dynamotor, $20; transistor mobile PS 12VDC in 500VDC CT 250 Ma, $30; filter capacitors, Chokes, tubes. Send for list. Williams, W2WZT, 64 Prospect Ave., Hackensack, N.J.

MECHANICAL Filters: Used surplus units containing 300 Kc mechanical filter band-pass 3Kc; six if coils, over 75 watt resistors; lots of ceramic and silver mica condensers. Reduced to $5.75 each postpaid. W. R. Selden, 420 W. Broad St., Richmond, Va.

SALE: Drake 2B, $229; HT-40, $75; both are in perfect condx; Cubex Triband quad, $30. New spreaders still in package. Lance McIntyre, K5LTV, 3516 West Ohio, Midland, Texas.

SELLING Station, new Eico 720, Hallicrafters S-2CR, $85, Joseph Staiano, 1432-70th St., Brooklyn 28, N.Y. Tel. BE 6-8260.

SELL: Perfect condition! HQ-180, $325; HT-37, $350; P & H LA400C, $100, $725.00 takes all! Pick-up deal only. K2ZLG, Policoff, 392 Greenway, Albany, N.Y.

SX-101 Mark III, like new condx, $295; Central Electronics 20-A, $240; Johnson CW monitor, $15. Austin Hook, K2QBD, 54 Iden Ave., Pelham, N.Y.

WANTED: KWM-2, Collins transceiver and accessories. State fully; age, condition, best cash price. W2CE, Tel. FR 9-0415, Freeport, L.I., N.Y.

VIKING "500" operated less than 25 hours. Factory wired, like new condx, $685; also cleaning shack, all in excellent condx: Heath TS4A, $39.50; MT-1 and MR-1 mobile twins pair including speaker and mike, $159.50; RX1 rcvr, $229.95; IA1A ignition analyser, $49.50; GC1A all transistor rcvr, AC and bat. supp., $90; OP1A D.C. oscilloscope, $140; Gonset GSB101 linear, $225.00; all with manuals, M.O. only. Express collect or will deliver orders totaling $500 by air within 400 miles if you will meet me at the airport. "Doc" O'Toole, K8RQG, 524 Wagner, Benton Harbor, Mich.

SELL: Telefunken intensifier. In orig. carton. W2ZNZ.

CRYSTALS Airmailed: SSB, MARS, Net, Novice, CD etc., Custom finished FT-243 .01% any kilocycle 3500 to 8600 $1.49. (10 or more same frequency, FT-243, 99¢) 1707 to 20.000 $1.95, 20.001 to 30.000 $2.25. Overtones above 10 Mc., Fundamentals 10 to 13.5 Mc. $2.95. Add 50¢ each for .005%. Add 65¢ each for HC-6/u hermetics. QST Projects—FT-243 crystals: SSB Package, five mixer $9.95, seven matched filter (FT-241-A) $9.95; DCS-500, "IMP," Phasing (Nov. 1959), $9.95. SSB Transceiver April 1961 $7.95. Also other project crystals and sets. Be specific, write Airmailing 10¢ per crystal, surface 5¢. Crystals since 1933. C-W Crystals, Box 2065-Q, El Monte, California.

NC-57B receiver, 540 Kc to 56 Mc, $50.00. Original owner. W2VOI, 9 Bittersweet Lane, Loudonville, N.Y. Tel. ST 5-5223.

WANT Collins mechanical filters F500B-14, F500B-31, F500B-60; F500A Series OK also. George Goldstone, W8MGQ, 1180 First National Bldg., Detroit 26, Mich.

SELL: Collins 32V1, in A-1 condx, $195.00. W. A. McCrea, Shiras Hills, Marquette, Mich.

SELL: Heath MT-1, MR-1 UT-1 power supply, GD-1B grid dip meter, all factory aligned. Package deal, $200. You pay freight from Norfolk, Va. Gordon Jones, K8QMJ, U.S.S. Randolph CVS 15, FPO, N.Y., N.Y.

FOR Sale: KWM-1, AC powr supp., $600; Johnson Matchbox with SWR Ind., $65. Low-pass filter, $8.00. Best offer. E. S. Wentworth, 15 Kimberly Road, West Hartford, Conn.

"HORSE-TRADER" Ed Moory, says Folding Money talks Big at our QTH: Pay Cash & Save: Used Equipment Guaranteed, Mosley Receiver CM-1, $125.00; HT-37, $379.00; Drake 2-A, $189.00, Drake 2-B, $229.00; 75A-2 with Model-A Slicer, $299.00; 75A-3 with 800 cycle and 3.1 K.C. Filter, $369.00; Heath Warrior Linear wired, $195.00; B & W LPA-1 Linear & LPS-1 Supply, $299.00; Collins 75A-4, $489.00; Factory Reconditioned KWS-1 & Supply Late Modifications, Serial #1149, New Condition, $995.00; KWM-2, $849.00; 75S-1, $349.00; 30L-1, $389.00; 75S-3, $495.00; Johnson Kilowatt Matchbox, $69.00; Globe Champion 125 Watts, $79.00; SX-101-A Perfect, $279.00; SX-115, $429.00; Used HT-41, $295.00; Viking Invader, $429.00; 20-A, $109.00; TERMS; Cash & No Trades; "Ed Moory Wholesale Radio, Box 506, DeWitt, Arkansas—Phone, Whitney 6-2820.

SELLING Out complete station: Ranger with P to T, HQ140X, Q mult., LP filter, E-V mike, crystal cal., balun coils, Dow-Key and Lynmar ant. relays, coax switch, 4 complete antennas including 10-m. beam, inverted V, trap and folded dipoles, lots of coax and twin lead. All or nothing. $398. No shipping. L. E. Smestad, KØPLY, Dawson, Minn.

TRANSFERRING: Must sell. Ranger II, $275 and NC-303, $375; both for $600. Only six months old. James Herndon, WØFSV, Box 463, Grinnell College, Grinnell, Iowa.

FOR Sale; Hallicrafters finest receiver, SX-73. Cost $975.00. Picture and description in ARRL 1954 Handbook. Also equipped for RTTY and 6 xtal channels. $195, less spkr. E. Shafer, 3479 Kersdale Rd., Cleveland 24, Ohio.

SELL. Or trade Ranger for 2-meter mobile or $130. K2DKJ, 210 Curry St., RFD 2, Yorktown Heights, N.Y.

HQ129X, good, $95; PMR7 w/AC supply, exc. condx, $115; AR1-13, $29; converted SCR-522 transceiver $29; Pretty 80-40-20 VFO/Xmitt w/ps, $19; Novice transmitter 6AG7-807, $7. Want 75A4, Drake 2B, Weiss, Rte. 2, Box 665, Tallahassee, Fla.

WANTED: Manual and schematic for Scott Marine Radio, model SLRM, serial 223. W. N. Zahn, 1301 Shakespeare Ave., Bronx 52, N.Y.C.

WANTED: Unconverted Signal Corps BC342 or BC312 Receiver, also high-power linear components. W9PTN.

2 NEW 4X250 F's, $12.50 each; 75S-1 noise blanker, $50; KWM-1 DX adapter, $25. G. L. Lyman, P.O. Box 51, Marion, Iowa.

NC88, used very little, in good condition, $60. Richard Harrison, Great Bay Marina, Newington, N.H.

SELECTED reconditioned equipment. Central "B" slicer, $49.95; 20A W/QT-1, $169.95; Elmac A-54, $49.95; AF-67, $109.95; PMR-7, $109.95; Hallicrafters SX101 III, $295.00; HT-30, $239.95; Hammarlund RQ170C, $289.95; Gonset G66B, G77A, Super-Ceiver, Tri-band, $19.00; Communicator III, $199.95; HP-10, $49.95; Heath DX-100, $169.95; AT-1, $17.95; Cheyenne, $99.95; Johnson Challenger, $99.95; Ranger, $179.95; Valiant, $325.00; Viking II, $169.00; National NC109, $129.95; NC173, $129.95; HRO-50T-1, $229.95; Many more. Send for list. Radio Distributing Co. Inc., South Bend, Indiana.

SWAP: Complete Mobile station—G66B, 115 and 12 V. Gonset supply, AF-67, mounting rack, PE-103, coax relay, etc. for GSB-201. W9KFX, 519 S. Virginia, Belleville, Ill.

HALLICRAFTERS SX-140 receiver, 80-6 meters, R-47 spkr, $90. Donald Grimme, 507 Edgewood, Westmont, N.J.

HQ-150 w/spkr, $195; excellent condx, K4SXA, William Rea, 2125 Dilworth Road East, Charlotte, N.C.

KW1 Collins. Make offer. Contact Al Celly, W3FFZ.

HT-32 clean, $350.00. Firm. Murrill Burton, 1008 Burton St., Thomasville, N.C.

GLOBE SCOUT, Heathkit VFO with power supply. Extra 6146s. All in A-1 condx, $70.00. Will demonstrate locally. Howard E. Hopkins, W1VBR, RFD 1, Box 92, Foster, R.I. Tel. NIagara 7-3949.

FOR Bandswitching rcvr I wl give 3 tube, 1 dual purpose, rcvr and 30 wt. xmttr, complete 80 and 40 mtr. set. Write WA4AEH, Box 34, Arden, N.C.

FOR Sale: Master Mobile 666 ant, dble chain bumper mount, Gonset Super Six converter and 3001 noise limiter, DX-60. KØHWE, 1533 D Ave. Northeast, Cedar Rapids, Iowa.

SALE: Gonset 76 transceiver, AC power supply. Like new. $360.00. Gerald Smith, W9COP, 3723, 14 Ave., Moline, Ill.

SELL: HQ-145 rcvr w/spkr. In exc. condx $185, cash and carry deal. Aramburu, 80-20 Broadway, Elmhurst 73, N.Y. Tel. TW 8-0134.

SELL: New Apache. Professionally wired, commercial engineer. Never used. $235. 43 Woodbine Ave., Larchmont, N.Y.

SELL: Johnson Viking I, in gud condx, $95. Chipman, W4PRM, 816 Melrose St., Winston-Salem, North Carolina.

FOR Sale: KWM-2 with noise blanker; 516F2 AC pwr. supp., 312B-3 spkr, EV-630 mike, headset, Vibroplex Original. Total price: $985. Joe D. Olson, K6ECZ, 548 South Spring St., Los Angeles 13, Calif. Phones: MAdison 6-8411 or TOpaz 9-3078.

GO Mobile! AF67 and rack, $125.00; PMR7 and rack, $110; M1050 mobile supply, $28; PS2V fixed supply, $25.00. Will sell separately or as a unit with Shure 102C and all-band whip for $285.00. One owner only equipment. W. M. McDonald, W4PXM, Dadeville, Ala.

BC-312 receiver with AC power supply, speaker, combination and Heath Q multiplier, $65. Gonset 2-Meter mobile converter, $35.00. G. H. Clark, K7ROK, 2797 Quail Run Drive, Sierra Vista, Arizona.

COLLINS Owners. Work AM! S Line, KWM-1 KWM-2! No circuit changes! Instant switching! Install five minutes! Wired kit, five dollars. Kit Kraft, Box 763, Harlan, Kentucky.

WANTED: BC-614 speech ampf. Will trade new Ameco 6 mtr. Nuvistor pre-amp and converter, never used. J. Turner, 108 Lovejoy St., Durand, Michigan, K8YAT.

QST Magazines: 1940 to 1962, $50. W8SWF, Dearborn, Michigan.

SELL 6 meters Gonset Communicator III; Electro mike, halo complete, ready to go: $225. Write A. N. Smith, WØLVB, c/o Masonic Sanitarium, Bettendorf, Iowa.

HAMMARLUND HQ-170, Brand new condx, $260. Come and get it. WINNV, 42 South Union St., Pawtucket, R.I.

WANTED: Collins filter 500 or 800 cycles for 75A-4. Sell: DX-100, $125.00; NC-300, spkr, $250; NC-183 spkr, $150; NC-173, $90; SCR 522, $15.00; BC-458, $10; 4-125 tubes, $15. All foregoing in mint condx. Wanted: Collins Filter 500 or 800 cycles for 75A-4. F. Teetson, W5MUG, 2469 Paden, Jackson, Miss.

COLLINS Station KWM-2, #11643ULU, PM-2 pwr. supply, PM-1 mobile pwr. supply, 351D-2 mobile mount, 312-B VFO console, CC-1 carrying case, GG linear, all vacuum variables and vacuum TR switch. Priced for quick sale as a package deal: $1600 or will sell separately. Ray Powers, K6HEG, 1015 Lucky Ave., Menlo Park, Calif. Tel. DA 2-3568.

VIKING II, HQ-129X, for sale. Give me an offer. T. McGrath, Box 52-B, RFD No. 1, East Haddam, Conn.

## Index of Advertisers

# How to give him an education and the freedom to use it

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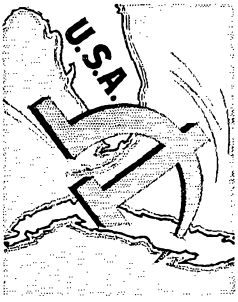


**The Communists covet the world.** Today they dominate 1½ billion people and 16 nations—one of them at our front door. One of the best ways we can oppose them is to keep financially strong individually and as a nation.

Most current articles you read about education are concerned with the rising costs. But chances are you're more concerned these days about the kind of world your youngster will graduate into.

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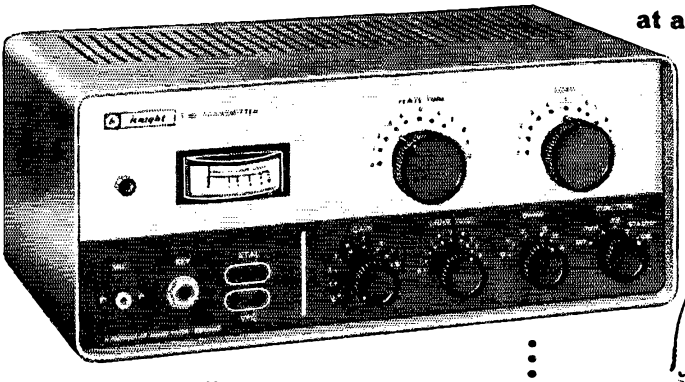

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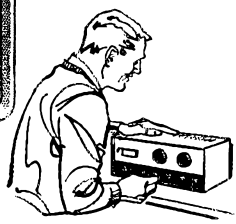

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**1.** National has manufactured fine communications equipment for almost half a century. Our experience is unequalled. Over 75% of our highly skilled test and assembly people have been with us for more than 25 years — an astonishing record in the relatively young electronics industry. They know their business . . . take pride in their fine workmanship — workmanship so outstanding that many National receivers purchased thirty years ago are still in daily use.

**2.** National manufactures most of the components used in its equipment . . . the same components specified by other important electronic manufacturers and government agencies. Therefore, National has maximum control of component part quality from design to manufacture to end application. If a special part is needed, National simply makes it, rather than compromise design to fit less satisfactory parts already available on the market.

**3.** Every National receiver goes through an intense series of rigid quality control tests before it leaves the factory. National tests **every** receiver as it comes off the assembly line . . . not just random samples.

The purchase of a new receiver is an important investment. To insure this investment look for the National Seal of Quality. It is your assurance of advanced design, exceptional performance, and guaranteed reliability.

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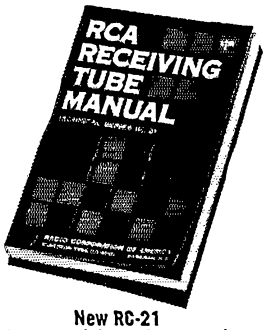


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## Members are saying . . . (Continued from page 64)

heart of hamdom in the U.S., should reflect the progress of our country. It should be the concern of all. — *K9WDA*.

Perhaps because I am a new ham (just celebrating my first anniversary as a General Class operator), I am still most aware of the help and cooperation which I have received from the League. Without those code practice sessions several nights a week, my ever getting a General license is questionable. — *K3NLK*.

The Buckeye Shortwave Radio Association supports your plans very enthusiastically. We feel that donations by clubs and individuals is the best method to raise the necessary funds. — *K8KEG, Secy.*

Many of us like myself have been led into their careers through interest and participation in amateur radio. The way I figure it, every dollar invested in ham radio has returned many times that amount in educational value, not to mention the many many hours of pleasure derived and the wide circle of friends thus developed. Now it is our turn to pitch in with a Building Fund contribution — a donation beyond normal dues requirements, not for the sake of ARRL in itself, but for ourselves, and the benefits we derive thru ARRL. — *W2EZB*.

My congratulations to the League for this forward-looking, progressive program. Keep up the good work and make amateur radio a living force in the future as it has been in the past. — *W4BEW*.

Would most certainly support a building fund as a sign of gratitude for all my league has done for us all. — *WA6KGP*.

The amateur radio club of the Ohio State University would like to pledge a contribution to your building fund. Eight of our members have also expressed an interest and stated that they would pledge. — *W8LT, Pres.*

In June 1961 I visited ARRL Headquarters and I realize your need for larger facilities. I can't donate any large amount but it will help. — *K9PVO*.

GO-GO-GO! Count me in. — *W2IPR*.

Would be very happy to contribute. If it weren't for the help of ARRL, your publications, and the friendly help of members, I probably would still be wishing I could be a ham, instead of enjoying the privileges that are open to me. — *WØBLW*.

Count me in. I will be very happy to pay for a few bricks. — *W2ZUX*.

You could advocate that we try to contribute one dollar for each year we have had the ticket. — *W8HXC*.

I do think we should stir the members to join in a "Barn-Raising" activity in the old American pioneer spirit. Your (*our*) building is no barn and the *cost* is not hay, but the *pitch-in spirit* can work just as well as with our forefathers, the real U.S. way! — *W9YLD*.

I have never been an operator, but have been a member for many years. I am in favor of every member contributing what he can afford. If he can afford a station and a copy of *QST*, he can part with a five spot for the fund. — *Edgar O'Brien, Chicago 34, Illinois*.

As the amateur ranks grow, so grows ARRL; therefore more room is a must! — *K8YFX*.

Believe most amateurs will be glad to donate money now and keep the reserves where they are. — *K6EKC*.

I visited ARRL headquarters some years ago, and was struck by the cramped conditions under which work was carried on. It must be murder by now! I will consider it a privilege to make a contribution. — *W2IWL*.

We sure need to keep up with the fast pace electronics is giving us, and what better way can the amateur benefit than having a headquarters capable of handling the situation. — *W7YOK*.

If my finances only equalled my feelings, my donation would be one hundred dollars per watt of my transmitter. Since they don't, I'll give what I can. — *W1SE*.

Considering the number of dollars the average Young Squirt spends on his rig (buying instead of building), it seems likely that the hams, as a group, can well afford an adequate contribution to a building fund. — *W2SOU*.

Although I have been relatively inactive for the past 18 months, to me ARRL *is* ham radio. It is little enough for any ham to do, considering what the League has done for hamdom everywhere. — *W9MWJ*.

Though I only made General last October, amateur radio means a lot to me, and I believe I would feel closer to the League because of the donation. — *K1RHP*.

I wud like to see amateurs forego some of the nice equipment they plan and lay aside a donation for this building purpose. — *K5IOV*.