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QST

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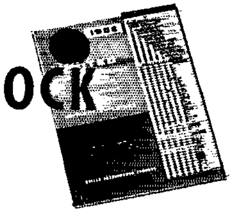
amateur radio

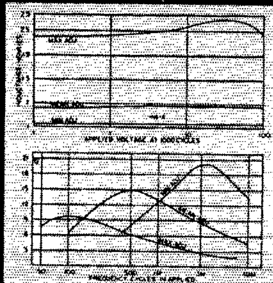
High-Q Inductors.... FROM STOCK



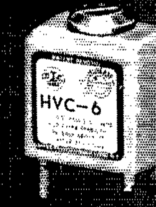
For complete listing of our 700 stock items (300 hermetic) write for catalog.

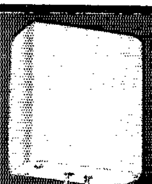
HVC Hermetic Variable Inductors

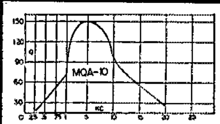
A step forward from our long established VIC series. Hermetically sealed to MIL-T-27A...extremely compact...wider inductance range...higher Q...lower and higher frequencies...superior voltage and temperature stability. Case 25/32 x 1⅛ x 1 7/32, 2 oz.



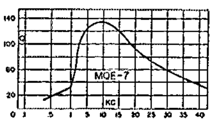
Type No.	Min. Hys.	Mean Hys.	Max. Hys.
HVC-1	.002	.006	.02
HVC-2	.005	.015	.05
HVC-3	.011	.040	.11
HVC-4	.03	1	.3
HVC-5	.07	.25	.7
HVC-6	.2	.6	2
HVC-7	.5	1.5	5
HVC-8	1.1	4.0	11
HVC-9	3.0	10	30
HVC-10	7.0	25	70
HVC-11	20	60	200
HVC-12	50	150	500



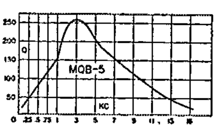




MQA
19 stock values from 7 Mhy. to 22 Hy.



MQE
15 stock values from 7 Mhy. to 2.8 Hy.



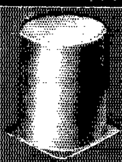
MQB
12 stock values from 10 Mhy. to 25 Hy.

MQD

New extreme stability inductors for 12KC to 130KC range. Typical Q is 170 @ 50KC. 6 stock values from 2 mhy. to 20 mhy.

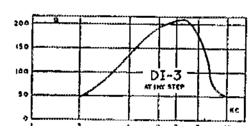
MQ Series Compact Hermetic Toroid Inductors

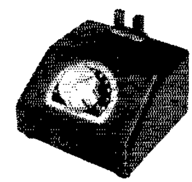
The MQ permalloy dust toroids combine the highest Q in their class with minimum size. Stability is excellent under varying voltage, temperature, frequency and vibration conditions. High permeability case plus uniform winding affords shielding of approximately 80 db.



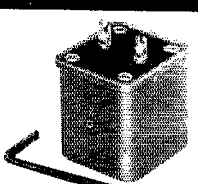
DI Inductance Decades

These decades set new standards of Q, stability, frequency range and convenience. Inductance values laboratory adjusted to better than 1%. Units housed in a compact die cast case with sloping panel ideal for laboratory use ...4½ x 4⅜ x 2⅜ high.



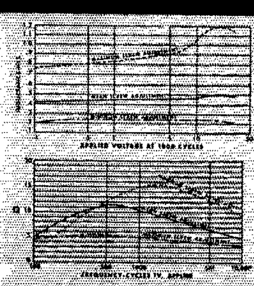


DI-1 Ten 10 Mhy. steps.
DI-2 Ten 100 Mhy. steps.
DI-3 Ten 1 Hy. steps.
DI-4 Ten 10 Hy. steps.



VIC case structure

Length	Width	Height	Oz.
1-1/4	1-11/32	1-7/16	5-1/2



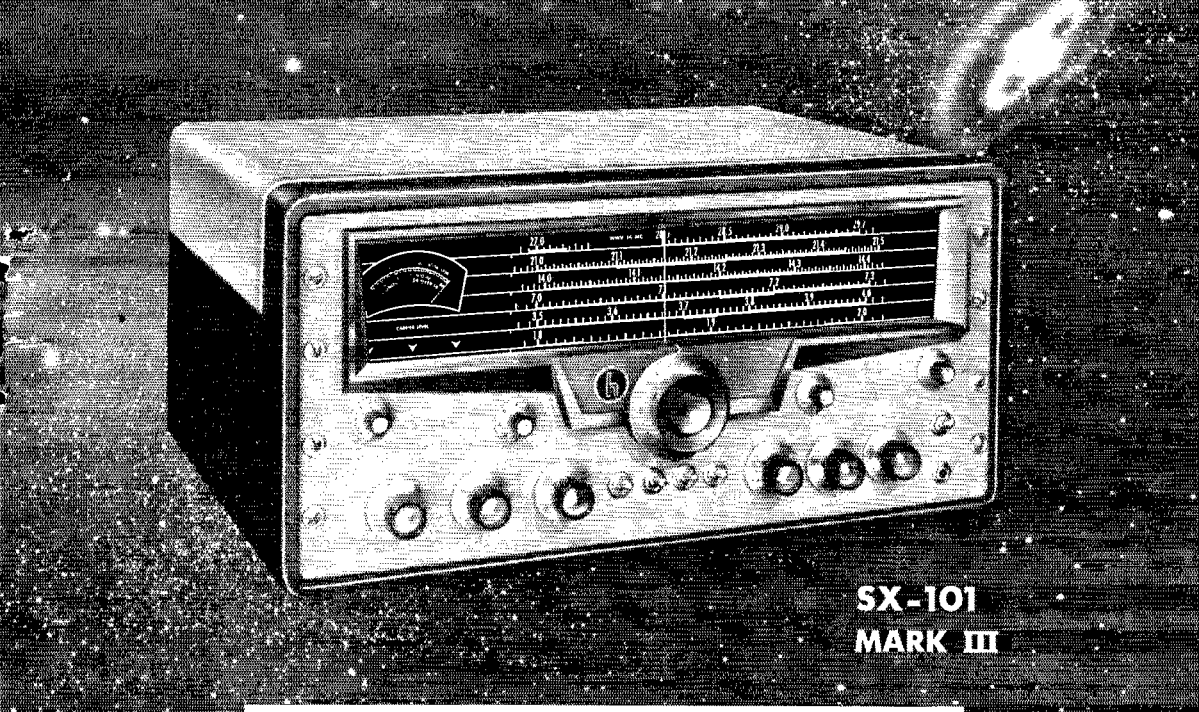
Type	Mean Hys.	Type	Mean Hys.
VIC-1	.0085	VIC-12	1.3
VIC-2	.013	VIC-13	2.2
VIC-3	.021	VIC-14	3.4
VIC-4	.034	VIC-15	5.4
VIC-5	.053	VIC-16	8.5
VIC-6	.084	VIC-17	13.
VIC-7	.13	VIC-18	21.
VIC-8	.21	VIC-19	33.
VIC-9	.34	VIC-20	52.
VIC-10	.54	VIC-21	83.
VIC-11	.85	VIC-22	130.

VIC Variable Inductors

The VIC Inductors have represented an ideal solution to the problem of tuned audio circuits. A set screw in the side of the case permits adjustment of the inductance from +85% to −45% of the mean value. Setting is positive.

Curves shown indicate effective Q and L with varying frequency and applied AC voltage.

SPECIAL UNITS TO YOUR NEEDS
Send your specifications for prices.



Weigh this one against all comers!

The most important single standard of receiver performance is —your own judgement. And the one sure way to judge is to *compare*, not only on paper, but by an *actual demonstration at your distributor's.*

We'll stack the new SX-101 MARK III against *any amateur band receiver*—in overall performance and long-life reliability.

We're betting that you will, too.

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- **Utmost mechanical and electrical stability.**
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- **Exclusive crystal-controlled upper/lower sideband selection.**
- **S-meter functions with A.V.C. off/on.**
- **Tee-notch filter.**
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PLUS: Band in use individually illuminated . . . antenna trimmer . . . dual conversion . . . full gear drive from tuning knob to condensers . . . five steps of selectivity from 500-5,000 cycles . . . many more features. *Available with convenient terms from your Radio Parts Distributor. See him today!*

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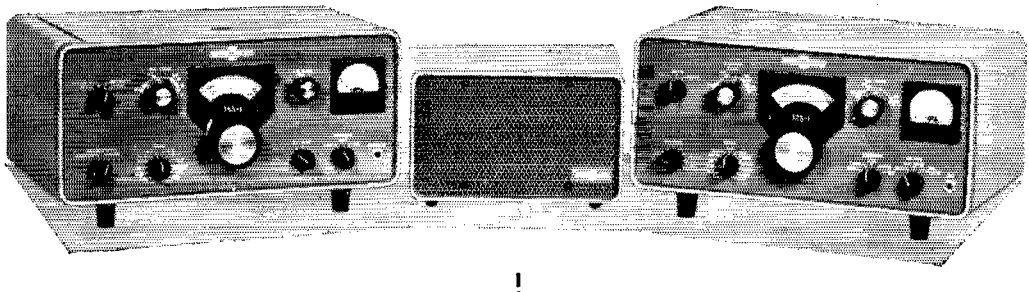
First amateur station coordinated to operate as a transmitter-receiver or as a transceiver

Collins NEW complete SSB station



32S-1 TRANSMITTER
175 WATTS PEP INPUT
80 THROUGH 10 METERS
10 DB RF FEEDBACK
AUTOMATIC LOAD CONTROL
UPPER & LOWER SSB, CW

75S-1 RECEIVER
2.1 (furnished) AND .5 KC MECHANICAL FILTERS
BROAD POSITION FOR AM
CRYSTAL CALIBRATOR
UPPER & LOWER SSB, AM, CW
SENSITIVITY—1 uV FOR 10 DB S/N

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The 32S-1 and 75S-1 will be on display at the New York IRE Convention in New York, March 24-27.

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QST

MARCH 1958

VOLUME XLII • NUMBER 3

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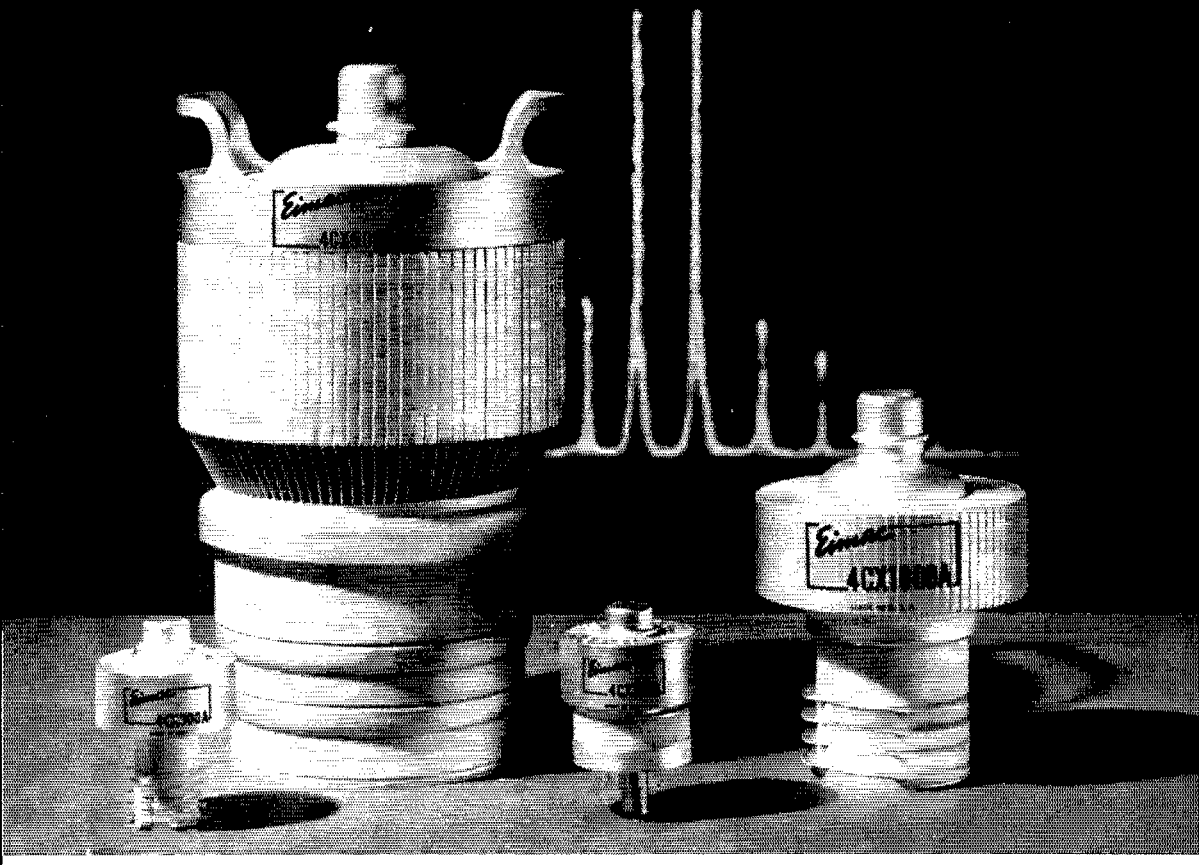

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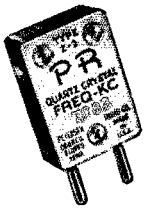

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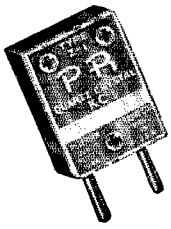

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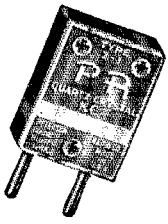

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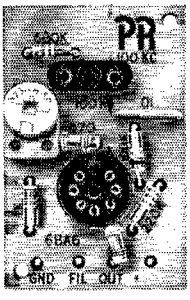

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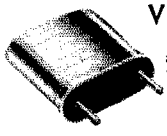

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Section Communications Managers of the ARRL Communications Department

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 the areas shown to qualified League members. These include ORS, OES, OPS, OO and OBS. SCMs also desire applications for SEC, EC, RM and PAM where vacancies exist. *All amateurs* in the United States and Canada are invited to join the Amateur Radio Emergency Corps (ask for Form 7).

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THE AMERICAN RADIO RELAY LEAGUE, *INC.*,

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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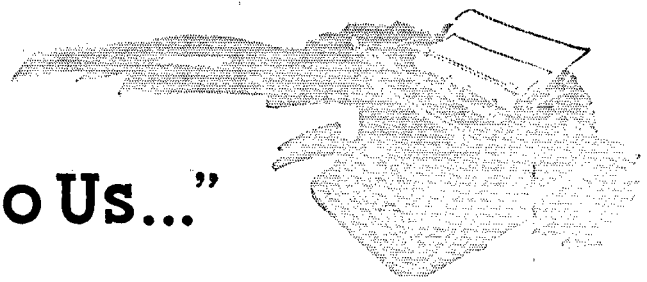


"It Seems to Us..."

CUT AND TRY

It started out to be such a pleasant day. (There *are* some of them in New England winters, now and then.) Despite the cold, the car's engine turned over immediately. There was only a minor traffic jam at the bridge; a short but pleasant 28-Mc. chat from the mobile en route to work; that day there was even parking space close to the office. The steno had the coffee pot steaming. Everything was clicking.

The letter atop the morning mail pile added to the glow. "I am building the 'Combination Keyer and Control Circuit' as shown in the February 1957 issue of *QST*," it commenced. Ah, somebody who isn't afraid of a home-construction job and who wants to know more about what's behind the panels of his gear! He continued, "K_1 and K_2, the two relays needed in this circuit, are specified to be 16,000-ohm plate circuit relays or, if otherwise, the values of R_8 and C_1 should be changed."

And then it happened:

"I now have two relays which have 5000-ohm coils and I was hoping that some of your technicians could calculate the values of R_8 and C_1 when 5000-ohm relay coils are utilized so that I would not have to use the 'cut-and-try' method."

After a moment the steno, watching, inquired if all was well. Well, no, not exactly.

We have sounded off on the subject before,[1] and are now going to do it again. An orchid to this chap for his interest in and willingness to build some gear for his station. But shucks — he's missing most of the fun. If he's not willing to cut-and-try, what's the point of building? If he's not willing to tangle with a minor problem like this, what is he going to learn?

This particular gent, it turned out, got a Novice license a year ago, quickly moved up to General. We just hate to see a guy who is coming along that fast miss some of the other pleasure in ham radio by not wanting to try anything. Who does he think dreams up the new circuits and techniques that we hams use, anyway?

Over the years Hq. has been in receipt of literally thousands of comments from hams who have constructed some equipment from a *QST* article. "Built it exactly like *QST* said," is a typical remark . . . except I used choke instead of condenser filter input . . . except I ended up with single-ended output instead of push-pull . . . except I tried a 1500-kc. intermediate frequency instead of 455."

That "except" is a mighty powerful word. Sometimes the exception was because he already had the parts in the junk box. More often it was because the constructor thought he could improve on the circuit or design. More often than you think, the result was a suitable contribution to "Hints & Kinks" — another and better way of doing something.

We need more "excepts" in ham radio. We need more do-it-yourself. We need more cut-and-try approaches!

RECIPROCAL LICENSING

For some years now we've regularly inquired at Washington concerning the possibility of a change in attitude on the part of our government toward special arrangements with other nations which would permit amateurs of one country to operate within the territory of another. We've always run into a stone wall; our government is not prepared to take such a step.

(The present arrangement with Canada is not, strictly speaking, a "reciprocal licensing" agreement, inasmuch as the alien is not *licensed* by the government concerned but only granted authority to operate temporarily, under his own country's license.)

Earlier this year Senator Hubert Humphrey of Minnesota introduced a resolution which would express the sense of the Senate that negotiations should be entered into looking toward a reciprocal operating treaty with Mexico. Actually, the text does not refer to amateurs or even mention permission to operate; it confines itself to the matter of permission to carry mobile radio gear from one country to the other without the necessity for removing the equipment or having it sealed. However, the Senator's brief remarks in introducing his resolution indicate amateur radio objectives, apparently sparked by correspondence with some of his amateur constituents several years ago; they also indicate the Senator has personally taken up the subject during the past two years with the Department of State and FCC, similarly without success.

(*Continued on next page*)

[1] July 1957 *QST*, p. 9.

The resolution, S.Res. 211, has been referred to the Senate Committee on Foreign Relations. Amateurs interested in encouraging its passage should address themselves to the Committee Chairman, the Hon. Theodore F. Green, Senate Office Building, Washington 25, D. C. Passage of the resolution would not necessarily result in a reciprocal arrangement, since it is not a specific directive: it is, however, a start from another direction.

New York — The annual SSB Dinner, sponsored by the Single Sideband Amateur Radio Association, Inc., of 261 Madison Ave., New York 16, will be held at the Hotel New Yorker on the evening of March 25. Tickets are $7.50.

COMING A.R.R.L. CONVENTIONS

March 1 — Michigan State, Saginaw
May 3–4 — Oregon State, Salem
May 25 — New Hampshire State, Concord
June 7–8 — Pacific Division, Fresno, California
June 14–15 — Rocky Mountain Division, Santa Fe, New Mexico
July 26–27 — West Gulf Division, Oklahoma City, Oklahoma
August 15–17 — ARRL National Convention, Washington, D. C.

A.R.R.L. OREGON STATE CONVENTION

Salem, Oregon — May 3–4

The Oregon Amateur Radio Association, Convention Host for 1958, invites all radio amateurs and friends to attend the ARRL Oregon State Convention at Salem, on May 3 and 4.

Registrations and reservations may be made at convention headquarters, Marion Hotel, Post Office Box 142, Salem, Oregon. Pre-registration charges will be $6.00 for hams and $3.00 for non-hams.

The OARA promises you good speakers, entertainment, and fun for everyone. See you at the Oregon Convention!

J. Frank Key, W4ZA

The Roanoke Division lost another of its leaders with the passing, in January, of J. Frank Key, W4ZA. President and general manager of the Columbian Paper Co. of Bristol, Va., W4ZA served on the ARRL Board of Directors in 1949–1950 and for many years previous was alternate director for the division. He had been a League member continuously since 1921.

SATELLITE NOTES

As we write this the U. S. satellite "Explorer" has so recently been launched (on February 1, for the record) that reports of amateur activities in connection with it have only just started to come in. One such report is that the Minitrack setup of the "Ohio Moonbeam Group" of Cleveland, Ohio, was able to get tracking records on six of the early passes. The station, operated by a group of ten, five of whom are hams (W8FKC, W8GID, K8HYN, K8HYZ and W8CWL), was just barely in operating status on the launching date, but they did make it in time.

—···—

W3ASK advises that the Voice of America will issue a QSL to any amateur reporting reception of the U. S. satellite on 108 Mc. Address Explorer, % Voice of America, Washington 25, D. C.

—···—

If you don't have a special converter for picking up signals from the "Explorer" and its successors, an f.m. tuner can be pressed into service in a pinch. Simply poke a wire in near an i.f. plate lead, connect to your communications receiver set at 10.7 Mc., and tune But don't expect much unless the tuner is a good one — low-noise front end such as a cascode, and stable enough to hold a signal in the narrow acceptance band of a communications receiver — and you have a good antenna for 108 Mc. The transmitters on these satellites are really low-powered.

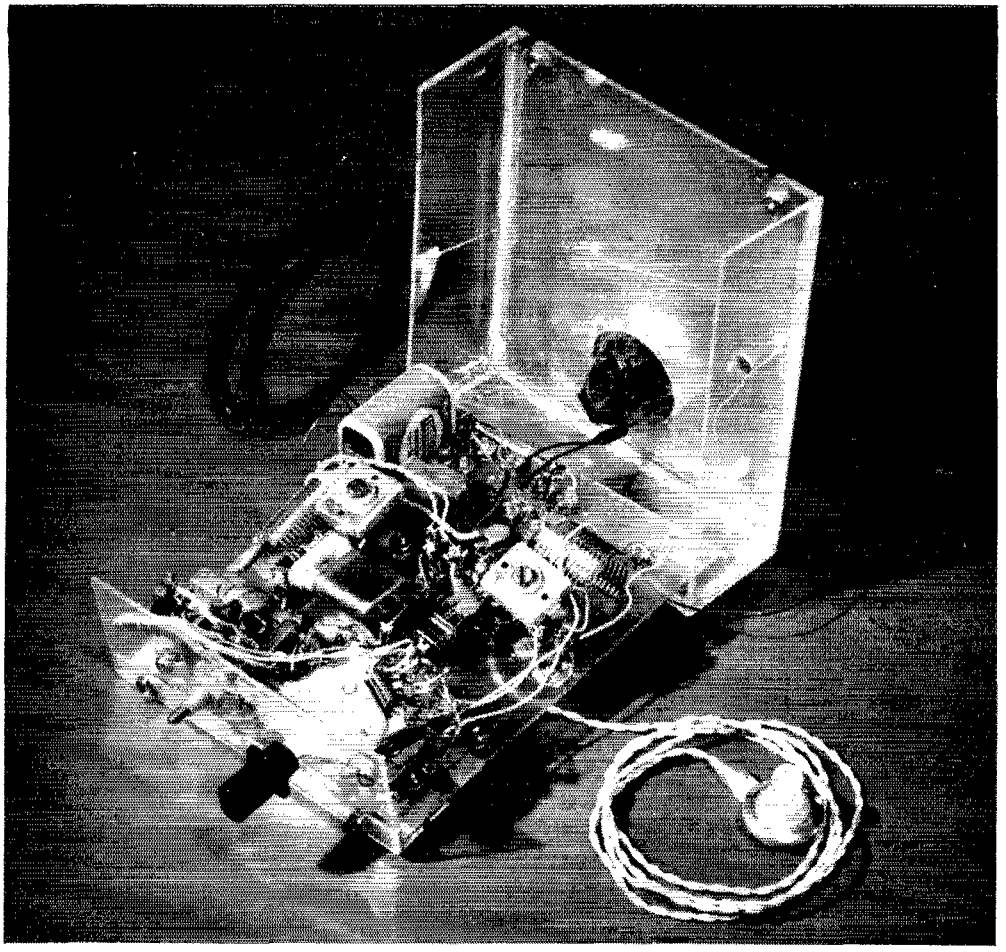
OLD TIMERS TAKE NOTE

There are three clubs or associations in which the prime requisite for membership is longevity in ham radio. In response to a number of requests, here are the requirements for membership in the various organizations, arranged in the order of longevity required.

The Old Timers Club. This is sponsored by ARRL, and to join you need only write to the League that you are now licensed and that you were licensed at least 20 years ago. Written proof of the early license is desirable, but not mandatory. There is no fee.

The Quarter Century Wireless Association accepts as a member any presently-licensed amateur who can submit satisfactory proof that he was also licensed 25 years ago. Dues are $2.00 per year, $10.00 for six years, or $25.00 for life membership. Membership application may be filed with Ralph Barber, W2ZM, 244 Forest Ave., Locust Valley, N. Y.

The Old Old Timers Club accepts into membership any licensed amateur who can establish that he held a two-way contact with another wireless station, either amateur, commercial or naval, at least 40 years prior to the date of his application. A lifetime membership costs $10.00. Applications may be made to Richard Kleinberger, W2AEC, 4 Birchwood Rd., White Plains, N. Y.



Built on a 4 × 5-inch plastic base, the unit with its cover is approximately 1½ inches high. No external tuning controls are included because receiving is normally done on the crystal-controlled transmitting frequency. In this view the receiver is at the left end of the front panel. The crystal oscillator is immediately behind it and the transmitter r.f. amplifier is at the right rear. The audio amplifier is on a small plate below the send-receive switch at the right side of the panel. The microphone and its transformer are fastened in the circular hole in the cover.

A Transistor Handitalky for Ten Meters

Crystal-Controlled Transmitter and Super-regenerative Receiver

BY E. G. VON WALD,* W4YOT

From the beginning, transistors have held out the promise of a hand-size transmitter-receiver without a bulky battery supply. Here's one in the flesh, capable of working over a distance of several miles, at least, in the 28-Mc. band.

THE TRANSISTOR is one of the most fascinating developments applicable to ham radio since Messrs. Yagi and Uda first started putting parasitics back into radio gear instead of taking

* 7 South Dixie Highway, Lake Worth, Florida.

them out. Unlike the antennas, these new things cannot handle much power yet, particularly when you get up in the vicinity of 29 Mc. Still, while ten milliwatts may not sound like much when you are talking about it, it can sound like an astonishingly good deal when you are listening to it a few miles away.

The gadget to be described can hardly be considered anything approaching the ultimate in miniaturizing. The writer is a ham, not a product engineer, and also somewhat lazy; hence primary consideration was given to ease of construction in place of such things as compactness or even appearance. However, the result was found to be highly useful, and the experience of building it was profoundly satisfying.

A number of articles and booklets published during the past few years on the subject of transistor transmitters and receivers formed the general background information for the project. All of the circuits described were carefully studied and most of them tried out before the present rig was initiated. Much was learned from them, and a short listing of those found most useful will be found at the end of this piece. It comes highly recommended.

Circuit High Lights

Two problems of importance were encountered in the design. The first and most interesting was that of modulation.

Upon applying what seemed to be a reasonable amount of audio power to the collector, an on-the-air test brought the disappointing report that there was plenty of carrier but not much talk. A hasty reconstruction of the audio section brought the voice up, but also distorted it badly and produced a downward swing of the receiving S meter amounting to several units. So back to the bench it went.

Checking with an oscilloscope promptly showed that the trouble was in the final, where a properly shaped sine wave ended up with the positive swing virtually cut off. A series of steady-state tests then showed that variations of collector voltage had proportionate effect on collector current only in a very narrow region close to zero volts. This clearly accounted for the trouble with the modulation. Moderate audio signals would produce only slight variations in r.f. amplitude, resulting in the report of "not much talk." Very heavy audio signals would produce only slight increase in amplitude on the "up" swing, while the "down" swing would cause large gaps of no signal, resulting in the severe downward shift of the S meter.

The remedy was to introduce some of the audio to the base, somewhat in the same manner that one brings some of the audio signal to the screen of a tetrode tube in order to obtain a linear characteristic. Of course, this amounts to varying the operating bias at an audio rate, but a pretty good compromise was worked out, and the net result is shown in the circuit diagram, Fig. 1. It was evolved experimentally, and performs very nicely.

The second important problem encountered involved the crystal oscillator. Six specimens of the 2N248 were tried, and all were so sensitive that the more elaborate circuits which apparently work so well at lower frequencies seemed to provide too much feedback. They were apt to break into oscillation with or without a crystal, and on any number of frequencies simultaneously. After much puttering, it was agreeable to discover that the simplest circuit usable was also the most dependable. It either oscillates under crystal control, or it doesn't oscillate at all. Adjustments were not at all critical.

In the receiver section, a single 2N248 superregenerative detector is used. Here again the sensitivity was found to be far more than ample for the application, so that the usual critical adjustments required to obtain maximum performance were unnecessary.

Regeneration control is achieved by varying the antenna loading on the superregenerative oscillator, thus saving the bulk of a potentiometer.

Construction

Each stage of the r.f. section of the transmitter was built separately, mounting the components by soldering everything to lug strips. This is a quite satisfactory approach when dealing with such lightweight elements as crystal sockets, transistor sockets, etc. It also permits an easy step-by-step approach to the final assembly. There is one irritating trouble with it, though. Without the weight of a chassis or base of any kind the unit tends to tip over at awkward moments, such as when soldering. This difficulty was overcome by sticking a thumbtack through the mounting hole at the end of the lug strip, thus fastening it securely to the work table. Later, when both the power amplifier and oscillator have been completed and checked out individually, the ease of positioning them with relation to each other for testing afforded by the thumbtack trick is difficult to appreciate until one has tried it.

The audio plate was constructed as a single unit by mounting everything on a 1 × 1½ × 1/16-inch piece of polystyrene sheet, using small nuts and bolts at important junctions. The transistors in this case were soldered directly into the circuit instead of using sockets. This introduces a slight added risk to the units from the heat of soldering, as well as the obvious problems of possible later re-use in other equipment, but the CK722 types are now quite inexpensive, so these matters were ignored.

Like the transmitter sections, the receiver was first mounted on a soldering-lug strip; but after it was checked out it was remounted on one end of a piece of poly sheet 4 × 1½ × 1/16 inch, which forms the control panel of the finished enclosure. The panel itself was fastened to the 4 × 5 × 1/16-inch base with a piece of aluminum angle stock. It could be cemented in place just as well but there is a little more flexibility if it can be removed at any time.

Smaller switches to use for send-receive can be obtained. They were not available locally,

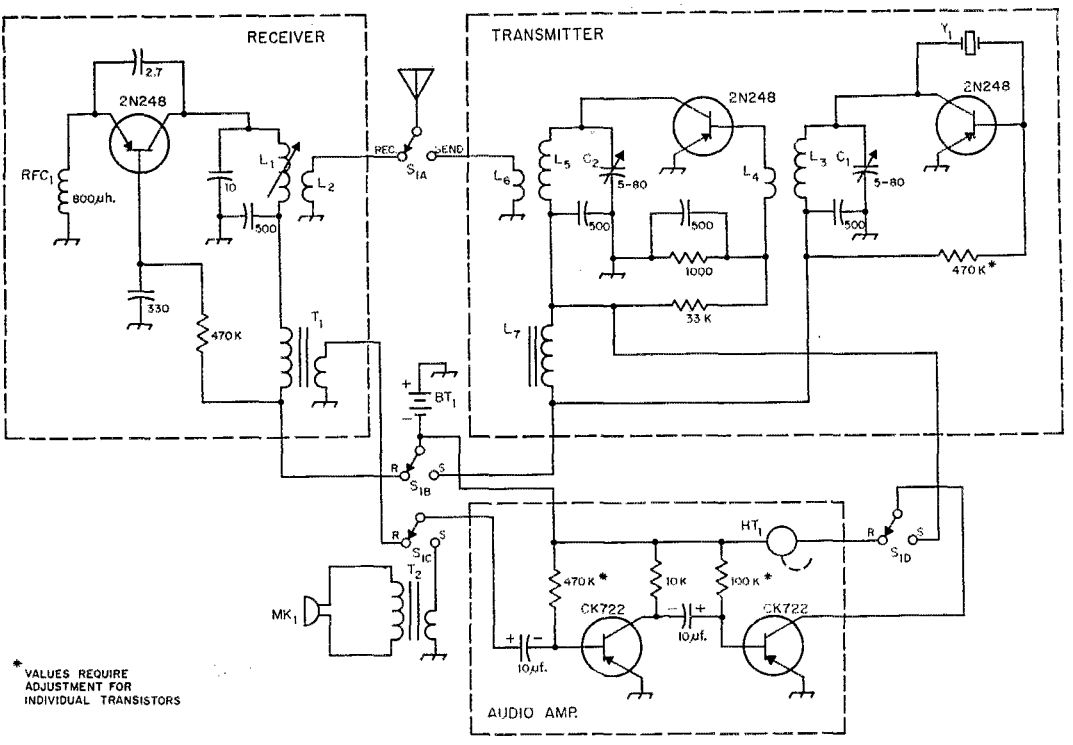


Fig. 1—Circuit of the 28-Mc. transistor transmitter-receiver. Unless otherwise indicated, capacitances are in μμf., resistances are in ohms, resistors are ½ watt. Capacitors with polarities marked are electrolytic, low-voltage miniature type.

BT_1—Miniature battery, 9 to 12 volts.
C_1, C_2—5-80 μμf. mica trimmer (Arco 462).
HT_1—Hearing-aid earphone, magnetic type.
L_1—15 turns No. 22 close-wound on slug-tuned form (Miller 4400), app. 2 μh.
L_2—2 turns same as L_1 at ground end of L_1.
L_3—19 turns No. 20, diameter ½ inch, 16 turns per inch.
L_4—3 turns hook-up wire wound over ground end of L_3.
L_5—12 turns No. 20, diameter ¾ inch, 16 turns per inch.
L_6—3 turns hook-up wire wound over ground end of L_5.
L_7—20K winding of transformer of same type as T_1.
MK_1—Miniature crystal microphone (Argonne AR-52).
RFC_1—800-μh. r.f. choke (Miller 6156 TV peaking coil).
S_1—4-pole 2-position lever switch (Centralab 1458).
T_1—Transistor driver transformer, 20,000 to 1000 ohms (Argonne AR-104).
T_2—Miniature plate-to-line transformer, 25,000 to 500 ohms (UTC SO-3).
Y_1—Overtone crystal, 28-Mc. phone band.

Note: Receiver regeneration control is by adjustment of antenna coupling (coupling between L_1 and L_2) in lieu of voltage adjustment.

though, so I took what was. It works fine, but I wish it were smaller, and that it included a position for on-off control, which at present consists of a piece of wire at the metering terminals.

The cover for the assembly was also made up of poly sheet stock, cemented together, and sized to fit over the base and control panel as shown in the photographs. A hole was cut with a 1 3/16-inch metal punch for mounting the microphone-transformer assembly, which had been prepared by simply fastening the mike transformer to the back of the microphone with Scotch tape. A few drops of cement hold it in place without any trouble.

Where a chassis ground is shown in the circuit diagram it means a common connection, because the chassis material used happens to be a very excellent insulator. Monitoring of the currents to each stage was considered essential, so a set of cabled leads runs along one side to the back, where the terminals were formed by small nuts and bolts in the base plate. Those leads include the "common connection" referred to above, so an additional by-pass capacitor was required to stabilize the receiver. It is not shown in the circuit because slight differences in layout may obviate this necessity — or require additional ones.

In the photograph, the battery shown is an old 15-volt item that happened to be around the shack. It had aged to the point where it provided about 9 volts under a 4-ma. load, so it provides satisfactory service. Oddly enough, no bypass for it was found necessary. A mounting for the battery was formed by twisting lightweight strap-type soldering lugs to hook over the battery terminals, and fastening them to the base.

Tuning Up

First tune the crystal oscillator tank until there is a noticeable dip in collector current, then

verify the operation with the station receiver. Like any other crystal oscillator working on the crystal frequency, there is some pulling of frequency when tuning. It is relatively slight, however, and adjustments should be made for maximum output consistent with reliable crystal starting and the transistor ratings. It should be possible to obtain close to one tenth of a volt of positive bias on the base of the power amplifier when both stages are functioning. This is adequate to provide satisfactory Class C operation.

With a 9-volt supply, collector current for the oscillator was about 1 ma., and for the amplifier under full load about 1.5 ma. The voltage drop in the modulation choke is nearly 2 volts, so the resultant input to the final is in the vicinity of 10 milliwatts. With a 12-volt supply these currents run a little higher, but not much. Three dead 2N248 specimens are available here at the shack in cold testimony that supply voltages much higher than fifteen had best be avoided. About 12 volts should be considered maximum for this particular piece of gear.

Adjustment of the final is done just as for any other final — tune for the dip. The maximum load current for peak carrier output was found to be around two-thirds of the maximum off-resonance current, and the no-load dip should read less than half the full-load dip. This may depend on the efficiency of the particular transistor used as the amplifier, as well as the efficiency of the tank components.

A word should be said about oscilloscope monitoring of transistor phone transmitters. The r.f. voltages involved are much too small to give a satisfactory reading of the envelope. A demodulation probe working into a good vertical amplifier indicates the audio wave shape transmitted, though, and that tells a lot about what goes on. Another alternative would be a panadaptor on a monitoring receiver.

Final adjustment after the cover is on and the antenna connected is done through a hole in the cover, tuning the final tank capacitor for maximum deflection of the station receiver S meter.

The rush-box receiver, like all superregenerative detectors, involves many variables, depending on the specific components and layout used. Reference to the *Handbook* would be of value if one is unfamiliar with their operation. Adjust the antenna coupling so that a strong signal cuts out the characteristic hiss almost completely. Here, this "strong signal" was provided by a grid-dip meter located several feet from the handitalky. The slug-tuned coil, L_1, was then set at the crystal frequency and the aluminum throat crimped with pliers to hold it there.

Operation

Several types of portable antennas were tried out, including 18-, 24- and 30-inch loops, a top-loaded 36-inch vertical, and a piece of wire eight feet long draped at random over the operator's clothing. Tests while working to a mobile seemed to favor the larger loops; some directivity was shown, but not enough to be a problem. Construction of the self-supporting loop itself was a problem, though, because it was desired to make the antenna fit around the handitalky case when not in use. Locally available wire either would not support the loop or else it could not be wound around the case.

Of the other antennas tried, the random eight-foot wire was as good or better signal-wise, and also much the simplest. Using this antenna, the the signal remained good out to several miles, depending on terrain, when working to the mobile control station.

That mobile control station, incidentally, was K4LVW/4. Don's endless patience in running the tests, and his highly cogent criticism of the little rig and its signal were most essential to its satisfactory completion.

Sorry, no skip was worked with it on the ground plane presently in use here. Comes the three-element beam, though, and we expect it to be a different story. After all, ten milliwatts is only fifty decibels below a kilowatt. If the kilowatt is coming through 40 over S9, the peewee should be at least S7 on the same meter. And S7, don't forget, is still a "moderately strong signal," whether it's on the other side of town or the other side of the planet.

We hope.

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Transistor Applications, Raytheon Mfg. Co., Waltham, Mass.

Strays

The last entry in W4HOJ's log book for 1957 reads: Dec. 31 2032 W9SEM 579 7020 Cambridge City, Ind. 579 2134 Don. The first entry in W4HOJ's new log book for 1958 reads: Jan. 1 0844 W9SEM 589 7020 CC, Ind. 589 0928 Don. W9SEM's last QSO of 1957 and first QSO of 1958 turned out to be — you guessed it — with W4HOJ.

K5ABE toots his own whistle by calling himself K5 America's Best Engineer. By the way his handle is Casey Jones.

—···—

Consecutive entries in the log of W4DGX on Dec. 30, 1957, were KØIDZ and K5IDZ. Engaged in a three way QSO on 40-meter c.w. Jan. 18, were KØIDZ, K5IDZ, and W5IDZ.

This British communications receiver has several unusual features not to be found in receivers built in the U. S. Each division of the top scale represents one kilocycle; this film scale is five feet long! The dark square at the left, matching the meter on the right, is a grille for the small monitoring loud-speaker.

A New Receiver Tuning Principle

Wide-Range British Receiver with Interesting Features

RECENTLY VE7AIK wrote to us to ask what we thought about the Racal RA-17 receiver, and we could only answer that we didn't think anything because we didn't know anything about it. This surprised VE7AIK no end, and he promptly sent us a flyer he had on the receiver. This in turn prompted us to get in touch with the manufacturers, Racal Engineering Ltd., Western Road, Bracknell, Berkshire, England.

The RA-17 Communications Receiver is expensive and it is made in Europe, so it isn't likely that we will see very many in the United States. The receiver is handled in Canada by Instronics Ltd., Stittsville, Ont., so some of our VE neighbors may be telling us about it over the air in the near future. The manufacturer was kind enough to forward enough information for us to pass along on what we think is a novel and interesting approach to receiver design.

Perhaps the outstanding feature of the receiver is the tuning method. The RA-17 has continuous coverage from 1 to 30 Mc. Referring to the photograph of the front panel, the large knob below the right side of the dial face is labeled "Megacycles"; it is set to the megacycle range you wish to tune. For example, the little dial face in the photograph indicates "2," so the receiver is currently set to tune 2 to 3 Mc. *The setting of this dial is not critical!* (One would expect it to be very critical, so why it isn't will be explained later.) You then tune the range with the left-hand large knob and read the frequency from the horizontal scale. That horizontal scale is a strip of film *60 inches long*, with a calibration mark every kilocycle. To change bands you merely turn the "Megacycles" knob to the right range and, to confuse you a little more, no switching is involved!

Since this tuning device is so unusual, perhaps it had better be described before we get on with the rest of the receiver. The block diagram of Fig. 1 shows what is used in the front end of the receiver. The v.f.o. tunes 40.5 to 69.5 Mc., and its control knob is the one tied to the "Megacycles" scale on the panel. Let's assume that the v.f.o. is set to 50.5 Mc. Although all of the harmonics of the 1-Mc. crystal will be hitting the second mixer, the signal in the plate circuit that gets through the 37.5-Mc. filter will be the beat with the 13th harmonic (13 Mc.; 50.5 − 13.0 = 37.5 Mc.), and this 37.5-Mc. signal is applied to the third mixer. In the signal channel from the antenna, a signal at 10.5 Mc. would beat with the 50.5-Mc. v.f.o. and be heterodyned to 40.0 Mc., pass through the first i.f. stage and enter the third mixer. In the third mixer it would beat with the 37.5-Mc. energy to give a signal at 2.5 Mc., which could then be tuned in by the 2- to 3-Mc. receiver. (The 2- to 3-Mc. receiver tuning is tied to the 60-inch long scale that reads "Kilocycles.") It should be apparent that under the above conditions signals in the range 11 to 10 Mc. would be heterodyned to the range 2 to 3 Mc. and could then be tuned by the 2- to 3-Mc. receiver.

But if about this time you're wondering how they keep the v.f.o. stable at this high frequency, the answer is, "They don't have to." Suppose the v.f.o. drifted to 50.6 Mc. Its beat with the

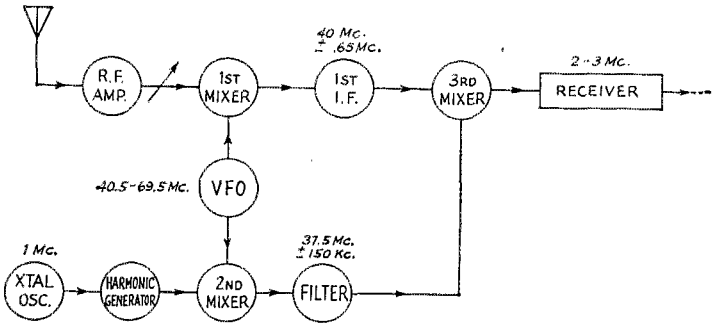
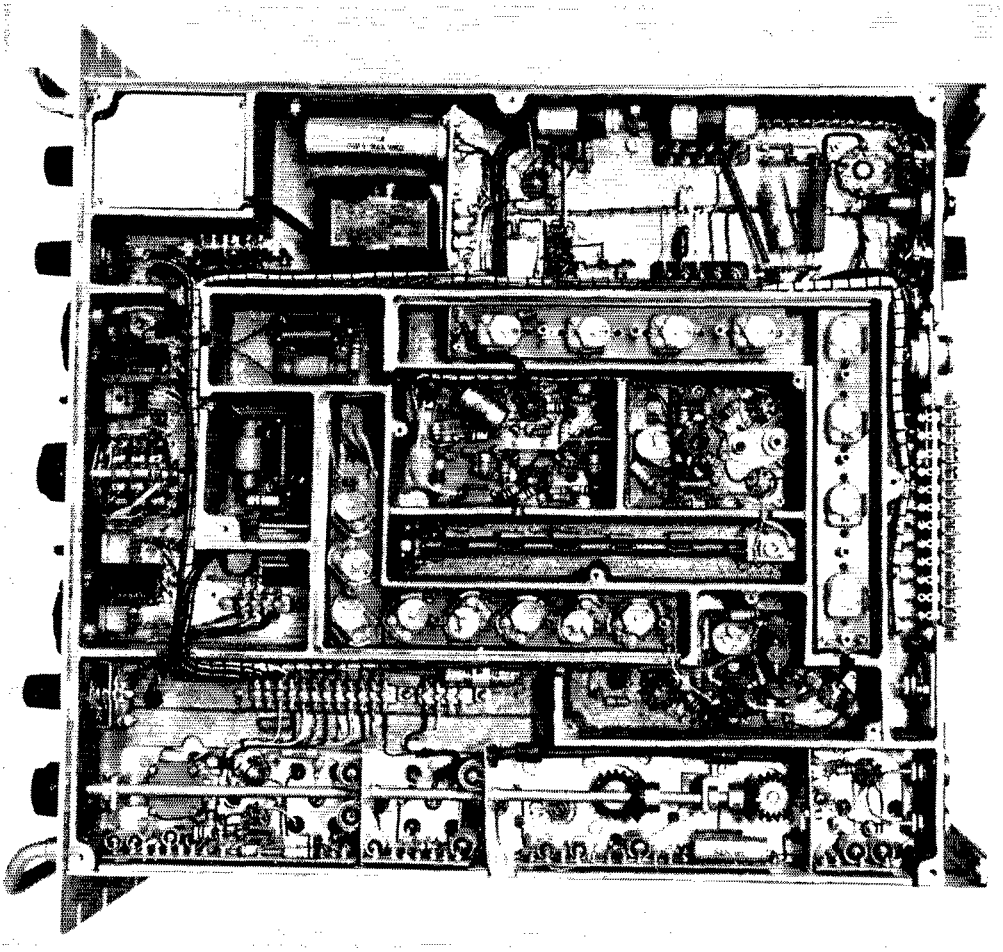


Fig. 1—Block diagram of the unusual tuning system in the RA-17 receiver. It features continuous coverage from 1 to 30 Mc. without switching.

13-Mc. harmonic of the crystal would be 37.6 Mc., and its beat with the 10.5-Mc. signal would be 40.1 Mc. The beat between 37.6 and 40.1 Mc. is still 2.5 Mc., so although the v.f.o. drifted 100 kc. the signal stayed on the same frequency at the input to the 2- to 3-Mc. receiver.

The foregoing is not by way of implying that the RA-17 has oscillators that drift badly; all we can say about that is to quote (later) what the manufacturer claims. We did want to point out the ingenuity of the system, and the arithmetic was easier with a 100-kc. drift. To recapitulate a little, it should be apparent that the receiver stability depends upon the stability of the

The die-cast aluminum chassis provides a rock-solid base for the RA-17. Pity the poor cricket that gets caught in there without a road map!



1-Mc. crystal oscillator and the h.f. oscillator in the 2- to 3-Mc. tunable portion. Nothing is ever switched in the v.f.o. circuit, and it need be set only approximately to the right frequency for any given tuning range.

The arrow in the link between the r.f. amplifier and the first mixer in Fig. 1 is to indicate that tuned circuits are used here as well as some attenuation. Normally the front end might be set to a broad-band condition that requires no tuning. Should the signal be of such amplitude that it requires attenuation, 40 db. is available in steps of 10 db. Should a strong interfering signal be troublesome, the antenna range switch can be set to the appropriate band and the antenna tuning control rotated to peak the desired signal.

The tuning of the RA-17 is the major point of departure from conventional receiver design, and the remainder of the receiver incorporates what are currently considered to be desirable characteristics. Calibration check points every 100 kc. are obtained from the 1-Mc. oscillator and a regenerative frequency divider. Six degrees of i.f. selectivity (obtained at the third i.f. of 100 kc.) range from −6 db. band widths of 150 cycles to 8 kc.; the three sharpest band widths are obtained through the use of crystal-lattice filters. Two a.v.c. characteristics are available: a fast a.v.c. with a 200-millisecond discharge and a slow a.v.c. with a 1-second discharge. The S meter can be switched to read either "r.f." or "a.f." level; this is probably our usual S-meter circuit for the r.f. level and a rectifier in the audio for the a.f. level.

An over-all drift of less than 1200 cycles during two hours after a cold start is claimed for the receiver, and after two hours it is said to be less than 200 cycles, which is about as close as one can read the dial.

The receiver is said to sell for around £400 (over $1000 in Canada), and as yet no U. S. distributor has been appointed. We have been told that the receivers are already finding their way into ham (and commercial) shacks around the world, and some day it may be possible for some of us to log a little operating time with them. In the meantime, there is no good reason why enterprising "do-it-yourself" amateurs cannot apply the tuning principle to homemade receivers and transmitters. — *B. G.*

• *New Apparatus*

Wide-Range Indicating Wave Meters

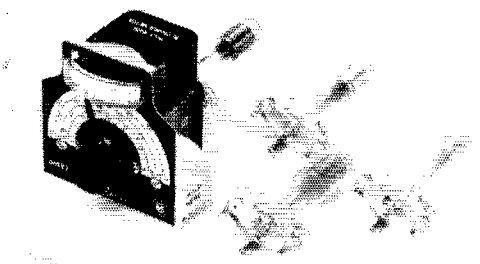
THE FAMILIAR 90600 series of absorption wave meters made by the James Millen Manufacturing Co., Malden, Mass., now has a sister series (90680) of extended total frequency range and increased flexibility. There is a basic family resemblance, but the new series adds plug-in coils and a plug-in indicating meter to the hand-held calibrated panel and small size that have been characteristic features of the 90600's.

In the new series there are five base units — capacitor with calibrated panel — each having an associated set of plug-in coils. The panel is cut out at the top to take a plug-in edge-reading d.c. microammeter (0–500 μa.) which is actuated by a crystal diode. The latter, part of the base unit, is connected to a third contact on the coil socket on the rear of the capacitor casing, and is connected to a tap on the coil when the latter is plugged in place. Base units and their frequency ranges are as follows:

90681 — 170 to 800 kc. with 3 plug-in coils
90682 — 610 kc. to 9 Mc. with 4 plug-in coils
90683 — 6.5 to 85 Mc. with 4 plug-in coils
90684 — 84 to 295 Mc. with 4 plug-in coils
90685 — 295 to 700 Mc. with 4 plug-in coils

The 90683 is shown in the accompanying photograph.

The capacitor designs and plate shapes, chosen to give good band-spread on each range, vary from straight-line capacitance to straight-line frequency depending on the range. In most instances the frequency range with a given coil is 2 to 1 or less; the only exception is the 90682, which has ratios of about 3 to 1 on three of its coils. The tuning capacitors are individually



adjusted to fit the frequency calibrations and are protected from dust and accidental mechanical damage by plastic covers.

Panels on these units are 3 inches wide and 3 inches high. Depth behind the panel, excluding the plug-in coil, is 1¾ inches.

— *G. G.*

Obstacle Gain Techniques for 50 Mc. and Higher

BY JULIAN H. CRAIG,* W6LWY

HAVE you been passing up 50 Mc. and higher bands because your location isn't on the highest hill for miles around? Probably you are not interested in breaking records; you merely would like to be able to have solid QSOs within an area of, say, a 100-mile radius. Even if you live in a valley surrounded by high mountains, the v.h.f. potential of your home site may be much more attractive than you ever thought it to be.

While not guaranteeing complete coverage in all directions, a relatively new technique offers a strong possibility that those of us who are surrounded by hills, mountains or even tall buildings may have *better* locations for v.h.f. work than fellows who are in the wide-open spaces! A propagation phenomenon known as obstacle gain has been the subject of thorough investigation in recent years, and the terrain characteristics required for utilizing it are now well understood.

This article will discuss the theory involved, briefly, since it is not at all complex, and show how to recognize paths that provide obstacle gain. Methods not requiring knowledge of higher mathematics will be presented for estimating the expected field strength at the receiving terminals with reasonable accuracy.

Fundamentals

The principle involved in transmitting and receiving signals over a barrier is most easily explained by the use of an analogy. A ray of light passing over a sharp-edged opaque object, such as a dark-colored wedge, is diffracted (bent) in the manner shown in Fig. 1. This is the basis of diffraction gratings which are used to measure wave lengths of the components of the light spectrum. Similarly, radio waves are diffracted over obstacles that are opaque to them, if the following conditions are met:

1) The diffracting edge must be many wave lengths long. Although in theory the thickness of the edge should be very small, in practice it has been found to have so little effect on the magnitude of the diffraction loss that it is normally neglected.

2) The angle of diffraction should not be too great. The maximum diffraction angle that can be used without excessive loss is a function of the frequency employed. A rule-of-thumb figure that is realistic is not over 7.5 degrees from 50 to 1000 Mc., and not over 5 degrees for higher frequencies. Another way of stating this is to say that for every 1000 feet of obstacle height, each terminal should be three miles or more from the obstacle.

3) The frequency must be high enough so that ground losses are not excessive when the wave grazes the surface near the top of the obstacle. In practice this means that only the amateur bands from 50 Mc. up will exhibit obstacle-gain characteristics. It also explains why 2-meter mobile

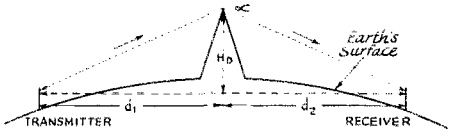


Fig. 1

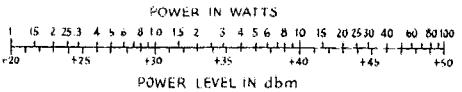


Fig. 2

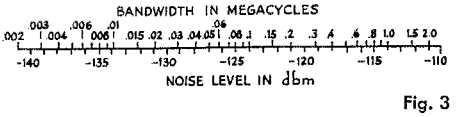


Fig. 3

Fig. 1—Diffraction over an obstacle, shown in the idealized form. Diffraction angle, α, should be 7.5 degrees or less for frequencies in the v.h.f. range.

Fig. 2—Scale for conversion of transmitter power level in watts to power level in db. above 1 milliwatt (dbm).

Fig. 3—Relation between receiver band width in megacycles and the receiver noise level in dbm.

* 1942 Garretson Ave., Corona, California.

stations often enjoy better coverage in rough terrain than 10-meter mobiles of the same power level.

Predicting Signal Levels

Let's take a hypothetical case and calculate what the signal strength should be at the receiving end. We will assume use of the 144-Mc. band, with a transmitter delivering 50 watts output. Beams providing 10-db. gain are to be used at each end, and the receivers have a noise figure of 6 db. and a band width of 6 kc.

Referring to Fig. 2, the transmitter output is 47 db. above 1 milliwatt (dbm.). To this we add the gains of the antennas, giving us 67 db. with reference to 1 milliwatt. From Fig. 3, the noise power input to our receiver (6-kc. band width) is −136 dbm. With a 6-db. noise figure, the signal at the input terminals of the receiver must be −130 dbm. to produce a 1-to-1 signal-to-noise ratio. Since we have a system gain of 67 dbm., we can stand a total loss of 197 db. in propagating our signal, and still maintain a detectable signal at the receiver.

The transmission path loss over an obstacle can be determined by adding the free-space loss to the diffraction loss. For the latter, we use an empirically-determined constant of 45 db. To get the free-space loss we use the nomogram of Fig. 4. A line drawn between the operating

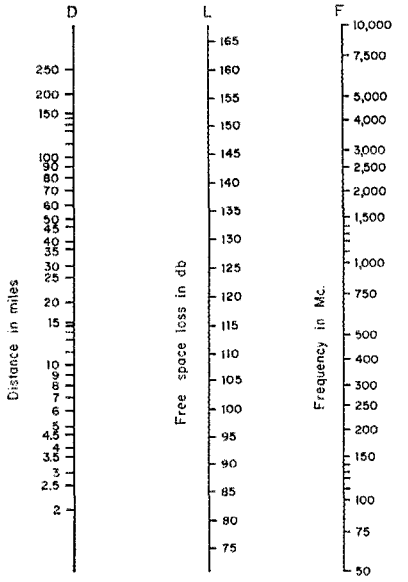


Fig. 4—Nomogram for determining the free-space loss in db. when the frequency and distance are known.

frequency and the total distance (F scale to D scale) gives us the free-space loss. With our figures, and for a 50-mile path, this is — 113.5 db. The total predicted path loss is then 113.5 plus 45, or 158.5 db.

The signal level to be expected at the receiver is then the difference between the transmission path loss and the receiver threshold level, 197 — 158.5, or 38.5 db. above the receiver noise level. Coupling and line losses must be included. If we assume 50-foot lines of RG-58/U coax at each end, and negligible coupling losses, we must subtract about 6 db., leaving a margin of 32.5 db. above the noise level. The receiver noise level is −130 dbm., so the expected signal strength will be −130 +32.5, or −97.5 dbm. If we assume the receiver input impedance to be 50 ohms, we can use Fig. 5 to convert this figure to microvolts

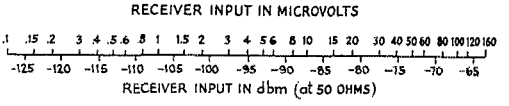


Fig. 5— Scale for conversion of receiver input in dbm. (at 50 ohms) to input in microvolts.

input to the receiver. In our hypothetical case this shows up as 3 microvolts, or about S5 on the average communications receiver S meter. Not bad for a 50-mile path over a high mountain range, with equipment that measures up no better than average by current 2-meter standards!

Path Profiles

Having run through a sample calculation, perhaps we should see what our proposed path actually looks like. If more than one obstacle is included in the path we may be in trouble. While diffraction will take place over the additional obstructions, experimental results indicate that about 20 db. must be added to the total path loss for each additional obstacle. This can add up to the difference between no signal and solid copy!

In order to get a picture of the actual conditions between our terminals, we will construct a path profile using the so-called 4/3 earth radius graph of Fig. 6. This curvature of this graph takes into account the difference between the optical horizon and the radio horizon. The distance in miles is marked along the horizontal axis for each terminal to the obstacle, which is placed at zero. The altitude in feet is plotted on the vertical axis. Using a contour or relief map (your stationery store has them) plot the elevations along the proposed path. Now draw straight lines from each terminal to the top of the obstacle. The angle formed by the intersection of these two lines is our diffraction angle, α. It should be about 7.5 degrees or less for 50 to 1000 Mc. and 5 degrees or less for higher frequencies.

The angle cannot be scaled directly off the graph because of the exaggeration of the height scale. Instead, it must be found by adding the angles whose tangents are H_D over d_1 and H_D over d_2 (Fig. 1) using a table or a slide rule. If this angle is within the previously stated limits, and if the lines from each terminal to the obstacle do not intersect any intervening high elevation points, our calculations should be accurate to within about 6 db., or about one S unit.

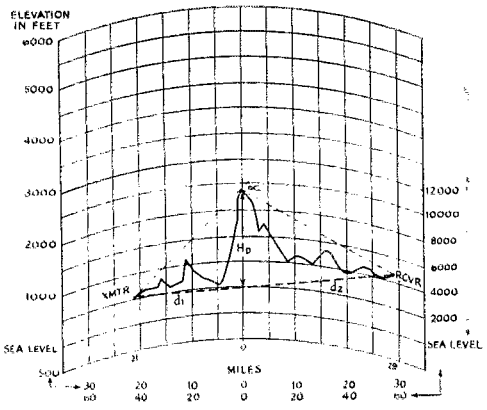


Fig. 6—Typical obstacle-gain path profile. The obstacle is shown at zero, with the distances in miles to either end of the path given as d_1 and d_2. Curved horizontal lines are drawn on the 4/3 earth radius that represents the difference between the optical and the radio horizons. Diffraction angle cannot be scaled from the drawing, because vertical scale is exaggerated.

The Practical Approach

There is really nothing to utilizing an obstacle gain transmission path if we simplify our procedures to the following steps:

1) Determine from a map that a direct line from your location to the area you desire to work crosses a point of elevation higher than any other in the intervening terrain. The obstacle must be within the line of sight to both ends.

2) Make sure that the distance from the obstacle to either terminal is at least three miles for every 1000 feet of obstacle height.

3) Carefully position your antenna (if a beam) so that its main lobe is pointed at the top of the obstacle, and fire away!

That's all there is to it. You can, if you wish, predict the signal level to be expected at the other end by using the above methods, and if you aren't sure an obstacle path exists between you and the other terminal you can plot a path profile. The average v.h.f. man will probably just aim at the nearest high point and blast away. Good hunting!

Once a signal has been received over an obstructed path, a few minor adjustments of antenna bearing and tilt may pick up a few db. at each end. If it is possible to vary antenna heights over a range of a few feet, or if the antenna position can be changed slightly (as in the case of a mobile station) an improvement in signal strength may be realized occasionally. These adjustments are most critical in the microwave range, where antenna beam widths are only a few degrees, so don't neglect trying an obstructed path at v.h.f. merely because these tactics aren't possible in your particular case. On any of the v.h.f. bands alignments are surprisingly noncritical.

Possibilities and Advantages

You may have noticed that while we have been referring to obstacle *gains* we have been speaking simultaneously of diffraction *losses*. This somewhat misleading terminology comes about because of an implied comparison between obstructed path circuits and those which are clear paths but which extend beyond the radio horizon. Once past the radio horizon (roughly 7 per cent beyond the optical horizon) radio waves are attenuated very rapidly as the distance increases. At thirty miles into the shadow zone, signals are reduced in strength by about 70 db. Over an obstructed path of the same length, however, the loss is only about 45 db., due to the diffraction over a sharply defined obstacle. Since this means an improvement in signal strength of 25 db., we speak of obstacle *gain* even though an actual loss of appreciable magnitude occurs in the diffraction process. We may regard the obstacle as a passive repeater station which has a loss of 45 db., but which is line-of-sight to both terminals, and therefore produces good signals.

One obvious possibility of obstacle gain techniques is in attempts to establish new microwave DX records. If you can spot a 12,000-foot mountain just above the horizon, and can locate another ham on its far side along the straight line determined by your location and the obstacle, you're almost in the record book! During an investigation of this method of propagation, two paths of over 100 miles and one of 150 miles in length were successfully utilized when using 2450-Mc. equipment. The transmitter had about 40 watts output. Four-foot parabolas were used at each terminal (27 db. gain each), and the receiver had a 250-kc. band width and used a crystal mixer. These paths were also tried at 47.7 Mc. and produced S9 signals over the 100-mile distances and S7 signals over the 150-mile path. The equipments used on this frequency were Motorola f.m. transceivers with quad

Checking obstacle gain on 4000 Mc. Ridge in the distance provided diffraction to insure solid communication over a 40-mile obstructed path from Big Bear Lake to Victorville, California. Tests were also made over this circuit on 47 Mc.

antennas (about 7-db. gain) at each end.

One practical circuit that resulted from the use of obstacle gain techniques is a path from Fontana, California, to Ferrum Junction, on the eastern shore of the Salton Sea. A 460-Mc. link over this 105-mile path crossing Mt. San Jacinto provides reliable communications between a steel-processing plant and the railroad terminal at Ferrum Junction.

Signals from the Channel 10 TV station at Bakersfield can be received without noticeable fading or distortion over a 212-mile path to Thermal, California. This path crosses 11,300-foot San Gorgonio Mountain, to a point 100 feet below sea level at the Thermal end. Standard TV receivers and antennas are used.

Many other Southern California paths have been checked for obstacle gain characteristics. Frequencies used have included 47, 157, 460, 920, 1800, 2450, 4000 and 8250 Mc. One such test is shown in the accompanying photograph. The site is near Big Bear Lake. The ridge in the distance provided obstacle gain on a 40-mile path to the other terminal near Victorville. A 4000-Mc. parabola is shown atop the truck. A 47-Mc. check with a 7-db. quad array was also made over this circuit.

In all cases the received signal levels were close to values obtained from the nomograms. Transmitter power was never more than 50 watts, and often was nearer 10. The longest path, Mojave to Thermal, was 150 miles. Some included two or more obstacles. Blythe to Indio worked well over two obstacles on both 47 and 2450 Mc. All the circuits were of a sort that would have been classified as "impossible" in earlier times.

More important, the use of obstacle gain techniques may open the v.h.f. region to many hams who would enjoy equipment construction and local ragchewing at these frequencies, but who have hesitated to try them because of apparently poor locations. Compared to tropospheric scatter circuits, obstacle gain paths require far less power for reliable communications up to 150 miles or so and are not characterized by deep fades. On several checks over 24-hour periods, signal levels varied only ±3 db. at 8250 Mc., 4000 Mc., and 2450 Mc. Even less variation was noticed at 47.7 Mc.

Considerably more detailed information on this subject is available, and the author will be glad to answer questions and to provide data upon receipt of a stamped, self-addressed envelope.

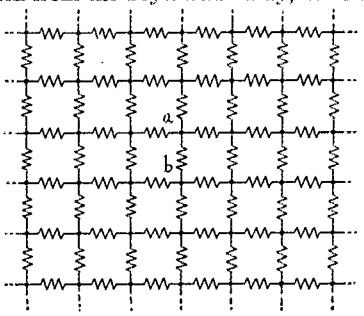
EDITOR'S NOTE: The foregoing relates to possibilities that are always present on the paths described. Favorable propagation can extend the range of effectiveness of the obstacle to stations that are far from line-of-sight from one or even both sides of the obstacle. Whether the transmitted signal grazes the top of the obstacle as the result of the beam's pattern making it do so, or whether it is refracted somewhere along the line by an over-running air-mass boundary is of no consequence, so long as it strikes the obstacle in the optimum manner. Thus long over-mountain paths that are normally negotiated by tropospheric scatter may turn into obstacle-gain circuits when favorable tropospheric effects develop in the right places.

An excellent example of this is the circuit from the northern end of the San Joaquin Valley to the Los Angeles area. This path of more than 350 miles traverses the long valley at the northern end, and then skips over 10,000-foot mountains near the southern end. Only the very best of equipment and antennas can provide a 144-Mc. signal over this long haul under normal conditions, but when strong tropospheric bending occurs in the valley, obstacle gain at the southern end brings signal levels up to the point where voice can be used effectively by the better stations.

A typical obstacle-gain circuit of the shorter variety is found between Estes Park, Colo., and points to the south. Some years ago, former Rocky Mountain Division ARRL Director WØDD (now W2BB) found it possible to work stations far to the south of the mountain bowl that surrounds Estes Park, using low power and simple antennas, on 144 Mc.

Not every deep valley is an ideal v.h.f. location, by any means, but there are still many potential obstacle-gain paths just waiting for enterprising v.h.f. enthusiasts to get on the air and find them. — *Ed.*

Here's one you will like, because it separates the men from the boys. Paul Gray, W2UWN, is still chuckling at having started us on this one:



A great many 1-ohm resistors have been connected to resemble a fish net, as shown in the accompanying sketch. The problem is merely to determine the resistance between any two adjacent "knots," as *a* and *b* in the sketch.

The synchronization of the two BC stations mentioned last month uses, of all things, the old reliable telephone line. The crystal-controlled frequency at the master station is divided down to an audio frequency via a string of multivibrators and piped to the slave station over the land line. There a string of multivibrators multiplies it back up to the proper carrier frequency.

Two Linear Amplifiers

The PL-172 in Grounded Cathode and Grounded Grid

EVERYONE knows "there's more than one way to skin a cat"; the following few pages demonstrate that "there's more than one way to build an amplifier around the PL-172."

The amplifiers show certain points of common thinking, such as ease of construction, complete shielding and filtering, and pi-network output tuning with a vacuum variable. They also show points of considerable difference, as meter switching *vs.* individual metering, blower within the unit *vs.* blower outside the unit, and coil switching *vs.* continuously-variable inductor. The use of grounded-cathode *vs.* grounded-grid circuitry is a difference, of course, but it is dictated more by the use of the amplifier than by the philosophy of the designer. The grounded-cathode circuit gives the ultimate in power sensitivity and requires only a watt or two of drive for full output. The grounded-grid circuit is most useful where 75 or 100 watts of drive is already available, since most of the drive will get through to the antenna and not be wasted.[1]

The PL-172 is a forced-air cooled, 1000-watt plate dissipation power pentode. It is particularly attractive to the side-band man, because one of its features is low distortion and high output in Class AB_1 operation. Although it uses an indirectly-heated cathode (6.0 volts at 7.8 amperes,

(turn to page 24)

[1] In a grounded-grid amplifier, more driving power must be supplied for proper operation than when the same tube is used in a grounded-cathode circuit. However, most of the driving power appears in the load along with the amplifier power, and the actual driving power dissipated in the amplifier is approximately the same regardless of the circuit.

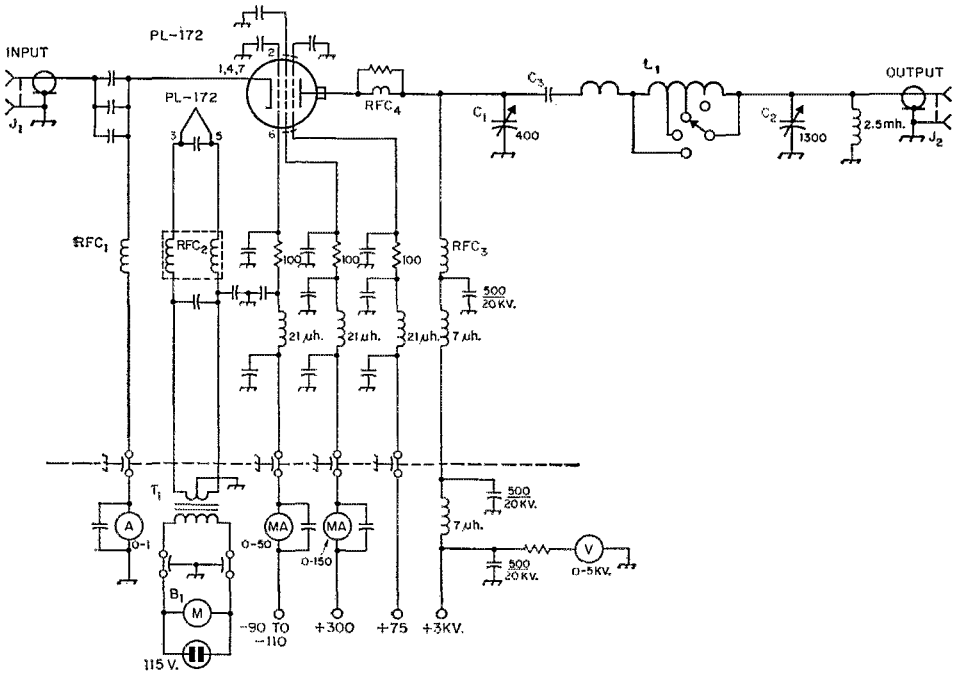
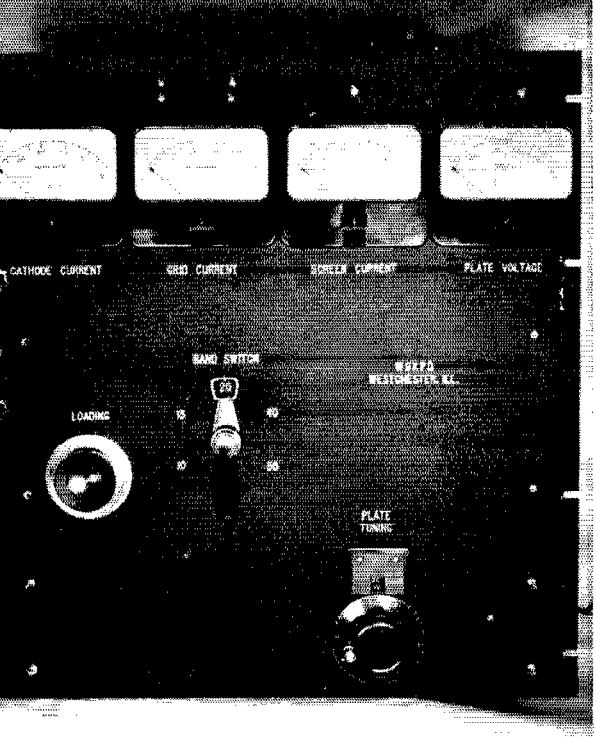
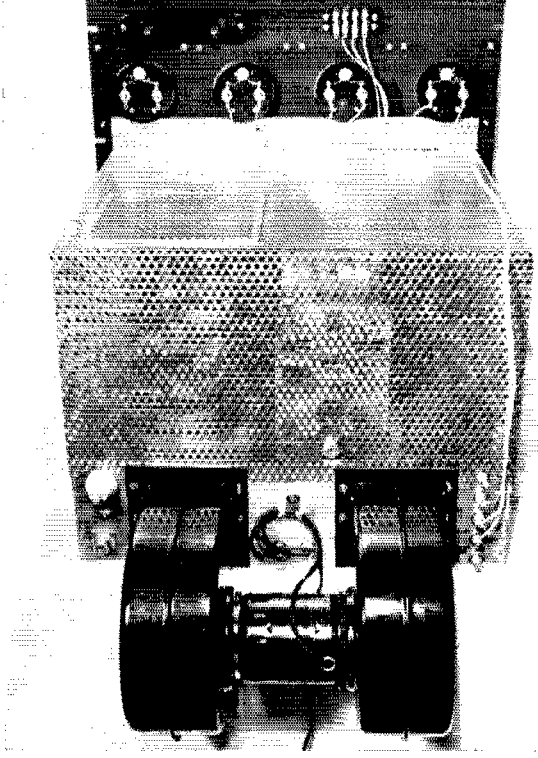


Fig. 1—Schematic diagram of the grounded-grid amplifier. Capacitances are in μμf., resistances are in ohms, resistors are 2-watt. Unless otherwise noted, feed-through capacitors are 500-μμf. 1500 volts (Centralab DA707) and fixed capacitors are 1000-μμf. 3-kv. disk ceramic (Central DD30-102).

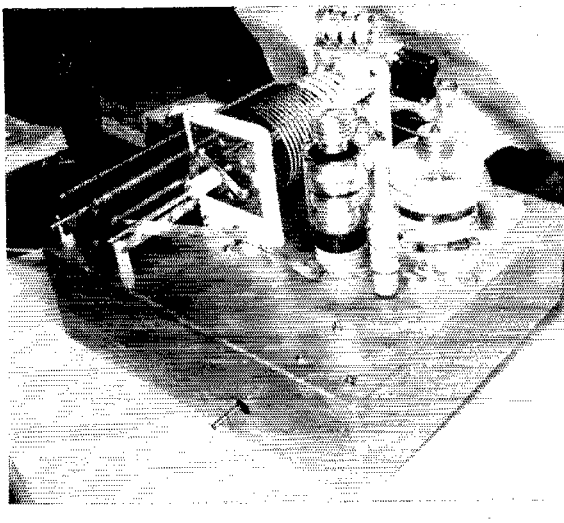
B_1—Dual blower assembly (W. W. Granger, Inc., Chicago, Ill., 1-68 X-50756 or equiv.).
C_1—10- to 400-μμf. vacuum variable (Jennings UCS-10-400).
C_2—1300-μμf. variable (Cardwell, surplus).
C_3—10-kv. 1000-μμf. ceramic.
L_1—Kilowatt switchable tank coil (B & W 850).
RFC_1—4.3-mh. 600-ma. r.f. choke (Bud CH-569).
RFC_2—Heater r.f. choke (B & W FC-30).
RFC_3—225-μμh. 800-ma. choke (National R-175A).
RFC_4—1 turn No. 10 wire ¾-inch diam. around 50-ohm carbon resistor (Globar CX)
The 7-μh. r.f. chokes are Ohmite Z-50 and the 21-μh. r.f. chokes are Ohmite Z-28.
T_1—6.3 volts at 10 amperes (Stancor P-6308)





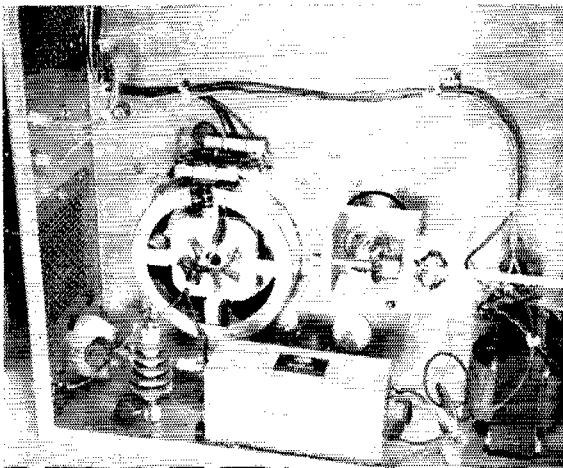
Top, left: Bill Frankart,[2] W9KPD, built this grounded-grid linear amplifier around the PL-172 pentode. Major objectives were the use of readily available parts and a minimum of construction difficulties. The typical 100-watt side-band exciter will drive it to full output.

[2] 1259 South Boeger, Westchester, Ill.



Top, right: a dual blower assembly moves the air past the PL-172. The leads to the meters are brought out through feed-through capacitors (lower right), and the a.c. line to the heater transformer is filtered where it enters the chassis. Input jack and h.v. connection at lower left.

Center, right: there aren't too many components above the chassis. A heavy copper strap from the base of the vacuum variable to the rotor of the output capacitor (mounted on insulators) insures that r.f. follows a single path and doesn't wander all over the chassis. Plate choke mounts on TV capacitor.

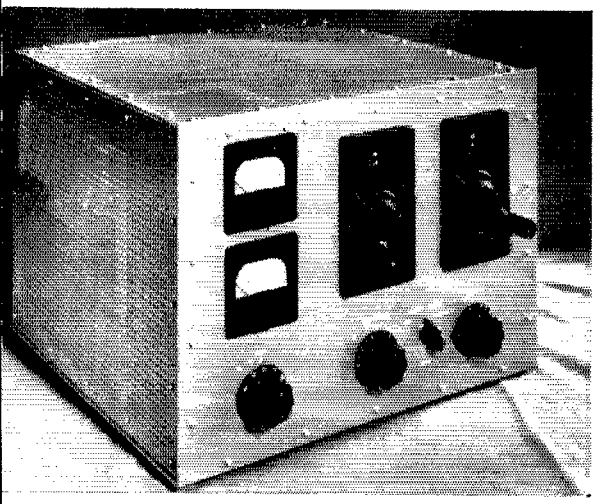


Right: the special socket (Penta PL-184) for the PL-172 provides for chimney cooling of the big bottle. Homemade deep chassis (17 × 15 × 5 inches) offers plenty of room for mounting the heater transformer and r.f. chokes and the many by-pass capacitors.

warm-up time 2 minutes), it carries ratings up to 3000 volts on the plate. Slightly more power output is obtained when the suppressor grid is run at + 75 volts than when the suppressor is run at cathode potential.

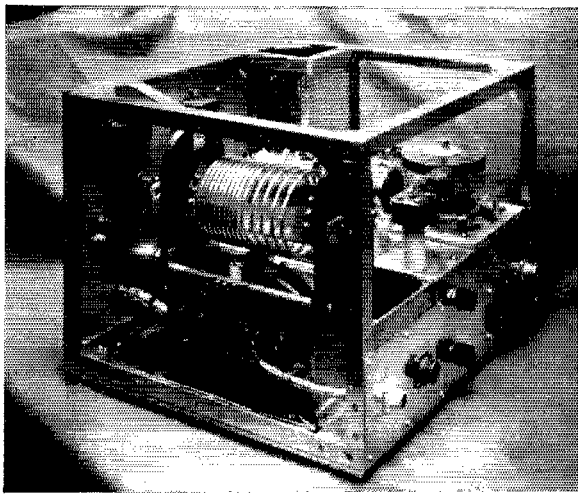
Since forced-air cooling is a part of the specifications of this tube (50 c.f.m. for 1000 watts plate dissipation), a special chimney and socket (PL-184) are available. The screen and suppressor connections are made to rings around the base of the tube, and the socket features built-in by-pass capacitors for the screen and suppressor contacts.

Even if your personal taste and/or pocketbook doesn't run to an amplifier of the size the PL-172 will provide, it is hard to imagine that you won't find a few useful ideas in these pages.

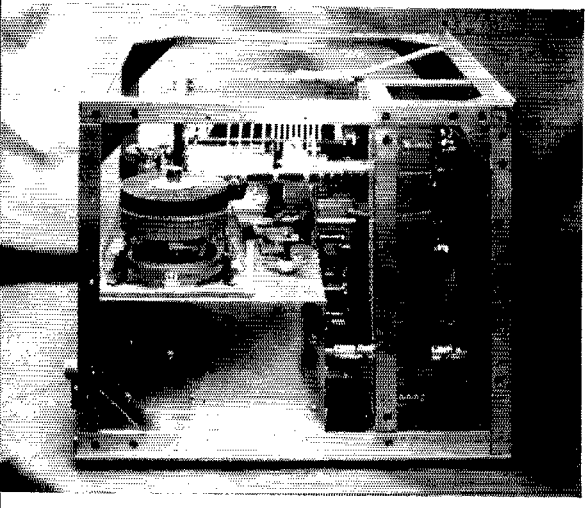


Left: The high-powered linear amplifier of H. T. Cervantes,[3] W2DB, is very professional-looking despite the fact that it uses no special parts or components. The aluminum angle stock, the brackets and the screening are Reynolds "do-it-yourself" materials; the work was done with a hacksaw, drill, a few files and plenty of elbow grease. Over-all dimensions are 17 wide, 15¾ high and 15 inches deep. Counter dials are Millen 10030.

[3] 190 Croton Ave., Mt. Kisco, N. Y.

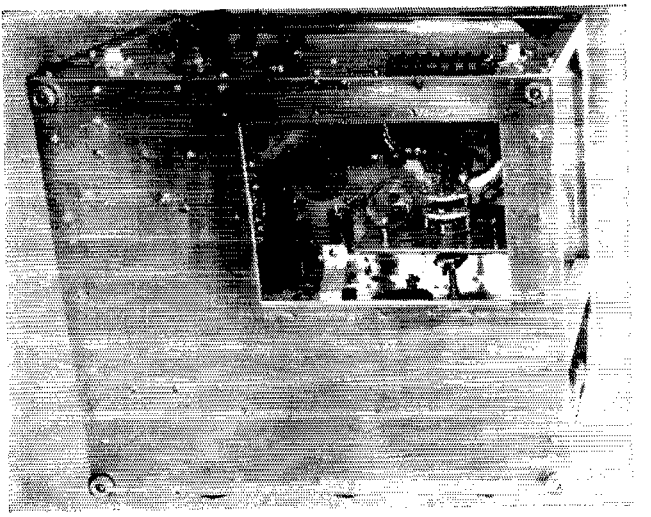


Right: The variable inductor has been modified by moving the contact slide bar from the top to the bottom of the coil, to shorten the lead to the output capacitor. A silver-plated spring contact (scrounged from surplus relay) mounted on the small stand-off insulator attached to the coil support bar slides on the coil contact shoe in the 80-meter range. (See schematic, Fig. 2.) The 1000-$\mu\mu$f. heavy-duty mica output capacitor is to the right of the variable output capacitor under the coil.



Left: Big tube is mounted on a shield box made by sawing in half a 17 × 10 × 5-inch chassis. Joints are masked in this view by end plate tying the two sections together. The blower is mounted on the shield box and intake is through the shielded meter section. The neutralizing tab is supported by the ceramic feedthrough at center. Plate tuning vacuum variable is held by heavy bracket and driven by counter dial through flexible couplings.

Access door under the amplifier is normally closed to maintain air pressure past PL-172. The two input coils are mounted either side of the band switch. Bias supply just visible at left through access opening. Knobs at top in photograph are for adjustment of 40-ohm heater rheostat and 5000-ohm grid-bias potentiometer. Normally bias terminal is connected to common (Fig. 2) but additional bias can be introduced through the connection if desired.



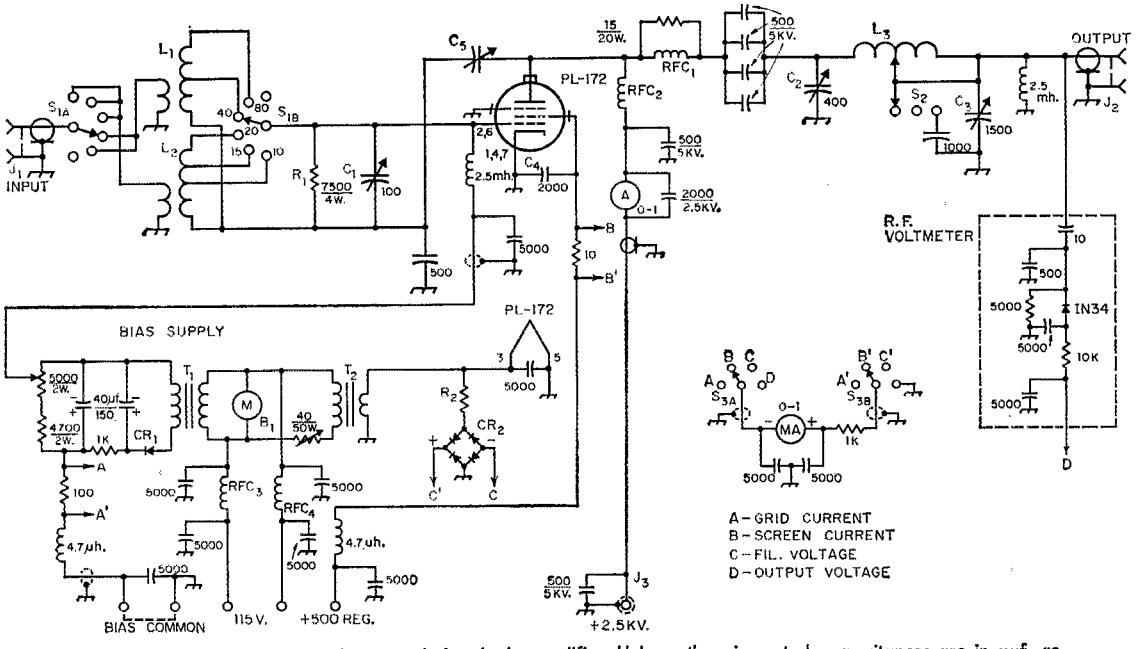
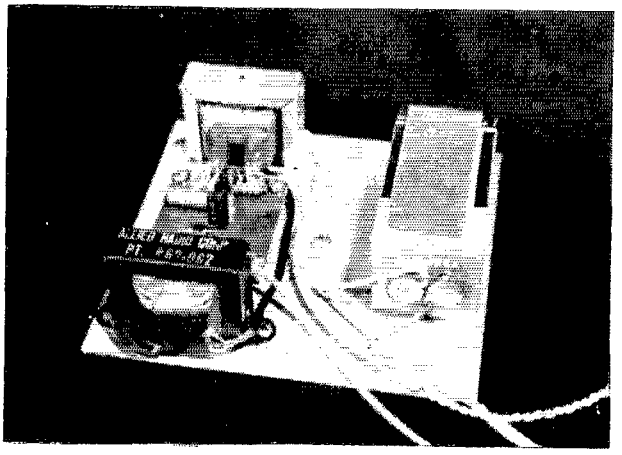


Fig. 2—Schematic diagram of the grounded-cathode amplifier. Unless otherwise noted, capacitances are in $\mu\mu$f., resistances are in ohms, resistors are 1-watt, fixed capacitors are 1000-volt disk ceramic.

B_1—50-c.f.m. blower assembly (Fasco Type 50747-3N).
C_1—Midget variable.
C_2—Vacuum variable (Jennings UCS-10-400).
C_3—Transmitting type (Cardwell PL-8013).
C_4—Part of socket (Penta PL-184).
C_5—Two-inch wide aluminum tab mounted near plate.
CR_1—20-ma. selenium.
CR_2—Meter rectifier (Conant Instr. Rect. Co. Type B-C).
J_1, J_2—Coaxial receptacle, SO-239.
J_3—High-voltage receptacle (AN3102A-18-16S).
L_1—25 turns No. 24, 32 t.p.i., 1¼-inch diam., tap 10 turns from low end (B & W 3020 stock). Link is 3 turns No. 16 over low end.
L_2—7 turns No. 16, 8 t.p.i., 1¼-inch diam., tapped 2 and 4 turns from low end (B & W 3018 stock). Link is 2 turns No. 16 over low end.
L_3—8-μh. variable inductor (Johnson 226-5).
R_1—Two 15,000-ohm 2-watt composition, in parallel.
R_2—9K approx. Adjusted to give 0.6-ma. meter reading when voltage of 6.0 measured at PL-172 socket.
RFC_1—3 turns ¼-inch wide copper strap wound ¾-inch diam. outside 15-ohm 20-watt wire-wound resistor.
RFC_2—225-μh. 800-ma. r.f. choke (National R-175A with 14 turns removed from low end).
RFC_3, RFC_4—35 turns No. 16 enam. close-wound on ⅜-inch diam. form.
S_1—2-pole 6-position 2-section non-shorting ceramic rotary switch.
S_2—Roller on L_3 assembly. See photograph.
S_3—2-pole 4-position non-shorting ceramic rotary switch.
T_1—150-volt 25-ma. secondary (Merit P3046).
T_2—6.3 volts at 10-amp. secondary (Thordarson 21F12).

A Simple Gadget for the C.W. Man



Components, including the small battery to the right, are assembled on an aluminum plate which has a lip bent down at the rear. The arrangement of parts is not critical.

Transistorized Keying Monitor With Speaker

BY KARL R. TIPPLE,* W5TEV

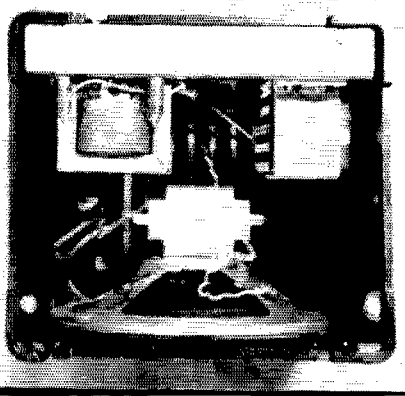
ANY OPERATOR who works c.w. very much and attempts to monitor his keying by listening to it on his receiver, with the resulting gain-control manipulations that must be made at the beginning and end of each transmission, has probably felt the need for some sort of independent keying monitor. Some of the proposed devices have bothersome power cables dangling from them, and nearly all of them provide only headphone output, a condition which necessitates switching the phones from the receiver to keying monitor and back again with each transmission.

With these problems in mind, an attempt was made to design a self-contained monitor which would operate its own speaker with sufficient volume to be heard satisfactorily while wearing headphones. The resulting monitor, which has been in use at the author's shack for over a year, is shown in the photographs.

The circuit is shown in Fig. 1. The monitor uses two CK722 transistors — one as an audio oscillator and the other as an amplifier. The oscillator section derives its power from transmitter r.f. energy picked up by an external wire which is merely brought close to the antenna lead. The amplifier section requires a small battery for its power; however, volume is adequate with a 6-volt

*4525 Southern Ave., Dallas 5, Texas.

Bottom view of the monitor with the chassis and speaker in place.



This keying monitor uses a pair of transistors, one as an audio oscillator and the other as an amplifier to feed a small speaker. The oscillator is powered by r.f. pickup from the transmitter. No direct connection to either transmitter or receiver is required.

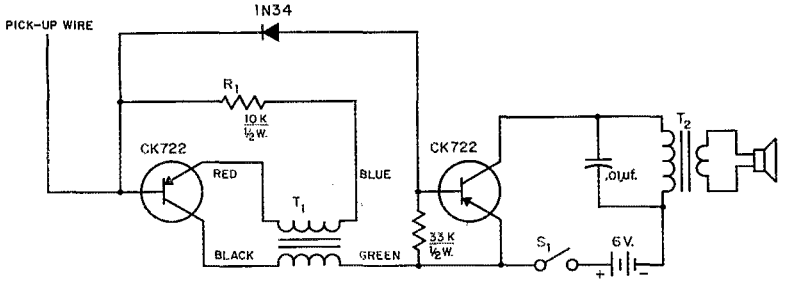


Fig. 1—Circuit of the transistorized keying monitor.
R_1—Tone control. T_1—3:1 interstage audio transformer (see text).
S_1—Toggle or similar. T_2—5000 ohms to 3.2 ohms speaker output transformer.

battery, and the key-down drain is only 3 milliamperes. Stand-by or key-up drain is about 20 microamperes, so battery life is no problem.

Construction

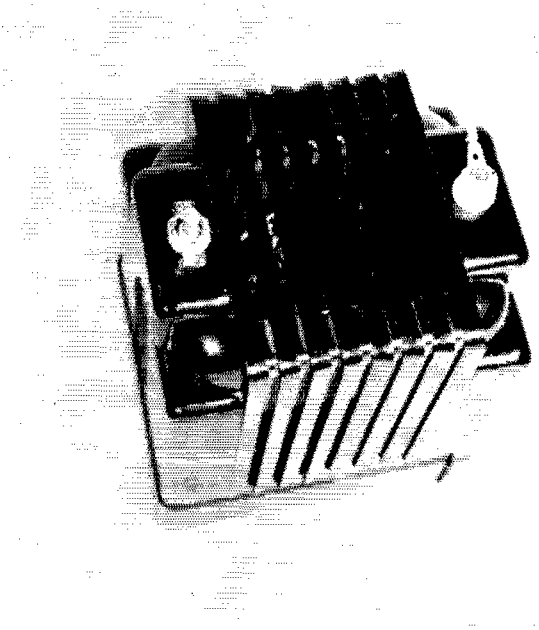
The author's unit was constructed on a $\frac{1}{16}$-inch-thick aluminum chassis which was shaped to fit into the back of an old intercom speaker housing. Since there was plenty of space available, components of conventional size were used. Obviously, a much smaller unit could be constructed if miniature transistor transformers and a smaller speaker were used. In the case of the output transformer, a better match could probably be obtained than that provided by the 5000-ohm to 3.2-ohm plate-to-voice-coil transformer used by the author.

Operation

There are at least four factors which affect the oscillator frequency. First, the amount of r.f. energy coupled into the pick-up wire will affect both the output volume and, to some extent, the frequency. Also, the characteristics of individual transistors vary sufficiently to produce appreciable differences in frequency. Further, the audio transformer used will have some effect on the matter. The transformer used by the writer was an Allied Radio Corp. Cat. No. 62-G062, a 3:1 audio interstage transformer with winding resistances of approximately 2000 ohms and 500 ohms. Finally, the value of R_1 has a large amount of control over the frequency. Therefore, if desired, the constructor might replace this resistor with a potentiometer of about 15,000 ohms. However, it would probably be just as satisfactory to build the unit and then try different values of fixed resistance at R_1 until the desired frequency is reached.

To test the monitor, place the pick-up wire near the antenna lead-in (in the case of very low power transmitters it may be necessary to wrap the pick-up wire around the lead-in once or twice to obtain adequate coupling), switch the amplifier on, and key the transmitter. If no tone is heard, try reversing the leads to one side of T_1. When a tone is heard, the pick-up coupling and value of R_1 may be adjusted for desired volume and frequency.

Performance of the monitor has been quite satisfactory. It supplies an adequately loud, chirp-free tone which is a definite aid to cleaner keying.



The author's monitor is built into an old intercom cabinet. The battery switch and pick-up terminals are mounted on top.

Strays

The Richmond (Va.) Amateur Radio Club announces it will continue to issue VA-JF certificates (p. 52, July 1957 *QST*) upon application, but all contacts must have been during 1957.

Telescoping Antenna Mast

Styled for Economy

BY HERBERT VONHOF,* W7PNO

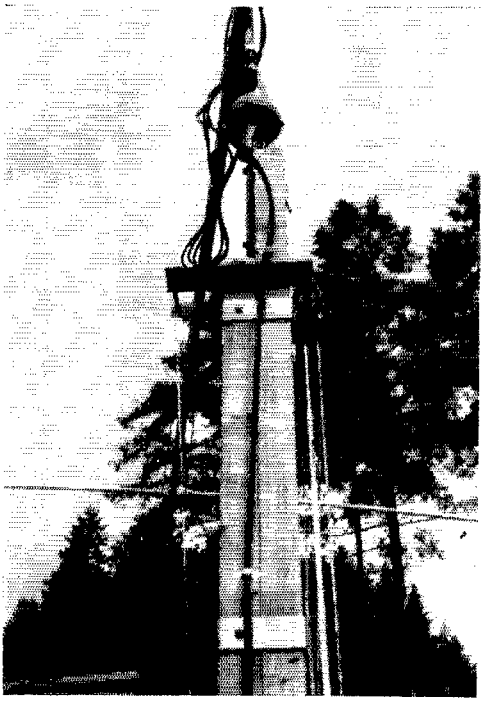
Telescoping masts are handy devices for supporting a beam or two, but the commercial ones aren't being given away. In this article W7PNO tells how you can build your own without too much trouble, and the price is right.

Below, left: this telescoping mast is made from two 4 × 4s and some simple hardware. One 4 × 4 is anchored to the house and the other slides up or down through two metal bands.

Directly below: when hoisting the top section into place, a bracket is slipped over the top of the anchored 4 × 4. Tackle block hooks over one end of this bracket, and the other end of the bracket is back-guyed. As top section is hoisted, the coaxial line and control wires slide through the metal straps on the fixed 4 × 4. The rotator is supported by a length of 2½-inch diameter tubing bolted to the 4 × 4; the wood is gouged out to furnish a good seat for the tubing.

Next page, bottom left: when raising the mast, a pin is slipped through the movable section and the tackle block is hooked to a cord tied to the pin.

Next page, bottom right: when the mast is in place, it is locked in place with three bolts and the hoisting tackle is removed. This photograph shows the finished product supporting a 3-element 20-meter beam and two v.h.f. beams. The guy wires are fastened to eyes in the rotator.



Two 20-foot lengths of 4 × 4 cedar at $3.20 each, two simple steel bands fabricated at a local welding shop, a 2-foot piece of used 1½-inch galvanized pipe, a few lag screws and carriage bolts, and a ⅝-inch steel pin 7 inches long comprise all of the materials required for the antenna mast shown in the accompanying photographs. True, there will be a few additional expenses for auxiliary items such as guys and rigging equipment, but the total cost is still low. The result is a sturdy 36-foot mast on which the rotator and antenna can be mounted, adjusted, and tested before raising to the operating height.

The telescoping action depends upon two welded rectangular steel bands made from ¼ × 2- or 3-inch flat bar, mounted on the upper end of the lower 4 × 4 mast section. These are each secured by means of three ⅜ × 2-inch lag screws, and the upper 4 × 4 mast section is free to slide vertically within these bands. Bear in mind that surfaced 4 × 4 lumber actually measures 3⅝ × 3⅝ inches.

To provide additional support and to allow easy access to the upper end when telescoped, the mast is mounted against the side of the house. The lower end rests on concrete at a basement window well, and the mast is secured to the house at eave level with two ⅜ × 5-inch lag screws recessed below the surface. The lower end of the mast is held in position by means of a ⅝-inch diameter 7-inch steel pin grouted into the concrete and fitting into a drilled hole in the end of the mast. Using a star drill, I cut a ¾-inch diameter hole 3 inches deep in the concrete, then raised barbs on the lower end of the pin with a heavy cold chisel, and with cement grouted the pin in place in the hole. If no suitable concrete base is available a small footing can be poured around the steel pin.

* 5040 S.W. 19th Drive, Portland 19, Ore.

Construction

The two mast sections can be prepared as follows:

1) Lay the two members on the ground in straight alignment, with ends overlapping 4 feet.

2) Drill three ⅜-inch holes through both members for the ⅜ × 8-inch carriage bolts to be inserted after the sections are in place and the upper member is raised. Mark the sections at the overlap so that bolt hole alignment will be assured.

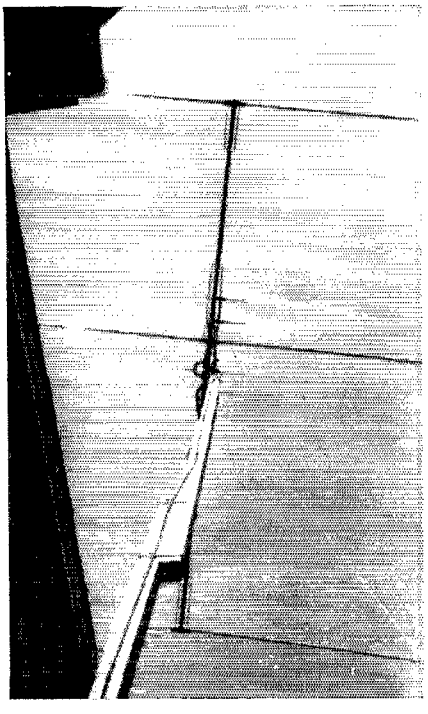
3) Drill a ⅝-inch diameter hole 4 inches deep into the bottom end of the lower section for the steel locator pin.

4) Drill a ½-inch hole through the lower end of the upper section for the ½-inch hoisting rod.

5) Using a wood chisel, groove the upper end of the upper section to accept the 1½-inch tubing to be used for mounting the rotator.

6) Drill pipe and mast for the ⅜ × 4½-inch carriage bolts, and mount the pipe.

7) Install the two rectangular steel bands. Make sure the upper mast section can slide freely through them for its entire length. Mark the bands for orientation and remove.



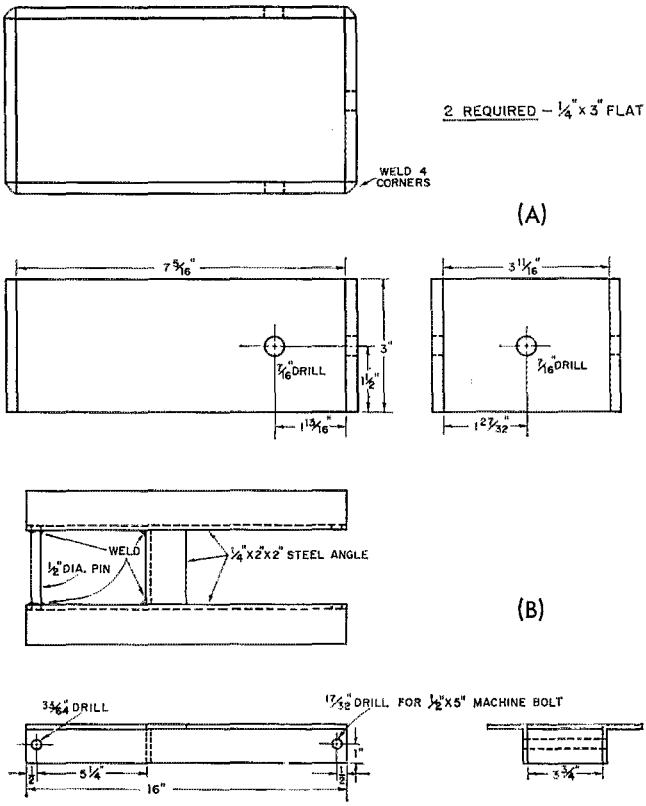


Fig. 1—Details of the steel bands (A) and hoisting bracket (B).

Installation

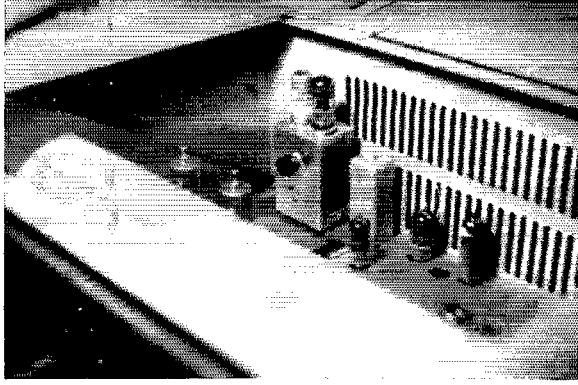
Now the lower mast section can be permanently installed. The exact location of the eave fastening can best be determined by means of a plumb line aligned over the locator pin in the concrete. Next mount the rotator and desired top assembly on the upper mast section, slide the steel bands to the upper end of this section, raise into position against the lower mast section, and secure the steel bands. In the pictured installation, a simple platform was constructed to allow reaching the upper end of the mast. From this platform all parts of the beam antenna can be reached.

Before raising the mast to full height the required guy wires should be fastened to the rotator eyes or to suitable fittings on the upper end of the mast. Guy-wire anchor points and turnbuckles should also be arranged in advance so that once the mast is raised the guys can be quickly secured.

The method shown in the photographs proved quite satisfactory for raising the upper assembly, although alternate methods such as a small winch or progressive jacking might be used if preferred. The two tackle blocks were purchased through a local surplus outlet for $1.95 each. The lower block is rigged as shown in one of the photographs, using a ½-inch steel rod through the lower end of the upper mast section. The upper block is hung on the upper end of the fixed mast section by means of a simple bracket made from two 16-inch pieces of ¼ × 2-inch steel angle with a 3¾-inch crosspiece of the same material welded between them. The crosspiece rests on the top end of the fixed mast section, and the bracket is backguyed to a lower point on the mast. The upper block hangs on a removable ½-inch bolt that passes through holes in the long ends of the bracket angles.

Even without the guy wires secured, the mast when raised is stiff enough to resist a moderate breeze, but for maximum safety a reasonably calm day should be selected for raising. The block-and-tackle arrangement provides a 4-to-1 mechanical advantage, but if help is available it is well to push upward on the lower end of the upper mast section as the free end of the hoisting rope is pulled in. Upon reaching full height, as indicated by the alignment marks, install the three ⅜ × 8-inch carriage bolts in the predrilled holes to lock the two mast sections together, and secure the guy lines. Plumb the mast by adjusting guy-line turnbuckles, and remove the rigging equipment. The mast may, of course, be lowered for future antenna work by replacing the rigging equipment and removing the three carriage bolts to free the upper section. Guy wires need not be removed.

There are times when squelch is a nice thing to have on your communications receiver, as W3LJV points out. If you have an NC-300 and the desire to incorporate squelch, this article is your meat, although the principles are applicable to practically any receiver.



The squelch circuit plugs into the accessory socket of an NC-300. The sensitive relay and the 12AT7 plug into tube sockets on the top of the small box.

BY SOL LEISE,* W3LJV

Squelch for the NC-300

Plug-In Accessory for a Popular Receiver

EVER SINCE CONVERTING a surplus SCR-522 two-meter receiver, I've been fascinated by the squelch control that was built into it. I'm one of those persons who spend a lot of time just listening, especially when working on some project in the basement. The rig is located there, and I like to keep the receiver tuned to one of the frequencies that are kept fairly active by members of the local radio clubs. However, as everyone who has done a lot of listening knows, the steady hiss of the receiver and the ignition and other electrical noises can get pretty annoying when no signal is coming through.

Since the SCR-522 I've always wanted a communications receiver with a squelch circuit. Unfortunately, the use of squelch seems to be restricted to mobile receivers and the Gonset Communicator, and I never could get up nerve to operate on the station receiver to put one in myself.

After buying a National NC-300 and noticing all of the empty space inside of it, I decided that it would be no trouble at all to install a squelch circuit, utilizing the accessory socket of the NC-300. This socket has heater and B+ voltages brought to it, as well as the a.v.c. bus. There is a terminal strip on the back of the receiver where the audio output can be muted when −20 volts is applied through a 0.1-megohm resistor. The squelch circuit was built in a 2⅛ × 1⅝ × 3¼-inch Minibox (Bud CU-3001) that plugs into the accessory socket; short leads were run from the box to the muting terminals.

The Circuit

The schematic of the squelch unit is shown in Fig. 1. The receiver a.v.c. voltage is applied to the grid of one triode of the 12AT7. (The other triode isn't used.) When no signal is being received, the a.v.c. voltage is low and thus allows the tube to conduct. This causes the relay to pull in, and −22½ volts is applied to the muting terminals of the receiver, causing the audio amplifier to be cut off. When a signal comes on, the a.v.c. voltage becomes more negative and cuts the 12AT7 off. The relay drops out, the −22½ volts is removed, and the audio stage is allowed to operate normally.

The 3K variable resistor allows the unit to be set so that only a signal of sufficient amplitude will cause the squelch to trip. This setting can also be varied by the receiver r.f. gain control, as will be explained later. The 100K series resistor is recommended in the NC-300 instruction book. It becomes part of a voltage divider, since it connects to a resistor in the receiver and applies the correct voltage to the audio stage.

Using a v.t.v.m., it was found that the noise

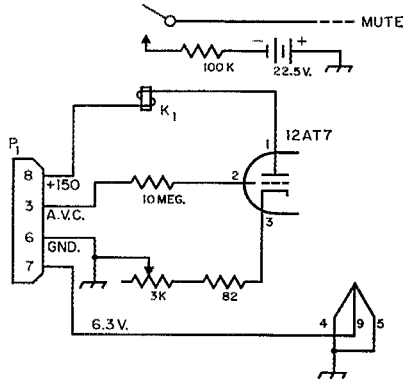


Fig. 1—Schematic diagram of the plug-in squelch circuit for the NC-300 receiver. Resistors are ½ watt.
K1—10,000-ohm sensitive relay (Potter & Brumfield SM5LS).
P1—Chassis mounting octal plug (Amphenol 86-CP8) 22½-volt battery is Burgess U15 or equivalent.

*700 Linnard St., Baltimore 29, Md.

level kept the a.v.c. voltage at about −1 volt. It was decided to use a 10,000-ohm relay that would energize at 2.7 ma. With a plate load of 10,000 ohms and a grid voltage of −1 volt, the plate current of a 12AT7 triode is 4 ma. This gives the relay a good margin in available current and insures that the relay will energize and mute the receiver output. The noise level can increase until the a.v.c. voltage rises to a little over −1.5 volts before the 12AT7 tube will cut off and cause the receiver to operate. If the noise level is higher than this, the front panel gain control can be retarded to reduce the a.v.c. voltage.

Construction

The construction of the unit is not difficult. There is plenty of room, and no tricky techniques are required. The small 22½-volt battery is mounted on a piece of wood by means of a strip of aluminum and some small wood screws. The piece of wood allows the battery to clear the potentiometer and is held to the front of the box by three more wood screws. All wiring is direct and no terminal strips are used.

Adjustment and Use

With the receiver r.f. gain control turned on full and the receiver tuned off of any station, adjust the 3K potentiometer until the receiver is muted and then turn the control back in the opposite direction until the receiver just becomes operative. The setting need not be adjusted any more unless the noise level changes. Now decrease the receiver r.f. gain until the receiver is muted. From now on the squelch circuit is controlled from the front panel. If the noise level is such that the potentiometer cannot be adjusted to mute the receiver, then just turn the r.f. gain down a little bit more.

The unit was found to operate very well. It's a pleasure to work around the basement and not have to listen to all of the ignition noise and receiver hiss. The receiver remains perfectly quiet until a station comes on the frequency to which the receiver is tuned. When carefully adjusted, the unit will trip on fairly weak signals.

An Opportunity for Amateur Participation in IGY Satellite Program

Some months ago, in reporting on the reception of the first satellite signals, we indicated the possibility that some type of program would be set up to make observations on the ionospheric signals from the U.S.S.R. satellites. This question has had serious consideration in IGY circles and, as a result, a special Working Group on Satellite Ionospheric Measurements, under the chairmanship of Dr. A. H. Shapley of CRPL, has been formed in the Technical Panel on Earth Satellites. The group has endorsed a number of proposals for work in this field, among them a program for amateur observations of a character that practically any of us can make.

At this writing there are a few details yet to be ironed out, but the project as now visualized will have as its objective the accumulation of observations useful in connection with ionospheric refraction measurements, the occurrence of minimum usable frequency paths, and long-distance propagation. Except for the first of these, the only equipment needed will be a receiver capable of tuning to 20 Mc. (similar observations can be made also on 40 Mc. if equipment for receiving this frequency is available) and a means for determining time with reasonable accuracy. The latter requirement is easily met by checking against time signals from WWV or CHU. The principal skill needed will be the ability to pick out the satellite signal from among the many others that occupy that part of the spectrum.

The observations will be simple — time of first appearance of the signal, times at which it drops out and reappears, finally disappears, and so on, together with an estimate of the relative signal-strength variations and the signal character.

The first-mentioned of the three categories — ionospheric refraction measurements — should be an interesting activity for those who specialize in accurate frequency measurement. What will be wanted here is a precise measurement of the total frequency change during a satellite passage, accurate to a cycle or better, and the times of first appearance and final disappearance — the time limits between which the frequency-change measurement should be made.

Observations for all three purposes can be recorded on a simple log form which can be obtained, along with instructions, from ARRL Headquarters. If you can possibly make observations of either of the types described above, drop us a card or letter requesting a supply of log sheets so you'll be ready when a satellite goes aloft. There appears to be little prospect that any advance notice will be given of a satellite launching, and the opportunities for making observations probably will be limited by short transmitter life in any case. So, since the usefulness of the amateur contribution depends to a large degree on volume of observations, it is important to be ready whenever the chance comes.

— *G. G.*

Feeding the Simple Antenna

Basic Radiators and Their Transmission Lines

BY LEWIS G. McCOY,* W1ICP

IN A PREVIOUS ARTICLE[1] we said that antenna systems (antenna plus *feed* line or *transmission* line) are usually made to appear essentially as a simple resistive impedance at the transmitter output terminals. A reason for this is that it is very difficult to build into a transmitter an output circuit with sufficient latitude in adjustment to permit coupling into loads of a complex nature. It is usually much easier to adjust the antenna system so that its impedance falls within the range of values that a relatively simple transmitter output circuit can handle.

Transmission Lines

A brief discussion of transmission lines should help in understanding what can be done in the antenna system to make it present a proper load to the transmitter. Perhaps the first question that should be answered is, "Why is a transmission line needed?" The answer is, of course, that we want the antenna to be in the most favorable spot available. If we bring the terminals of the antenna itself into the station where they can be connected to the transmitter terminals, we cannot avoid having most of the antenna close to buildings and other objects that will absorb much of the radiated energy. Therefore, we erect the antenna in the clearest space we can find and connect it to the transmitter through a transmission line. Transmission lines are designed to handle r.f. power with a minimum of radiation from the line. Therefore they can be brought inside the station with negligible loss from radiation.

The transmission lines used by amateurs usually have two conductors. In the coaxial-cable type of line, one conductor runs inside the other. The inner conductor is a wire. The outer conductor is a metal sleeve surrounding the inner conductor. Where mechanical flexibility is desired, the outer sleeve is a braid of fine wires. The two conductors are separated by a layer of insulating material.

In another type of line, two parallel conductors are held at constant spacing throughout their length by insulating spacers. In the familiar TV Twin-Lead or ribbon line, the insulation is entirely solid material. In other types of parallel-wire lines, insulating separators are spaced at intervals along the line and most of the insulation is air. Transmission lines of this type are called open-wire lines.

Characteristic Impedance

At radio frequencies, a transmission line cannot be treated as a simple metallic connection between the antenna and transmitter. A transmission line has an electrical property called *characteristic impedance*. This impedance is expressed in ohms and its value varies with the type of line, size of the conductors, the spacing, and the kind of separating insulation. When one end of a transmission line is connected to an impedance equal to its characteristic impedance, this same impedance will appear at the other end of the line and it will be resistive, regardless of the length of the line. In such a case, the line is said to be *matched*. If any other impedance is connected to one end of the line, the impedance at the other end will vary with the length of the line.

Why Match?

One consequence of a mismatch between the transmission line and the antenna is increased loss in the line. Also, since the input impedance of a mismatched line varies with its length, the length of the line may have to be cut to some critical length if the antenna system is to present a load impedance that the transmitter output circuit can handle. Only by chance will this length be the most convenient one to use between the transmitter and the antenna.

Matching Systems

There are two general methods of providing a suitable load impedance for the transmitter. In one system, a transmission line with a characteristic impedance within the range of the transmitter output circuit is used and the antenna is matched to the transmission line so that the input impedance will be the same as the characteristic impedance of the line, as indicated in Fig. 1A. In the other system, a mismatch between the line and antenna is allowed to exist. At the transmitter end of the line, a network (antenna tuner) is used that transforms whatever value of impedance that appears at the input end of the line to a value within the range of the transmitter output circuit, as shown in Fig. 1B. It should be emphasized here that *this* network does *not*

* Technical Assistant, *QST*.

[1] McCoy, "How to Tune Your Pi-Network Final," *QST*, February, 1958.

Answers to many of the antenna questions asked most frequently by beginners will be found in this article. Included are descriptions of several simple antenna systems requiring no adjustment.

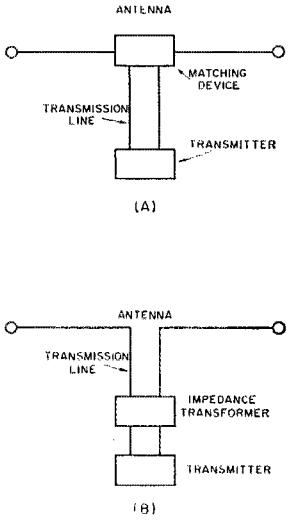


Fig. 1—Two methods of obtaining the desired load impedance at the transmitter output terminals. In A, the antenna impedance is transformed to match a transmission line whose characteristic impedance is the desired value. In B, the impedance of the entire system, including transmission line, is transformed to the desired value.

match the antenna to the line. Therefore any line losses caused by mismatch still remain. Line losses in this case can be minimized by using a type of line that has low inherent loss — a line in which the conductors are large and the insulation principally air.

Matching the Antenna and Line

There are two ways of obtaining a match between the antenna and the transmission line. One is by using a transforming or matching device between the antenna and the line. The other is by using a transmission line whose characteristic impedance is the same as the feed-point impedance of the antenna. This value of impedance should, of course, lie within the range of the transmitter output circuit. Transmission lines are available that will match closely enough for most practical purposes the feed-point impedances of most of the commonly used simple antennas.

Center-Fed Dipole Antennas

A dipole antenna (half wave length over-all), when fed at the center, has a feed-point impedance of approximately 70 ohms. It can be fed directly with either 70-ohm coaxial cable or 70-ohm Twin-Lead as shown in Fig. 2. If coaxial cable is used, the outer conductor should be connected to the grounded side of the transmitter output termination.

Grounded Antennas and the Ground Plane

Quarter-wave-length grounded antennas (sometimes called Marconi antennas) may be fed directly with 50-ohm coaxial cable as shown in Figs. 3A and B. The ground connection should be a good one and be as close as possible to the base

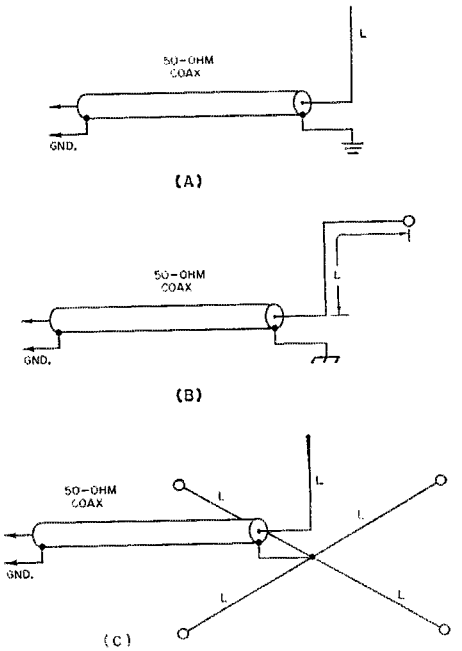


Fig. 3—Quarter-wave antennas. In A and B a good ground connection close to the base of the antenna is essential. In the ground-plane antenna of C, quarter-wavelength radials are substituted for the ground connection. The radial wires are run horizontally and the center junction should be close to the base of the antenna. The radials should be insulated. *L* should have the same lengths as in Fig. 2.

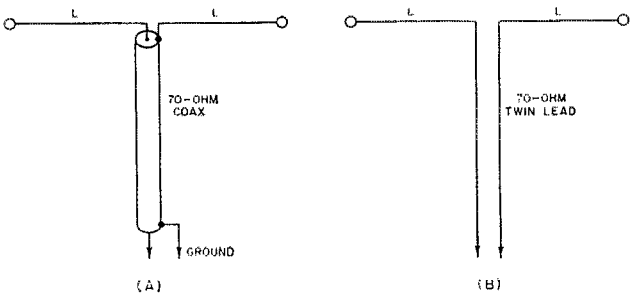


Fig. 2—Simple dipole antenna systems. A shows a coaxial-cable transmission line; a Twin-Lead line is shown at B. For the Novice portions of the 80-, 40- and 15-meter bands, *L* should have lengths of 63 ft., 32 ft. 6 in., and 11 ft. respectively. If one side of the transmitter output termination is grounded, this side should be connected to the outer conductor of a coaxial transmission line.

of the antenna. It is preferable to have the grounded antenna in a vertical position as in A, but if this is not practicable at the lower frequencies, it may be partly vertical and partly horizontal as shown in B. Dimension *L* should be the same as in Fig. 2.

A disadvantage of the grounded antenna is the requirement of a short ground lead which often means that much of the antenna is in close proximity to energy-absorbing objects. This objection can be overcome by the ground-plane antenna shown in Fig. 3C. Here a system of insulated quarter-wave-length wires, usually at least four, running at approximate right angles to the antenna, are substituted for ground. Dimension *L* should be the same as in Fig. 2.

To be most effective, the ground-plane antenna should be vertical and the wires of the ground plane at least one quarter wave length above ground. For this reason, the use of the ground-plane antenna system is usually limited to the higher-frequency bands.

The Folded Dipole

Fig. 4 shows a folded dipole that provides a close match for 300-ohm Twin Lead. The antenna consists of two parallel half-wave conductors insulated from each other except at the ends where

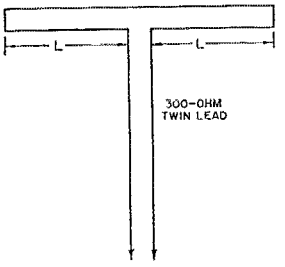


Fig. 4—The folded-dipole antenna. The spacing of the two conductors making up the antenna is not critical. Three-hundred-ohm Twin-Lead is often used, one conductor being cut open at the center, while the conductors are joined at the ends of the antenna. *L* should have the same length given in Fig. 2.

they are connected together. The transmission line is connected at the open center of one of the two conductors. Dimension *L* should be the same as in Fig. 2.

Multiband Antennas

Fig. 5 shows two types of multiband antennas that may be fed directly with 70-ohm coaxial

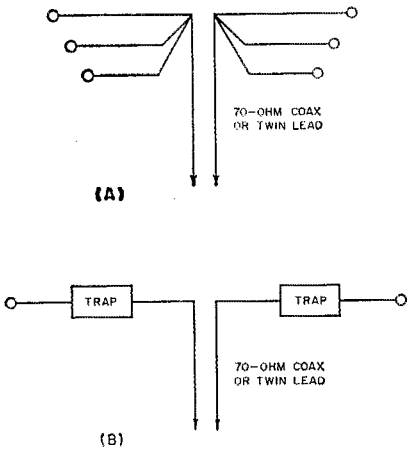


Fig. 5—Simple multiband antennas. In A dipoles with the lengths given in Fig. 1 are connected in parallel to one 70-ohm transmission line. B shows a trap-type multiband antenna. Details will be found in an earlier issue of QST.

cable or Twin Lead. At A, separate dipoles, one for each band, are connected at the end of a single transmission line.[1,2] The individual dipoles should be spaced a few inches apart on spreaders so that they will not wrap around each other in the wind. Fig. 4B shows a trap antenna[3] which may be designed to cover the lower-frequency amateur bands, 80 through 10 meters. Several firms produce antennas of this type.

Conclusion

In the foregoing applications, the impedance match will seldom be exact. However, experience has shown that the mismatch is not often great enough to throw the line input impedance out of the range of the usual pi-network output system. Also neglected is the consideration of feeding balanced antennas with an unbalanced line or from an unbalanced output circuit. Here again, the neglect may be of minor consequence in actual practice. The antenna systems described here have been widely used with complete success. For more exact methods of matching and the treatment of transformations between balanced and unbalanced circuits, reference is made to the ARRL *Handbook* and the ARRL *Antenna Book*.

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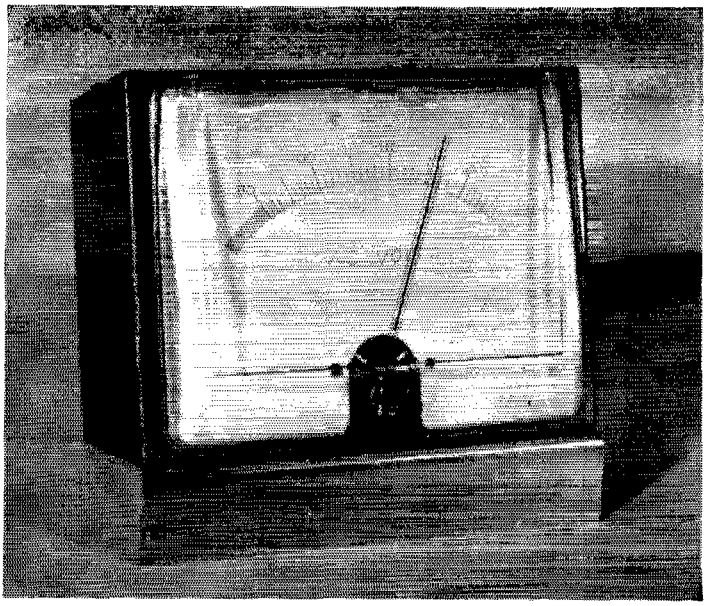
[1] Berg, "Multiband Operation with Parallel Dipoles," *QST*, July, 1956.

[2] Richard, "Parallel Dipoles of 300-Ohm Ribbon," *QST*, March 1957.

[3] Buchanan, "The Multimatch Antenna System," *QST*, March, 1955.

Strays

K0GVW reports a QSO between K0HLA and himself that lasted five hours. K0HKA was on phone and K0GVW was on c.w. The QSO occurred January 25, from 1100 CST to 1600 CST.



The expanded-scale a.c. voltmeter is mounted in a "Flexi-mount" type case, with 4 × 5-inch front. The scale is hand-made.

An Expanded-Scale A.C. Voltmeter

"Bandspread" for the A.C. Meter

BY DOUGLAS KOHL,* WØTHM

In some measurements, such as a.c. line voltage, only a small percentage of the scale is ever used. This crowds the section of scale of primary interest and reduces the accuracy of reading. WØTHM has a neat arrangement for spreading out the part of the scale that does all the work.

THE utility of an expanded-scale meter need not be discussed in detail; however, at least two important advantages are characteristic of their usage. The "human engineering" aspect of ease of reading in the region of interest improves the over-all accuracy, provided the instrument itself has the appropriate increased accuracy. Secondly, if stable bridge elements are used the quality of the meter movement may be relaxed, thus providing the greater accuracy of a bridge with a substantial reduction in cost.

Most currently available commercial expanded-scale voltmeters employ either costly, carefully-adjusted resistor-inductor networks, tunable resonant circuits with saturable components, or specially-shaped meter movements. The circuit to be described uses a standard voltage-reference tube as the principal component of a simple expanded-scale meter circuit.

Circuit Operation

The expanded-scale voltmeter circuit shown in Fig. 1 functions as follows: During the positive part of the input voltage cycle current will flow

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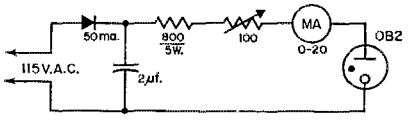
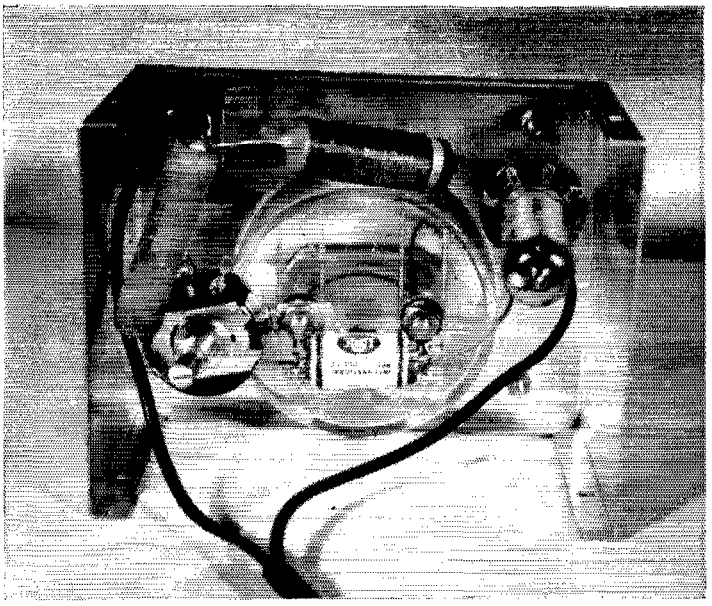


Fig. 1—Circuit of the expanded-scale a.c. voltmeter for reading 90 to 130 volts. The milliammeter used by WØTHM, a shunted 0-200 microammeter, has a resistance of 15 ohms. The 100-ohm variable resistor is a midget wire-wound control. The capacitor is 200-volt metallized paper.



Components are assembled behind the meter, as shown in this view with the box cover removed.

through the rectifier, charging up the capacitor and simultaneously delivering a current pulse to the OB2 glow tube. The OB2 draws current from the instant the capacitor voltage equals the starting voltage of the tube until, as the input voltage descends toward zero, enough of the energy stored in the capacitor is dissipated in the circuit resistances to lower the voltage to just below the extinction point. During the remainder of the cycle the capacitor voltage remains at this value because the rectifier and OB2 are nonconducting. The meter indicates the average value of the current pulse, which repeats each cycle. The magnitude of the current pulses will be nearly proportional to the difference between the input voltage and the operating voltage of the glow tube.

Operation of this circuit at various frequencies up to about 6 kc. is possible with various capacitors. A frequency change of 15 per cent results in very little change in calibration. D.c. operation is also possible, but with different scale calibration as well as stability characteristics.

Construction

The instrument shown in the photographs was built around a meter removed from a damaged Heathkit.[1] The choice of meter and circuit components is not at all critical nor is the placement of the parts. The meter and the other components need not be in the same enclosure. Be sure to choose a meter which may be easily taken apart to allow for inserting a new dial.

The big problem is that of initial calibration. Access to a 1/10 per cent accuracy a.c. voltmeter is necessary to furnish the accuracy inherent in this circuit. A handmade scale, on the other hand, will blow this value way up, so ½ per cent accuracy is certainly acceptable.

Best results in making the new scale are obtained by using the existing scale and taking numerous readings throughout the range of interest. Set the input voltage at the approximate calibration value and read both the calibrating meter and the other simultaneously (if you can). A curve drawn through all of the points plotted on graph paper will serve as the calibration curve. Use a thin paper overlay on top of the original scale and make pin pricks through this paper corresponding to the desired calibration points on the new scale. These tiny holes are then used to make the new scale by marking through them with the pin.

With a good meter movement the scale will be very linear above 100 volts, becoming slightly crowded between 90 and 100. This circuit provides a 3:1 scale expansion with the standard OB2. The starting point of the scale and range may be altered either by attenuating the input voltage with a resistance voltage divider or by using various other tubes singly or in combination. In this manner practically any lower limit greater than 90 volts can be achieved with OB2s, or less with the large OA3/VR75 type.

Performance

To check on the stability the instrument was initially calibrated after having been operated for 5 hours. After that it was connected to a wall outlet for continuous operation 16 hours out of each day. Calibration was rechecked with the original calibration meter periodically over a total "on" time of 1000 hours. All measurements were contained within the bars shown in the graph of Fig. 2.

[1] Full scale 200 microamperes; shunted with 15 ohms in circuit.

Table I

CALIBRATION ACCURACY DATA

Mean Voltage	6 Tubes Standard Deviation	11 Tubes Standard Deviation
90.0	0.5	
95.0	0.3	
100.0	0.5	0.6
105.0	0.3	0.3
110.0	0.4	0.3
115.0	0.2	0.2
120.0	0.2	0.3
125.0	0.2	0.2
130.0	0.2	0.4

Table II

CALIBRATION RESISTOR ADJUSTMENT DATA

Tube Number	90–130 Volt Range	100–130 Volt Range
1	−1.6 equiv. volts	−1.8 equiv. volts
2		−2.2
3		−0.7
4	+0.2	+0.1
5	+0.5	+0.5
6		−2.1
7		−1.6
8		−2.4
9	0.0	0.0
10	−0.7	−0.7
11	−0.3	−0.3

Maximum deviation over the entire calibrated range amounted to 0.7 per cent of full scale including all sources of error.

Your chances of duplicating this result are very good because the reproducibility with various OB2s was found to be excellent. A total of eleven picked at random were chosen to establish the practicability of being able to select various tubes and retain the scale calibration. The data in Table I show the sample group characteristics arising from one adjustment of the variable resistance for each tube and not, of course, for each voltage reference check point. Five tubes would not give readings below 100 volts so they are included only in the second grouping.

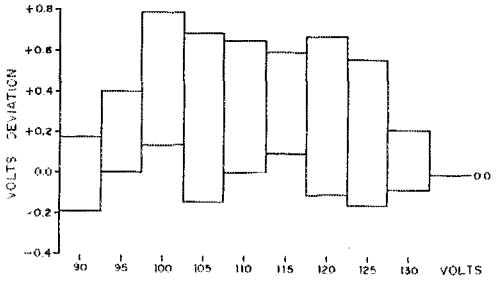


Fig. 2—Long-time stability of circuit (1000-hour test).

The calibration adjustments are surprisingly small, which is a reflection of the quality control inherent in the production of OB2s. This is expressed in Table II in terms of equivalent volts on the scale.

Ninety-five per cent of all measurements made with the meter will probably fall within the mathematically normal distribution of deviations so that the maximum errors ever encountered should not exceed 1.2 per cent based on the original calibration.

Strays

The twelfth edition of the *World Radio Handbook for Listeners* is now available from Gilfer Associates, Box 239, Grand Central Station, New York 17. This book contains listings of times, frequencies, languages used, identity signals and beam headings for most of the world's international shortwave broadcasting. The *World Radio Handbook* sells for $2.20, including postage. A companion booklet for beginning shortwave listeners, *How to Listen to the World*, costs 80¢.

—•••—

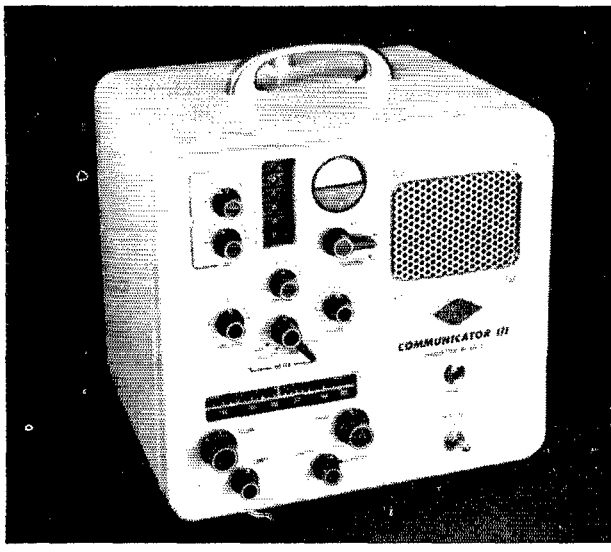
Treasure Chest, a weekly comic book used in Roman Catholic schools, recently serialized an episode dealing with amateur radio. It's an excellent job, and so we wrote the publisher, George A. Pflaum, Inc., of Dayton to get background information on the sequence. We discovered that the author of the regular "Chuck White and his Friends" feature, in which the ham story appeared, is K2TMI, a ham for three years and presently active on 80, 40 and 15, phone and c.w. Not to make the job any tougher, the editor-in-chief of *Treasure Chest* is KN8ERZ!

HIGH-ALTITUDE BOMB TESTS

According to *Aviation Week* (January 20th issue) the Army is going to conduct some tests with nuclear bombs at high altitudes — 250,000 feet and more — this summer. The firings will be at the Eniwetok test grounds.

If carried out, this means that the explosions will take place in the ionosphere, with an excellent chance that unusual radio propagation will result. With the bomb briefly simulating the sun right in the *E* layer, it isn't hard to imagine that some rather magnificent sporadic-*E* ionization might result. So keep your ears open for sudden changes in propagation around the time of the blasts. *Aviation Week* mentions no specific dates, but the tests probably will get the usual publicity from the ordinary news sources.

The Gonset Communicator III



The Gonset Communicator III, finished in ivory, bears a family resemblance to its predecessors. Slide-rule dial on the receiver, a 6-position crystal switch and a tuning meter in place of the green eye are principal exterior differences.

ALMOST SINCE the day the Gonset Communicator hit the market some five years ago it has been the object of much "redesigning" by owners and would-be owners. Ideas for improving the "gooney-box," "green-eyed dragon," or what have you for names, have been a dime a dozen. The builders of the Communicator, being hams themselves, had thought of most of these ideas and many more besides, long ago, but the first Communicator was their best guess as to a desirable combination of features that could be produced at a price within the reach of a large segment of amateur radio. Innovations, however desirable, tended to make the Communicator larger, rougher on car batteries, or more expensive — or perhaps all three.

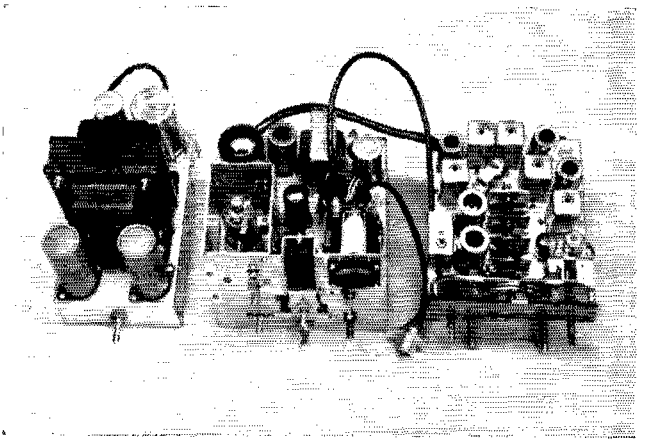
Now, after several years with only minor changes in the 144-Mc. Communicator and the introduction of a 50-Mc. model, the Communicator has undergone a major face lifting. A surprising number of improvements have been made — but, as anticipated, the new version is slightly larger and more expensive. Thanks to the introduction of a selenium rectifier power supply, the over-all battery drain has been held to about the value of the earlier models, though more audio power has been added.

Probably the best way to describe the new version is to show how it varies from the old models, for probably no piece of commercial gear for v.h.f. use is better known. Changes in the 1958 model can be broken down into three categories: styling, operational features and performance improvements. In the first group are the new "boudoir ivory" finish and blue knobs. Operationally, crystal switching (six positions), a slide-rule receiver dial, a tuning meter in place of the famous green eye, knobs on all controls in place of screw-driver adjustments, and provision for use of the receiver as a converter are featured. Ease of servicing has been improved through the use of readily available tubes for all functions, the addition of quick-disconnect cables for interconnection of all units, and last but not least, larger and more legible circuit diagrams.

From the point of view of improved performance, several features of the new Communicators are of interest. More tuned circuits in both transmitter and receiver make for better attenuation of unwanted frequencies (less TVI) in the transmitter and improved selectivity in the receiver. Substitution of a 6L6 for the formerly used 6V6GT gives the audio more punch on transmitting.

The r.f. section of the transmitter is quite similar to the old models, except that a 4-gang tuning capacitor is now used. This tunes the oscillator plate circuit, the two multiplier grid circuits, and the plate circuit of the first multiplier, all with a single knob. Because these circuits are peaked on-the-nose with a single tuning operation, changing frequency over a wide range is much more readily accomplished. The extra tuned circuits, inductively coupled, give considerably improved rejection of unwanted frequencies generated in the oscillator stage.

The 144-Mc. receiver is still single-conversion, as before, with the same intermediate frequency: 6 Mc. However, the receiver tuning capacitor has four sections instead of three, and the r.f.



Subassembly construction for easy servicing featured in the Communicator III. Power supply, transmitter and receiver sections appear in that order. Quick-disconnect cables are provided between all units.

amplifier plate, mixer grid, and oscillator tank circuits are gang tuned. In earlier models only the mixer grid and oscillator were tuned, the r.f. being broadbanded. A considerable improvement in i.f. amplifier skirt selectivity results from the use of five double-tuned i.f. transformers in the 1958 2-meter receiver, in place of three double-tuned and one single-tuned circuit in the older models. Voltage regulation has been added for the receiver oscillator.

Extra tuned circuits and inductive interstage coupling in the front end have upped the rejection of images and other spurious responses to a degree that should be helpful in areas where commercial v.h.f. operation is at a high level. We checked the selectivity and spurious-signal rejection of a Communicator II and the Communicator III, with the following results:

A 145-Mc. signal at various levels above the minimum audible was checked for broadness on both receivers. On the 1954 model a signal that was audible over 144.9 to 145.1 took about 50 kc. less on each side of center on the 1958 version. A really strong signal just below the overload point, the equivalent of another Communicator a few blocks away, took out 600 kc. on the Model II, but only 400 on the III. This is far from adequate selectivity for home-station operation in crowded areas, but it should make a noticeable difference in QRM for the fellow who must contend with a dial full of strong local signals.

Rejection of signals outside the band is considerably improved on the new receiver. The image, 134 Mc., is down 34 db. on the II, but 49 db. on the III. A spurious response at 146 Mc. from a signal near 143 Mc. was down 65 db. on the older receiver and 80 db. on the Model III.

Tube lineups in the 144-Mc. model are as follows: transmitter — 12BY7A oscillator-multiplier, 6BK7A 2-stage multiplier, 2E26 final amplifier; receiver — 6BZ8 cascode r.f. amplifier, 6CG8 mixer-oscillator, 6BH6 i.f. amplifier (3), 6AV6 second detector and audio amplifier, 6AL5 noise limiter-squelch; audio-modulator — 12AX7 (2 stages) and 6L6. A 9006 diode clipper in the transmitter and an OB2 voltage regulator in the receiver fill out the tube complement. Owners of older models, who may have encountered some trouble in finding 6T8s and 6BG7s, will appreciate more conventional types in the new version.

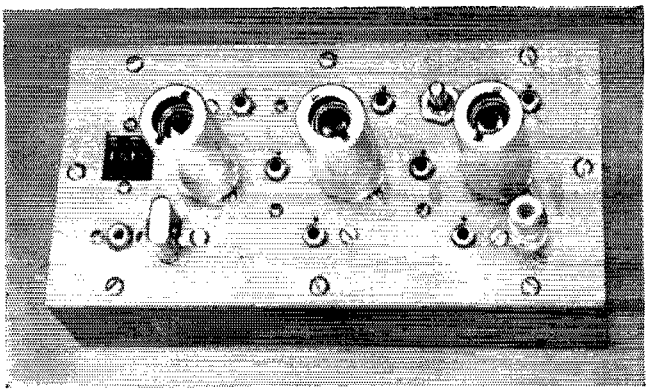
Two features that this writer has been pulling for are still lacking: a keying jack in the transmitter and a b.f.o. in the receiver. Lack of c.w. facilities is regrettable, with appreciation of the possibilities of c.w. in weak-signal work on the v.h.f. bands growing as it is currently. All is not lost, however; there's room in the new larger case for a beat-frequency oscillator, and keying should be no great problem. Besides, we need some reserve changes to suggest for the next revision of the Communicator family!

— *E. P. T.*

The Filter-King 6-Meter Converter

NOW THAT 50-Mc activity is reaching high levels almost everywhere, a converter with good operating characteristics in the presence of strong signals is almost a must. Rejection of signals from outside the band is also important. The Filter-King VHF-50 converter for the 6-meter man was designed with these desirable qualities in mind.

The VHF-50 uses three dual triodes, two as cascode r.f. stages and a third as a combined mixer and crystal oscillator. High rejection of signals outside the 50-Mc. band is obtained through the use of three sets of three tuned circuits each, adjusted for uniform response across the band and sharp drop-off directly above and below the desired frequency range. As may be seen from the bottom view, the sets of tuned circuits are isolated from each other by interstage



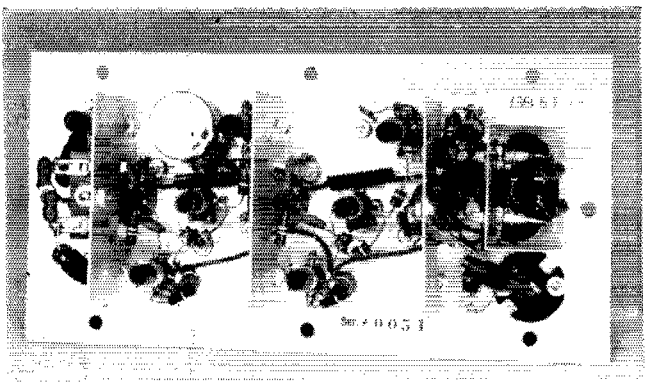
The Filter-King 50-Mc. converter uses three identical dual triodes. First stage has gain control for use in cutting down strong local signals to avoid cross-modulation and overloading.

shielding. The output circuit (far right in bottom view) is set off from the power connections by a U-shaped shield.

The two cascode stages, the second of which is biased below maximum gain, allow the use of the triple-tuned circuits at three points. Overall gain is set no higher than necessary to give adequate noise figure, so the tendency to overload the triode mixer is slight. The first r.f. stage has a variable gain control in the cathode lead. Normally this is operated "all-out" for maximum sensitivity and lowest noise figure. In the presence of strong local signals the gain control can be cut in. This impairs the noise figure somewhat, but it may often make possible reception of fairly weak signals through local interference that would otherwise obliterate the DX.

Extensive interstage filtering and shielding make for maximum stability and freedom from unwanted signals, both at the intermediate and image frequencies.

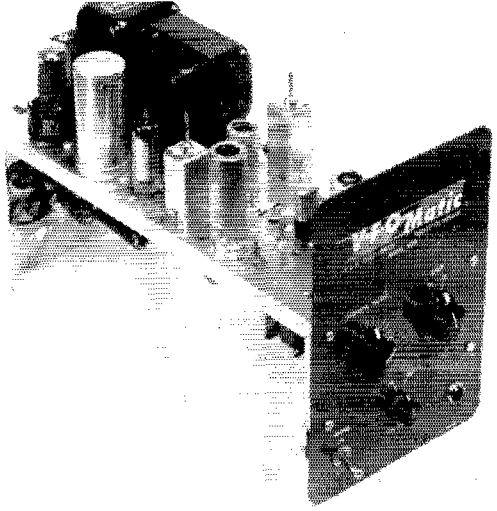
The converter is normally supplied for use with a 14- to 18-Mc. tuning range. Other i.f. ranges available include 550 to 1550 kc. for mobile use, 10 to 14 Mc., 26 to 30 Mc., 28 to 30 Mc., and 30 to 34 Mc. Manufacturer: Santa Rosa Electronics, 2363 Laguna Road, Santa Rosa, Calif. — *E. P. T.*



Bottom view of the VHF-50 converter. First r.f. stage, with gain control, is at the left. Note isolation of power connection from i.f. output circuit, far right.

The P & H VFO-Matic 8020

SINGLE-side-band operating has developed several special techniques of its own, and probably the most outstanding is the multi-station fast-break round table on the same frequency, give or take a few cycles. This means of course that the transmitters and receivers are tuned to the same frequency, not the carefree "same frequency" of a.m. or even c.w. operation but the *same* frequency, give or take a few cycles, mentioned above. Naturally, many amateurs have considered using the same frequency-control unit for both receiver and transmitter tuning, and a new commercial mobile side-band station is designed around the idea. The VFO-Matic is a unit that can be used with any Collins 75A-2, A-3 or A-4 receiver and any 9-Mc. side-band exciter (Central Electronics 10A, 10B, 20A; Hallicrafters HT-32, Lakeshore Phasemaster) to provide single-dial control of transmitter and receiver frequency. Two models are available: the 8020



When the VFO-Matic is used between transmitter and receiver, the transmitter is always putting out on the frequency to which the receiver is tuned. Normal independent control is obtained by switching the VFO-Matic to "Out."

shown in these pages that provides single-dial operation on 80 and 20 meters, and the 8010 for single dial control on 80, 40, 20, 15 and 10 meters.

The Collins receivers are well suited for this particular purpose because they all use a similar tunable oscillator. These double conversion receivers use crystal-controlled front ends followed by a tunable i.f. of 2.5 to 1.5 Mc. The variable oscillator for this section tunes 1.955 to 2.955 Mc. When the receiver tunes 14.2 to 14.3 Mc. the oscillator moves from 2.755 to 2.655 Mc., and the receiver range 3.8 to 4.0 Mc. corresponds to an oscillator frequency range of 2.355 to 2.155 Mc. The problem the VFO-Matic sets out to solve is to convert these oscillator frequencies to a proper frequency near 5 Mc. This 5-Mc. frequency mixes with the 9-Mc. side-band signal of the exciter to deliver a 4- or 14-Mc. side-band signal.

The block diagram in Fig. 1 shows how the conversions are obtained in the VFO-Matic. This serves to illustrate the basic idea behind the unit; the all-band 8010 uses the same principles with a few extra circuits and crystals. Anyone familiar with side-band operation will appreciate that a slight amount of frequency "dragging" is necessary to accommodate the optional use of upper or lower side band. A panel control marked

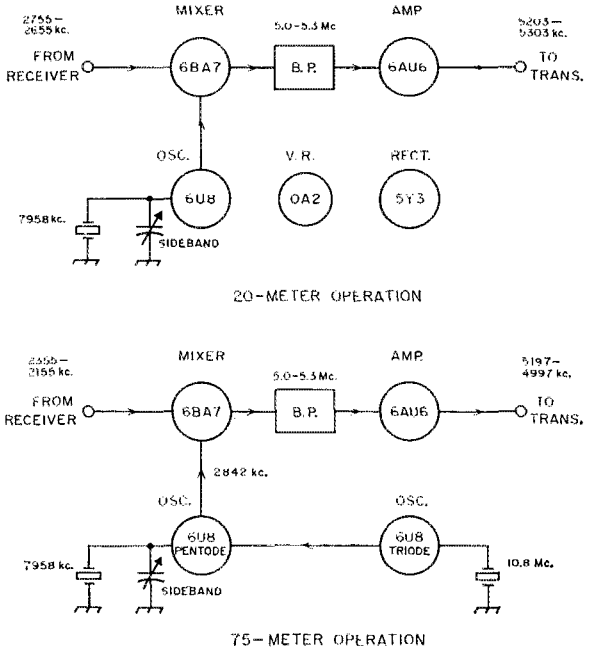
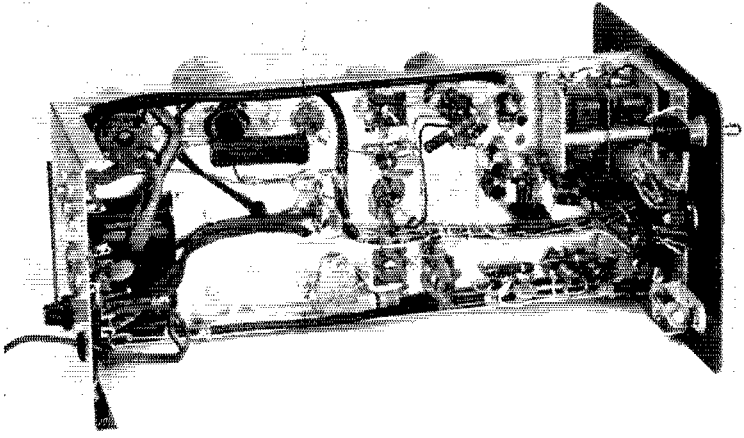


Fig. 1—Block diagram of the 8020 VFO-Matic. The diagram shows the essential elements for 20-meter (upper) and 75-meter operation. The capacitor marked "sideband" pulls the crystal frequency just enough to provide for the use of either side band.



This unit is for 75- and 20-meter operation only; another model covers all bands. The dual variable capacitor is the "sideband tuning" control that pulls a crystal-oscillator frequency.

"Sideband Tuning" varies a capacitor in the 7958-kc. crystal-oscillator circuit and provides a range of ± 2½ kc. Although a single capacitor is shown across the crystal in Fig. 1, the VFO-Matic actually uses a 200-$\mu\mu$f-per-section dual variable across the crystal in a Colpitts circuit.

There will, of course, be times when the side-band operator will want his transmitter on one frequency and his receiver on another, as when working DX outside our phone bands. Provision is included in the 8020 for this type of operation through an accessory socket at the rear of the unit, through which an external v.f.o. (BC-458) can be connected. When a panel switch on the VFO-Matic is thrown to "Out" it connects the power to the external v.f.o. and the output of the v.f.o. to the side-band exciter. Thrown to the "In" position the switch cuts the VFO-Matic into the circuit and turns off the external v.f.o.

Only time can tell if this single-control type of operation is eventually to become the standard operation among side-band stations. Certainly the only argument against it is that a drifting signal in the round table can foul things up, but as the stability of our equipment gets better and better it may develop that this single objection will work itself right out of the picture.

— *B. G.*

P & H Electronics, Inc., 424 Columbia, Lafayette, Ind.

Strays

You may remember that in May of last year U. S. amateurs were invited to take part in an "International Telegraphic C.W. Contest" sponsored by the Soviet Central Radio Club. The contest went off well and early in 1958 ten multicolored certificates, one of which appears at the left, arrived at ARRL for forwarding to the winning W/K stations. In order of score the top ten were W2WZ, W4LZF, K6EIV, W7QGF, W3BVN, W3ADZ, W8UPN, K2OEA, W6SN, and W9UKG. A partial translation: "To radio station .... for taking .... place among the radio amateurs of the U. S. A. in the International Radio Amateurs Contest held by the Central Radio Club of the USSR on May 4–5, 1957." The signature is that of E. Krenkel, holder of the special call RAEM and president of the Council of CRC.

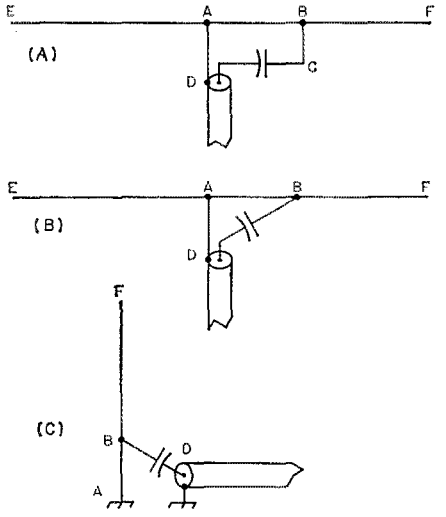


Fig. 1—The gamma-matched radiator and its family relationship to the shunt-excited vertical.

Adjustment of Gamma-Matched Parasitic Beams

Step Procedure for On-the-Ground Tuning

BY KATASHI NOSE,* KH6IJ

If it is true that experience is the best teacher, the author has had a higher education in the adjustment of parasitic beams. This article gives you the essence of what he has found out in the course of tuning up some dozens of such antennas on a wide variety of amateur bands.

AFTER HAVING sweated through countless hours of "adjusting the gamma match until the proper match is obtained" on some 40 assorted homemade parasitic beams from 2 to 20 meters, the conclusion is that this is easier said than done — and that some authors, including myself,[1] have been prone to underestimate the work involved.

This article concerns a single-band, 0.1 or 0.15 wavelength spaced, parasitic beam, coax fed and gamma matched — as simple and straightforward a system, mechanically and electrically, as can be devised.

The Gamma

Fig. 1A, the commonly used gamma-matched radiator, consists of loop *ABCD* to which is attached the half-wave radiator *EF*. The loop *ABCD* need not be rectangular, and Fig. 1B works precisely the same as Fig. 1A as has been demonstrated many times. This latter really is Fig. 1C in disguise, the shunt-fed grounded quarter-wave radiator, familiar to the broadcast industry, and works on the principle that the one-turn loop *ABD* is used to excite radiator *AF* through voltage developed across section *AB*. The series capacitor is used to tune out the reactance, which is always inductive. The quarter-wave section *EA* of Fig. 1A can be considered to be a phantom ground, which in the case of Fig. 1C is earth.

The gamma rod spacing is critical only at the *AD* end, and in broadcast practice it is usual to approach the radiator at a gradual angle. At amateur frequencies, anything from No. 12 wire [2] to tubing equal in diameter to the radiator have been used (see *Handbook* nomograph); and spacings at the *AD* end on the order of one inch at 144 Mc. to 6 inches at 14 Mc., with intermediate values for other frequencies, have worked out successfully.

Matching to Feed Line

When the average amateur speaks of "tuning a beam," he refers to two distinct processes. The first is that of adjusting the matching system, the gamma in this instance, to offer the proper termination to the feed line. The second is that of adjusting element lengths for maximum forward gain or front-to-back ratio. These two processes interlock to a certain degree.

The first process is carried out by tuning loop *ABCD*, together with appendage radiator *EF* and the gamma capacitor, to provide the proper termination at the desired frequency. Among the factors which influence this are:

1) Length of the gamma rod (about 7 inches for 144 Mc. to 44 inches for 14 Mc.).

2) Spacing and size of the gamma rod (spacings about 1 inch for 144 Mc. to 6 inches for 14 Mc.).

*R.R. 1, Lihue, Kauai, T. H.

[1] Nose, "A Lightweight 14-Mc. Four-Element Beam," *QST*, Nov., 1948.

[2] Nose, "A Lightweight 21-Mc. Three-Element Beam," *QST*, April, 1954; *The A.R.R.L. Antenna Book*, p. 253.

3) Gamma capacitor (about 7 $\mu\mu$f. for 144 Mc. to 100 $\mu\mu$f. for 14 Mc.).

4) Radiator length (460 divided by frequency in megacycles[3]).

5) Proximity of objects, including parasitic elements and their resonant lengths.

Unless one of these parameters is fixed one can get hopelessly lost, since they all interlock to varying degrees. In this method the radiator length is fixed and the others worked against it. Remember, a coil-capacitor combination can be made to show the proper termination but is not the best radiator.

Equipment

A ratiometer (Monimatch, s.w.r. bridge, etc.) plus your transmitter, preferably low power, is all that is necessary. The simplest kind of s.w.r. meter or r.f. bridge, requiring only a few watts of power, is preferred.

The simple field-strength meter shown in Fig. 2

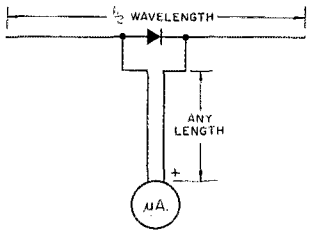


Fig. 2—Sensitive field-strength meter using crystal diode (such as a 1N34) and microammeter. The latter should have a range of about 100 microamperes full scale, and may be the meter in a volt-ohm-milliammeter if a suitable low-current range is incorporated.

plus a v.o.m. with at least a 100-microampere movement is required if you want to make front-to-back adjustments. Use of a grid-dip meter as a source of r.f. voltage is unsatisfactory in this application, nor is one required at any time unless used as mentioned later.

Adjustment of Gamma

Mount the beam on a convenient support at a height easily reached from the ground. The top of a stepladder is convenient — or even a fence post. The roof top is better but not necessary. Don't be too concerned about surrounding objects; tuning under poor circumstances is better than no tuning at all.

1) Adjust the gamma to the suggested dimensions. Make the reflector 5 per cent longer than the radiator and the director 4 per cent shorter. Additional directors should be successively 4 per cent shorter.

2) Install the s.w.r. meter at the transmitter end of the feed line and adjust the power output for proper operation of the meter at half sensitivity. This is done to extend the range during final adjustment. Only a few watts are required — the lower the power the better, since "hot" adjustments are to be made.[4]

3) Move the s.w.r. meter to the antenna end of the feed line, placing it in such a position that the meter can be seen while making subsequent adjustments.

4) Adjust the gamma rod length for minimum s.w.r. A temporary sliding shorting bar consisting of two battery clips screwed back to back is convenient. It is unlikely that this adjustment alone will produce a minimum.

5) Adjust the gamma capacitor for minimum s.w.r. Alternate the adjustments between gamma rod length and gamma capacitor setting for minimum s.w.r.

6) Finally, touch up by adjusting the radiator length slightly, but not more than one or two per cent. If a greater change is needed, go back to steps 4 and 5 and try another combination.

In all three of the latter steps the adjustments should allow the s.w.r. to go through a minimum and then rise again. By this time the s.w.r. reading should be so low as to make the reading unreliable on the scale being used, so shift to the most sensitive scale on the v.o.m., if one is being used, or increase the sensitivity of the meter by cutting out more resistance if a Monimatch type is being used.

If at any time you should lose your place, or have any doubt as to the correctness of the adjustment, readjust the radiator to the calculated length and start all over. The sequence is: gamma rod, gamma capacitor, and radiator length for touching up.

Depending on size of the beam and the frequency, you may have to duck out from between or under the elements after each adjustment, if such movement results in a change in the s.w.r.

If a satisfactory minimum s.w.r. cannot be attained during any of the three latter adjustments look for:

1) Radiator length too far off, preventing resonance (see below).

2) Poor Q in gamma capacitor and loop system. The W2VS type of concentric capacitor[5] has excellent Q and is preferred. Spacers should have low power factor. Plastic tape is unsatisfactory, and you will have one big mess if you use high power.

3) Poor coax connections. Solder all coax to connectors. In one instance a right-angle connector showed an open circuit only when installed in a line.

4) Beware of unmarked surplus short lengths of coax in connecting the ratiometer. It is better to cut a short length from the same piece used for the feed line.

5) Telescoping elements not making electrical contact. Test with an ohmmeter. If there is no

[3] Different sources give figures varying from 460 to 480. A large number of experiments tend to favor the former figure. I would like to hear about the experiences of others.

[4] Take due precautions, such as grounding the inner conductor of the coax through an r.f. choke, to prevent high voltage from appearing on the antenna should a blocking capacitor fail. Additionally, it is suggested that the center conductor be grounded through another r.f. choke at the antenna end.

[5] Reynolds, "Simple Gamma-Match Construction," *QST*, July, 1957.

coating of grease on the inside at the telescoping joint, put one on and tape up the joint with plastic tape after final adjustment of length.

6) Excessive harmonic content or parasitics in the r.f. source, either through mistuning, or inherent in transmitter.

7) Ratiometer improperly calibrated or not working properly. Test with a noninductive resistor — not at the bridge coax terminal but at the end of the coax where it connects to the gamma.

The first mentioned item is the most frequently occurring trouble and usually accounts for freak gamma dimensions or capacitance. Check the resonant frequency by shifting the transmitter frequency 200 kc. higher and lower and observing where the minimum s.w.r. occurs. If the minimum occurs at other than the desired frequency, readjust the radiator length and repeat all steps.

If none of these measures work, couple a grid-dip meter to point *D* in Fig. 1A with the feed line off. You will find several dips; the most pronounced for the radiator, a less-pronounced one higher in frequency for the director, and another lower in frequency for the reflector. This will give you an idea as to how far off resonance you are. There have been cases where resonance occurred outside of the range of the transmitter.

Adjustment of Director and Reflector

The second phase of tuning will be omitted by most hams, as formula lengths work out fairly well. Adjustment for maximum front-to-back is much easier than for forward gain because the former is quite sharply defined. Moreover, it is more dramatic when demonstrating the beam!

String up a half-wave dipole with a diode detector, using pieces of string as insulators, between any convenient supports that are as far away as possible while still showing a half-scale reading with the back of the beam pointed at the dipole. If these adjustments are being made on the roof top, the pick-up dipole draped over the neighbor's roof is fine; otherwise, even draped over a hedge is satisfactory.

Run a long two-conductor lead from the dipole to the beam so that effects of adjustment can be watched. It is best that the lead wire be laid on ground to preclude r.f. pick-up. Proceed as follows:

1) Adjust reflector length for minimum pick-up. This adjustment is very critical, a change of one half inch producing a decided change in meter reading.

2) Adjust director length for minimum pick-up. This adjustment is not as critical as that for the reflector.

3) Increase the sensitivity of the meter or move the pick-up dipole closer (or increase power) as adjustment proceeds so that a half-scale reading is obtained at all times.

4) In both (1) and (2) a minimum should occur as the proper length is passed.

5) Reinstall the ratiometer in the feed line and check to see that the s.w.r. has not changed materially. If it has, readjust according to the procedure given previously, keeping the radiator length a fixed quantity except for minor touch-up.

In practice, a change of one half inch or so in element length will not be noticed at the receiving end of a contact, but it is comforting to know that it is "on the nose." Raising the beam into position does not change the s.w.r. as much as one is led to suspect, and this method is the next best to making adjustments with the antenna in its final position.

March, 1933

. . . Technical articles 25 years ago included one on a power type electron-coupled exciter unit, another on checking the behavior of ultra-high frequency waves, on a temperature-controlled master oscillator unit, on a duplex plate supply, and on how to get the most from the single-signal superhet.

. . . One of the big announcements of the month was that of the inauguration of a new system of QSL card distribution. District managers had been appointed for each of the nine call areas, and W1BUD gave details on how the new system was to function.

. . . The role of amateurs in the Second International Polar Year was described in connection with some work at Mt. Washington, N. H. (The Second International Polar Year was being held on the 50th anniversary of the First Polar year).

. . . A four-page listing of ARRL-affiliated clubs shows many still-familiar names.

. . . And we note that twenty-five years ago WWV was only on the air on 5 Mc. from noon until 2 P.M. and from 10 P.M. until midnight, with an accuracy of one part in five million.

Silent Keys

IT IS with deep regret that we record the passing of these amateurs:

W1AGT, Henry Brockhamer, West Haven, Conn.
W2AOA, Deidrich H. Doscher, Middletown, N. Y.
W2JAL, Walter L. Vanderbeck, Little Silver, N. J.
W3BJY, Louis A. Hunt, jr., Conshohocken, Pa.
W4NMW, Lewis E. Springer, Hollywood, Calif.
K5CAW, Joseph H. Williams, Las Cruces, New Mexico
W5COR, William P. Twitchell, San Antonio, Texas
W5IRN, Owen Williams, Houston, Texas
W6AOV, Stanley A. Mayer, Redwood City, Calif.
W6EE, Lloyd A. Shellabarger, Oakland, Calif.
ex-W6HCL, William A. Crabbe, Pacific Palisades, Calif.
W7MER, Mervin S. Kelley, Priest River, Idaho
W7YS, Sebastian Ruth, Olympia, Washington
W8DVC, James L. Robinson, Monroe, Mich.
W8HZW, John T. Grant, jr., Melvindale, Mich.
W9DGD, Howard W. Koch, Quincy, Ill.
W9EDZ, Gordon W. Sutherland, Rensselaer, Ind.
WØEYY, Harry L. Richardson, Galena, Kans.
KNØHBU, David E. Hampton, Larned, Kans.
WØKOR, Otto M. Slater, St. Joseph, Mo.
WØKXL, Merton T. Meade, Kansas City, Kans.

● Technical Correspondence

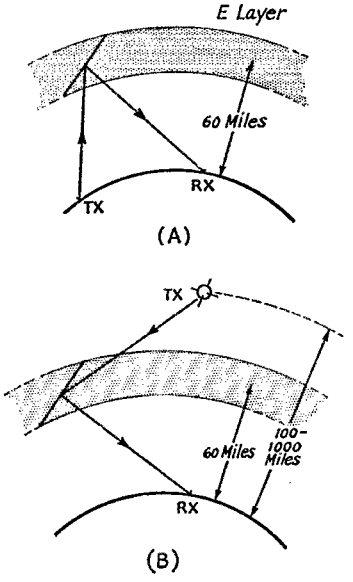
METEOR "PING" FROM SPUTNIK II

207 Addax Drive
San Antonio 1, Texas

Technical Editor, *QST*:

While monitoring an audio tape recording of the passing of Sputnik II on the morning of 6 November 1957, a meteor "ping" was heard on the 40-Mc. signal. The ping lasted about ¼ second and was heard at 0541 CST. Since the Sputnik was heard from 0537–0545 CST, this placed it near the point of closest approach to San Antonio, Tex., at the time of the meteor return signal. The receiving system consisted of a vertical 40-Mc. dipole above a ground plane feeding a v.h.f. receiver with the b.f.o. on.

The writer has listened to many hours of satellite passings but this is the first indication of any meteoric activity of this nature. While the geometry of the path involved is not unusual, the Sputniks are the first instance of a transmitter being located above the *E* region in which meteor trails are formed.



The writer would be interested in hearing of any other instances of meteor signals from satellites as observed by others.

— *Calvin R. Graf, W5LFM*

A POSSIBLE EXPLANATION OF ABNORMAL PROPAGATION

4 Ploughman's Bush
Riverdale 71, New York

Technical Editor, *QST*:

Recently [1] J. Gregg Stephenson, W2OBX, reported a case of anomalous propagation between W2 and VK3 in which signals must have traveled close to the North Pole since strongest signals were obtained with W2OBX's beam pointed north while VK3KF's antenna was pointed northwest. An earlier case with somewhat similar features was reported [2] by John Murray, ex-W2AMD, now W1BNN. In the latter case strongest signals were obtained when he and VK6KW pointed their beams to the South Pole while a secondary maximum was obtained with antennas pointed to the North Pole.

Of course, it is impossible to give certain explanations of these strange phenomena without complete information concerning the density of ionization in the upper atmosphere. However, I can offer what I believe is a plausible hypothesis, which suggests when to look for repetitions of these events. If such repetitions are observed at the appropriate times, they will give strong evidence to support it.

As everyone knows, long-distance radio propagation results from a variation of ionization with height (or, from the point of view of the earth as whole, in what should be called the "radial" direction). This variation causes a beam of radio waves to return to the earth up to some 2000 miles from the point of origin, and then it may undergo reflection and additional refractions in the atmosphere. At each refraction at the extreme distance the beam undergoes a change in direction of roughly 40 degrees, and thus a signal traveling some 10,000 miles between W2 and VK3 is deviated about 200 degrees by the ionosphere.

However, the variation of ionization is not entirely in the radial direction. The principal cause of ionization is ultraviolet radiation from the sun, and this portion of the ionization is greatest in the part of the earth which faces the sun: that is, in equatorial regions. Some ionization is also due to charged particles. This portion is greatest near to the magnetic poles because particles of low energy are prevented from entering the earth's atmosphere in the equatorial regions by the earth's magnetic field, while they, as well as high-energy particles, may enter in polar regions. Most of these particles are due to cosmic rays, but after a larger solar flare additional ones may come from the sun. These solar particles give rise to magnetic storms and the aurora. These effects are more frequent during the maximum of a sunspot cycle, as at present. This variation of ionization with latitude can be expected to deviate signals from a great circle path, especially those signals that travel mainly in east-to-west or west-to-east directions. Such deviations normally are not large, but at the time of a flare it seems conceivable that a large lateral deviation could take place in the polar regions. Although one of some ninety degrees, as in the event reported by W2OBX, seems large, it is smaller than the 200 degrees of deviation in the radial direction. It may be significant that at 0500 GMT on September 7, the day previous to W2OBX's QSO, a magnetic storm ended.[3] This storm was accompanied by an observation of the aurora in Washington, D. C., and the observation of the aurora so far south is rare. Very unusual ionospheric conditions in the polar regions may have persisted for some time afterward.

This discussion reminds me, half seriously and half facetiously, of a description of auroral v.h.f. propagation in one of Ed Tilton's articles,[4] or, more exactly, of one of the accompanying cartoons by W1CJD. It is entitled, "When in doubt, aim north." That advice might be applied to the lower frequencies as well.

An earlier draft of this letter was sent to W2OBX for his comment. This version is based upon several valuable corrections and suggestions which he sent me.

— *Yardley Beers, W2AWH*

DUAL-PATH PROPAGATION

82 Prospect St.
Huntington, L. I., N. Y.

Technical Editor, *QST*:

Some interesting examples of dual-path propagation on 14 Mc. have been evident during the autumn months of 1957 between the east coast of the United States and eastern Asia. From about 2100 to 2200 GMT, amateur stations in Japan and eastern Siberia have frequently been heard and worked via the long great-circle path over the Antarctic

Continued on page 146

[1] Stephenson, "Technical Correspondence," *QST*, Nov., 1957.

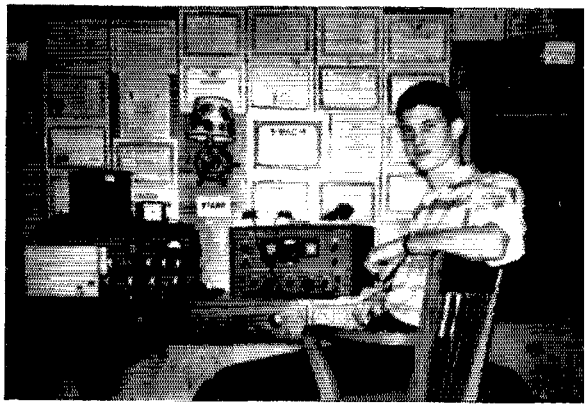
[2] Murray, "Correspondence from Members," *QST*, Dec., 1946.

[3] *I.G.Y. Bulletin*, No. 5, Nov., 1957 (published by National Academy of Sciences, Washington, D. C.).

[4] Tilton, "V.H.F.: Why — How — When?," *QST*, Feb., 1951.

1957

VE/W Contest Results



Bob Hill, W1ARR, salted away the number-two score Stateside and added another piece of wallpaper to his collection in winning New Hampshire Section honors.

CANADA and the U. S. were at it again tooth and nail — but friendly-like — last September 28 and 29 in Montreal Amateur Radio Club's popular, yearly VE/W Contest. The affair hit new heights in number of entries and, as in the past, there was feverish competition for sectional and national glory.

For the first time since 1951, when W1BFT rounded out three straight years of winnership, the top score was made by a W. No new face to the contest set, W1JYH brought to bear many moons of operating experience in posting 93,571 points, thereby earning the trophy awarded annually to the over-all contest leader. VE3DSU rolled up 93,390 points, pacing his countrymen by a thumping margin in a repeat of his 1956 performance.

Here are the calls and scores of the top ten on both sides of the border: VE3DSU 93,390, VE3QE 71,145, VE2BN 63,450, VE3BHS 61,936, VE3AGX 61,463, VE2AVC 50,149, VE3AD 45,048, VE1EK 44,298, VE3MI 37,410, VE3BLU 32,968, W1JYH 93,571, W1ARR 89,672, W9NII 63,356, W8UVZ 62,888, W3VKD 60,919, W8RQ 60,431, W8AJW 59,457, W9DYG 57,751, K2KFP 56,045, W2EQS 45,811.

Lined up by licensing areas the leaders are VE1EK VE2BN VE3DSU VE4SK VE5DZ VE6HG VE7AFP VE8OJ W1JYH K2KFP W3VKD W4CKD W5LGG W6NZW W7EMY W8UVZ W9NII KØDHH KL7MF.

The following tabulation was prepared by the MARC Contest Committee, consisting of Chairman VE2BB, his XYL, VE2BN, VE2CP, and VE2YA. The amateur heading each ARRL Section listing earns a certificate. The figure after the call is the final score.

Maritime

VE1EK....44,298
VE1ADH....27,468
VE1ST....26,646
W9NLJ/VE1....23,392
VO2NA[1]....23,100
VE1IZ....8961
VE1DB....8424
VO1DS....3432
VE1EB....1080
VO2AA....1054
VE1RH....946
VE1FH....420

Quebec

VE2BN....63,450
VE2AVC....50,149
VE2CP....24,897
VE2IL....17,612
VE2AQO....15,810
VE2PZ....14,160
VE2AWK....11,480
VE2AEW....7590
VE2RL....6162
VE2BB....4703
VE2ATL....2037
VE2AJD....2052
VE2AWR....672
VE2SC....27

Ontario

VE3DSU....93,390
VE3QE....71,145
VE3BHS....61,936
VE3AGX....61,463
VE3AD....45,048
VE3MI....37,410
VE3BLU....32,968
VE3RN....24,376
VE3YV....18,450
VE3BHW....18,360
VE3AES....16,872
VE3ECG....11,094
VE3BLY....10,062
VE3ABG....7812
VE3GI....3938
VE3BBM....3132
VE3BUR....1267
VE3TO....1040
VE3AUU....700

Manitoba

VE4SK....21,150

Saskatchewan

VE5DZ....19,215

Alberta

VE6HG....5940
VE6IM....4836
VE6TY....3075

British Columbia

VE7AFP....24,684
VE7QQ....24,486
VE7ALE....21,648

Yukon N.W.T.

VE8OJ....16,770
VE8MX....9135

E. Penna.

W3LEZ....50,309
W3MDO....42,887
W3ARK....34,115
W3BQA....14,402
W3EKE....13,808
W3YLL....6336
W3IIF....2439
W3CMN....1949
W3EFY....495

Md.-Del.-D.C.

W3IIQU....25,992
W3VD....5198
W3BFW....1949

S.N.J.

K2OMT....39,088
W2QDY....4548

W.N.Y.

K2MWK....26,854
W2MTA....7960
K2JZG....7798
K2MWM....3330
K2UCF....3249
W2QBB....1950

W. Penna.

W3VKD....60,919
W3KQD....2274

Illinois

W9NII....63,356
W9LNQ....37,688
K9BLY....34,855
W9PNE....31,190
K9GZP....25,990
K9ATZ....15,595
W9YYG....15,544
W9PVA....13,140
W9NLF....7581
W9YDQ....5632
K9DWG....5415
K9IFB....4332
K9DOY....3538
K9HCP....650

Indiana

K9DWK....10,992

Wisconsin

W9DYG....57,751
W9WEN....32,165
W9RKP....26,804
W9UDK....23,826
K9ELT....19,223
K9CAF....10,147
W9AEM....9476
W9AQD....3899

So. Dak.

KØCMX/Ø....108

Minn.

KØDHH....26,317

Ark.

K5GRT....11,370

La.

W5KC....44,105

Aspirants to the WAVE Award got another crack at Prince Edward Island, thanks to the efforts of T. E. Pederson, W9NLJ/VE1. While enjoying a September vacation in the verdant Canadian Province, Pete made 23,392 points in the contest and more than 600 contacts during a 5½ day stay.

W5YDC.....30,324
W5IOU.....24,476

Miss.
W5AMIZ.....2888

Tenn.
K4LPW.....24,259

Kentucky
W4OMW.....5235
W4VKB.....1155

Michigan
W8UVZ.....62,888
W8RQ.....60,431
W8PWQ.....20,469
W8PGT.....13,321
K8AMN.....10,108
K8CPR.....5848
W8OOR.....5054
W8GEB.....3682
W8FAW.....3628

Ohio
W8LQA.....60,431
W8AJW.....59,457
W8IBX.....20,072
W8KMF.....10,613
W8YGR.....6498
W8FIT.....6191
W8YEJ.....5317
K8CEF.....5144
K8BDZ.....4803
W8FRD.....1949

E.N.Y.
K2EIU.....37,688
W2DGW.....18,772
W2CJM.....3899

N.Y.C.-L.I.
W2HTH.....36,064
K2UDO.....8875
K2SEK.....7581
K2RQC.....2873

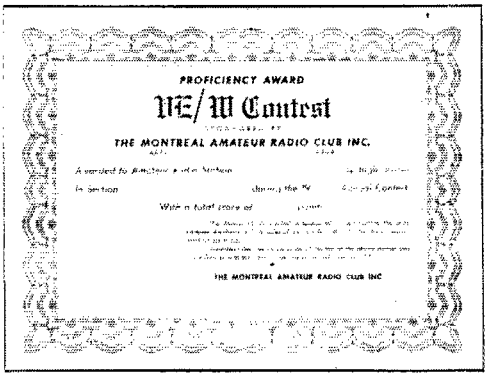
N.N.J.
K2KFP.....56,045
W2EQS.....45,811
W2CVW.....16,245
K2USA[2].....14,919
W2BVN.....8375
K2MFF.....5487
W2WOS.....5036
K2UUT.....4548
K2KID.....4524
W2FXZ.....2274
K2URY.....1440

Iowa
KØDQI.....22,093

Kansas
KØBSL.....24,368
KØIDZ.....3520

Mo.
WØDVN..... 17,111
KØCHE.....8447
WØGBJ.....3177

Montreal Amateur Radio Club dispensed 58 of these handsome, green-bordered certificates to section winners after the 1957 contest.


PROFICIENCY AWARD
WE/W Contest
THE MONTREAL AMATEUR RADIO CLUB INC.
THE MONTREAL AMATEUR RADIO CLUB INC

WØWWJ.....217

Conn
W1RAN.....36,678
W1AW.....15,162
W1WY.....15,162
W1AMY.....6876
W1MBX.....1011

E. Mass.
W1SAD.....6642
W1QJB.....5144
W1PWK.....3249
W1PLJ.....3032
W1FJJ.....2854
K1ACL.....2383
W1COL.....433

W. Mass.
W1JYH.....93,571

N.H.
W1ARR.....89,672
W1MTX.....678

R.I.
W1VBR.....1300

Alaska
KL7MF.....298

Wash.
W7EMY.....7085
W7QLH.....3538
W7FZQ.....2545

Nevada
W7YKQ.....4874

S.C.V.
W6RLP.....9357
W6CLZ.....2166

E.Bay
W6LDD.....24,011
W6IPH.....8667
K6QHC.....6498

S.F.
K6OPI.....27,724
W6BIP.....21,371
K6NCB.....14,729
K6SRZ.....12,888

Sac. V.
K6SXA.....2310

N.C.
K4HXF.....29,565
W4GIM.....20,090
K4IGX.....12,509

W4EJP.....10,360

S.C.
W4BWZ.....11,371

Va.
W4CKD.....38,988
W4FZG.....15,162
W4THM.....13,646
W4CQI.....10,180
W4ZPR.....3249
W4WSF.....1949

W. Va.
W8LSJ.....7581
W8BZY.....1083

Colo.
WØSGG.....5415

Utah
W7HLX.....1516

Ala.
W4WOG.....4556

E. Fla.
W4LVV.....34,115
W4IEH.....1158

Ga.
W4BEY.....36,064
W4FZO.....4115

L.A.
W6NZW.....39,965
W6ZOL.....28,266
K6VFF.....25,099
K6IYJ.....20,469
W1CUL/6.....12,509
K6SHJ.....8953

Ariz.
W7ENA.....9355
W7CJZ.....1588

S. Dgo.
W6JVA.....8231

N. Texas
W5FTD.....22,562

S. Texas
W5LGG.....45,324
K5ABV.....22,526
K5CVI.....13,646
W5HTG/5.....3520
K5DKL.....3249
W5FCX.....650

[1] Labrador winner.
[2] W9BGS, opr.

A "Mirror" for the Novice Fist

BY WARREN G. CARTER,* KN6ZNQ

OVER THE AIR comes machine-punched code practice material nearly every day of the year. It is the most perfect and the only really perfect code any ham ever heard. It is the best code practice material available to the novice, who must meet minimum requirements within a rather short period of time or go off the air. The trouble is, this material is too short-lived. We hear it once and then it is gone. We have one chance to copy, and one chance only.

A tape recorder will "freeze" this code practice material and hold it for a day, a month, a year. Moreover, it will make available to you, Mr. Novice, *twice* as much practice material as you are presently capable of copying. It will hold in abeyance for your mastery material now far beyond your reach; all this in great abundance — more than you will ever have time to copy.

This is not a story extolling the virtues of the tape recorder as a tool for the betterment of mankind. By now, tape recorders are old hat. It is a tip to the novice (from a novice) that he can pull himself up by his boot straps at a time when just a little tug can be a very real help — that he can eat his cake and have it, too. In fact, he can have *twice* as much cake as he started with.

As though it were a genie from the Arabian Nights wonderland, the tape recorder will "send" to you new code, old code, fast code, slow code, straight words, scrambled random groups, letters, numerals, punctuation, or any admixture. It will "send" ready-made code; it will send custom-made code. You name it. Feed it slow code and it will send back slow code or fast code as you desire. Feed it fast code and it will send back fast code or slow code as you desire.

A tape recorder and a code practice oscillator used together will enable you to send to yourself. That is, alternately, you can send to yourself and then receive from yourself just as though there were another "you" at the key. Thus, with "cans" and pencil, you can copy your own fist. It will enable you to hear your own fist not only today as it is today, but tomorrow as it was yesterday, and next month as it was last month. Thus, you can chart your progress, spot and correct your weaknesses, make your fist a good fist faster, a fast fist sooner. The two devices, used in conjunction, will enable you to superimpose your fist on the best fist known to man. You can subject your own fist to "slow motion" analysis in a manner somewhat comparable to the slow-motion movies you have seen countless times. Yes, you can "stretch" your fist as though it were a rubber band, and examine it closely, at your leisure, for flaws.

Let's subject the above paragraphs to slow motion analysis and see if they will stand up. The first paragraph and much of the second are so patently true that they need no argumentation. Tape recording is an accomplished fact. The tape recorder, an instrument which will "freeze" and preserve sound, is here to stay. It will "freeze" code impulses just as it will "freeze" any sound impulses.

The more common manufacture of tape recorder will make available to you, Mr. Novice, *twice* as much code practice material as you are presently capable of copying. Most recorders operate at either of two speeds, 3¾ *I*nches *P*er *S*econd or 7½ i.p.s. Let us say that your copying speed now begins to approach the General license goal of 13 words per minute — perhaps a solid 11 words per minute. Set the recorder at the fast (7½ i.p.s.) speed, tune your receiver to any of W1AW's code practice programs, and record the entire practice exercise. You then have, in a form as permanent as may suit your needs, code practice material immediately available to you whenever you may have an odd moment for practice. Play it back at the fast speed initially. When you have reached the limit of your ability to copy, reduce the speed of the tape recorder to the slow (3¾ i.p.s.) speed, and keep copying at what will then be an easy lope for you, and continue until you again reach the limit of your ability to copy. (You will find that the pitch of the signal has dropped exactly one octave with the reduction in the speed of the recorder. But don't let that stop you. The signal will be there, clear and sharp.) When you finish, you will find that you have copied exactly *twice* as much as you otherwise would have. All that you could not copy remains there, frozen, challenging you to break it at your leisure. Better get going, though, or W1AW will spew out another batch before you have begun to master this one. And so it is that I repeat: You can "freeze" on tape more practice material than you will ever have time to master.

Your recorder will "send" to you new code, old code, fast code, slow code, straight words, scrambled random groups, letters, numerals, punctuation, or any admixture. Wherever there is code, there is code practice material available to you — *twice* as much within the limits of your ability to copy, and a greater volume than you will ever begin to master. It will "send" this practice material to you fast or slow — as you wish.

Your friends have code practice records and tapes. Borrow them, tape them, and return them. Many of the schools and colleges give courses in radio. Put their code practice material on tape. Lift any good fist out of the air and put it on tape. It is then yours for as long a period as you may wish to keep it. Be sure to record at least some of the good material at the *slow* speed. This should be used for practice and then saved, for

* 34 Walnut Ave., Atherton, Calif.

Here's a tape of another kind. Not the magnetic tape that OM Carter is discussing in his accompanying article, but the punched tape prepared at W1AW for Official Bulletins and code practice. The hands of the W1AW operator are poised over the keyboard of a tape perforator. After the tape is prepared it is run through a keying head which keys the transmitter. It puts out that "perfect" code that you can record.

it will later pay you an extra dividend. Put it away for a while. As soon as you have doubled your present copying speed, return again to the old material you set aside. Try it again with the recorder set at the *fast* speed, and you will have crisp, snappy practice material sent at a speed that is again a challenge to you. (In the interim, you will have forgotten the sequence of the characters, so that memorization will have little adverse effect.)

All right, you have now acquired quite a library of code practice material. Break some of it for half an hour or so, copying it on paper. Now, with your copy before you, turn the tape back to the starting point, get out your code practice oscillator and key, and superimpose your signal on the one you hear coming from the recorder. You now have as your guide and mentor, the finest fist man has been able to devise.

Using a fresh reel of tape, connect the code practice oscillator directly to the recorder and "send" on tape for five minutes or so. What you hear on the playback will be *your* fist. Gosh, what a lid. Record for another five minutes, this time being sure to record at the *fast* speed. Now, play it back at the *slow* speed. Double gosh, what a double lid! Can anyone be *that* bad? Take heart; you're actually only half that bad. Your faults are being magnified one hundred per cent. You are hearing your fist in "slow motion" comparable to slow motion movies which portray so vividly faults as well as grace. If you can stand to hear your fist mirrored in slow motion, you'll learn what your errors are, where they are, when they are, and why they are. It is your dirty little secret, and no one else need know. Study and correct them, and even you needn't know. Put them on the air uncorrected, and everybody will know.

Record again for five minutes. Next week start at the point where you left off, and again record for five minutes. The following week, repeat. By the time you have reached the end of the tape, you will have a worthwhile "before-and-after" record of your progress extending over a substantial period of time. Thus, you can "graph" your progress. Yes, next month you can hear your fist as it was today — as it was last month.

So you think I have bruised your ego a bit. Well, let's try the reverse. Record at the *slow* speed, and play back at the *fast* speed. FB OM BT UR RST 599 599 599 HR IN BILGEWATER Well, bilgewater it is, Mr. Novice. Your fist sounds just *twice* as good as it really is. That's not your fist as of today, Mr. Novice. That's your fist as of a month from now, maybe. You can project your fist a month or so in advance, but don't — it's a deadfall. You'd better get back to the fast recording and slow playback. That is more like the real you.

Buy, borrow or rent a recorder. Tape is cheap. Code practice material is everywhere, and free.

Strays

K6OHM reminds us that an easy way to mount QSL cards either on the wall or in a book is to use the double-faced Scotch brand tape, which has stickum on both sides.

—···—

The MARS Technical net (Sunday from 1400 to 1600 EST on 7.54, 15.715 and 143.46 Mc.) will feature "Telephone Toll Systems," "The Nike," and "Airways Electronics Symposium" during March.

KN4OKS, being one of the many who were just a bit too late to get one of the free Navy knobs from KH6IJ (see Stray, December 1957) *QST*, p. 29), says that these same knobs are available (but not free) from World Radio Laboratories.

—···—

W9OEW reports that his first QSO in '58 was his 58th country, and he received a 5-8 report.

Happenings of the Month

MM EXPANSION PROPOSED

Just as *QST* goes to press, and in time for only this brief mention, FCC has issued a notice of proposed rule-making which would authorize maritime-mobile operation by amateurs in any band between 7 and 148 Mc., but only within the boundaries of Region 2 of the Atlantic City radio regulations (broadly speaking, North and South America). Present authorization for world-wide use of 21 and 28 Mc. would, of course, be continued; these would be additional authorized bands. The full text of the proposal will appear in our April issue, in ample time for study and any comment by the deadline, April 30.

FEEDBACK

February, 1958, *QST*, page 37 — R_1 of Fig. 1 should be identified as the 75-ohm resistor and R_2 should be 100 ohms. Incidentally, in their latest transistorized power supply circuit, Sunair Electronics recommends that R_2 be a 470-ohm, 1 watt resistor.

Once upon a time, in the dim dark days almost beyond recall, W2VX was president of the South Jersey Radio Association. But time marched on, and now his son, W2OGZ, has just been elected SJRA president for 1958.

—···—

Hey! Local QRM. K6IYI visited League Headquarters in West Hartford. He fired up his 75-meter mobile rig outside the office and promptly fouled up the office's intercom system.

—···—

Another DX log and countries-list score card is available, this one for a buck from K4OCN. It lists no awards, but provides considerable space for checking off the countries you have worked, cards received, etc.

—···—

K2LQL, K2KLR and K2QLY celebrated New Year's Eve in Times Square (New York) and despite all the QRM managed to raise, by calling CQ on their auto horn, a W0, a K2, a W1 and a W3.

—···—

Now we have reports of *two* Novices working maritime mobile — KN5MUS and KN8HBR.

—···—

K9ACS went down to Georgia Tech and while there visited their ham station, W4AQL. What was the first station he heard when he got home? You guessed it!

—···—

While W6GWZ was waiting in line to get his call letter license plates, who should turn up in the next line but K6GWZ, bound on the same mission.

—···—

W3HH refers us to the ham-ad on page 178 of February *QST* (second column, second ad) and says that Mr. Aicher really ought to sell the 829V without the wutg sicjetsm, for he's got plenty of the latter.

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The real OE5BG and a bootleg OE5BG answered a CQ from KH6IJ on the same 14 Mc. c.w. frequency.

—···—

K2YXB suggests using 1/32" lengths of the sort of insulation that can be slipped off #18 or #20 plastic-covered wire, in order to string QSL cards on threads à la W2ENY (Feb. *QST*, p. 68). He says these homemade "beads" work better than the glass variety.

—···—

W1BIY dug an item out of a newspaper that should be just the dope for Field Day fans. "A metal toothpaste or shaving cream tube can be used as solder in an emergency. In the forest, a heavy piece of copper wire will serve as a soldering iron and pitch from cone-bearing trees can be used as flux for emergency repairs."

—···—

W4UVQ called CQ and was answered by K2UVQ. For each it was the first QSO with the other's state.

—···—

The Central Michigan Amateur Radio Club announces the annual Cosmo G. Calkins Memorial Award. This award will be given to the Michigan amateur who contributes the most to amateur radio each year. Complete rules will be furnished upon request to W8FSZ. The late Cosmo Calkins, W8HSG, was instrumental in lobbying for many Michigan state bills favorable to amateur radio, particularly as regards call letter license plates for automobiles and mobile operation.

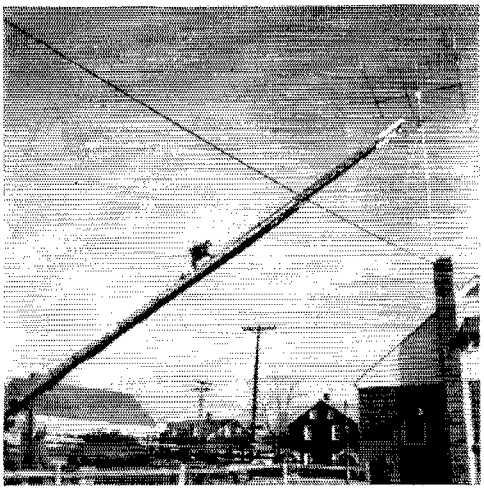
—···—

Both W5LDF and K5LDF are members of the Aeronautical Center Amateur Radio Club. — *W5EHC*

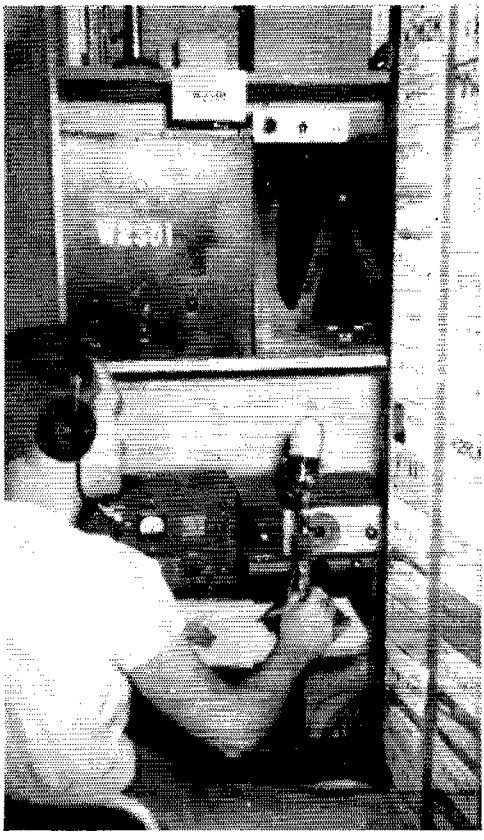
One new ham in the First District is still somewhat bewildered about how he got his ticket. He'd been studying for a while, and was coming along with his code speed, but hadn't made up his mind whether to take the Novice exam or wait a little longer and go straight for General.

One evening he dropped in at W1AW just to ask a few questions and get a look around. A few minutes after he arrived W1WYM dropped in to record some code practice for a class of Boy Scouts. W1WPR, who was on duty, and W1WYM advised the neophyte to try the Novice first, so he agreed. Then it turned out that W1WYM just happened to have *forty* Forms 610 and exam envelopes with him, for the Boy Scouts. Moreover, it also just happens that W1WYM is a Commissioner of the Superior Court, and as such, can perform the functions of a Notary. W1WPR punched out a 5 w.p.m. tape, the guy breezed through his five words, pounded out a beautiful ten, and racked up an apparent 85% on the written test — all as a result of a casual visit to W1AW!

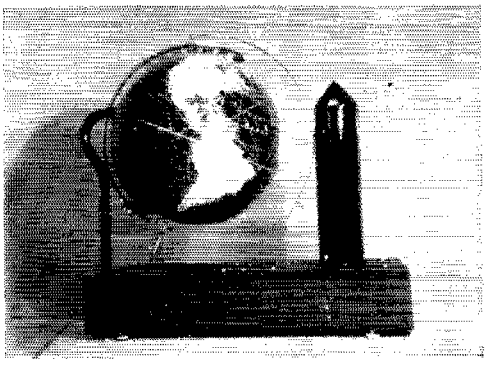
Strays



W3YPL found a simple solution to the problem of getting up to the top of his beam for some repair work. Being a member of the volunteer fire department in Gettysburg, Pa., he borrowed the aerial ladder and was able to work on the beam with no strain.



W2SDI has solved the space problem by building his rig into a closet which measures only 33 inches wide by 15 inches deep. Three shelves were built into the closet. An extended writing board swings down when the door is opened in order to provide additional operating space (elbow room). When the day's operating is finished, W2SDI closes the closet door, and there is then no clue that his three-room apartment houses a ham station.



KØBPJ built himself a satellite tracker using the works from a 24-hour clock and an assortment of gears from a surplus bomb sight. A variable disk drive permits fine adjustment to fit a variety of satellites. If enough people expressed an interest we could probably provide complete details on the assembly.

»

Maritime mobile in style. Aboard W2BTP's 38' Alden cutter, W2BTP and W2OBW recently cruised to Bermuda. Radio equipment consisted of Gonset transmitter and receiver, with the antenna a 50' semi-vertical. The yachtsmen-hams were able to maintain schedules back home and keep the wives informed of progress, and so they swear by maritime mobile as a great morale builder.

BY JULIAN N. JABLIN,* W2QPQ

"Do-It-Yourself"

Every month the Headquarters receives a number of excellent club bulletins or newspapers. These vary from the very simple to the very elaborate, but they all serve the common purpose of keeping their own club members informed of local news. There are undoubtedly many reasons for the success or failure of any individual club, but a good club newspaper can certainly be a step toward the success of any club. We hope you find these suggestions helpful.

YOU CAN HAVE a lot of fun, and make a real contribution to your amateur radio club, if you take the initiative and start a club newspaper. This is the sort of project which can become the subject of endless discussion at meetings, but perhaps the easiest way to put out a club newspaper is to sit right down and put it out! If you have never done anything like this before, the experience is something like your early QSOs on 40 c.w.: the first issue (or QSO) is likely to be pretty shaky, with not much more than the essential information getting across. As you put out additional issues (and have more QSOs) you find new things to say, and new ways to say them. And you find that it's more fun each time![1]

At about this point you are probably saying, "Look, OM, I've never written anything more ambitious than a letter to Aunt Sally, and all I know about newspapers is that Dick Tracy is still having trouble with the bad guys after all these years." Don't worry about it. You are not going to publish a *New York Times* or a *Central City Clarion*. This is just another means of communication among friends — like ham radio.

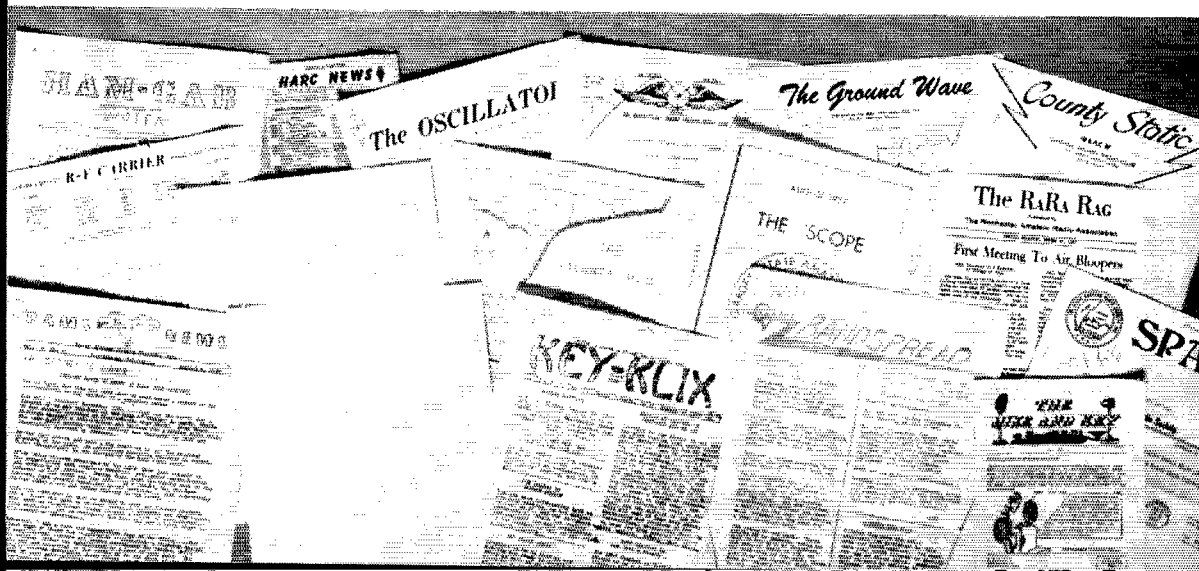
There are two basic considerations in getting out a club newspaper . . . what to put into it and how to get it printed. Without a doubt, the former is infinitely more important. The way you say things isn't even too critical. If you occasionally get tangled in a long sentence, or if you know more about gamma than grammer, don't let it stop you. *What* is said is more important than *how* it is said. But what to put into your paper? Here are some examples.

A regular column about what happens at each meeting is good. Do not try, however, to compete with the club secretary and his minutes. Report the happenings in a highly informal manner, giving plenty of personal data and information about who did what at the meeting.

On the other hand, important actions which take place at meetings and decisions arrived at by the membership deserve news story treatment, since they should be put on the record. Club business matters of all kinds should also be reported. In this way, the newspaper keeps your members informed, and is useful for members who miss meetings, are away at college or in the armed forces.

Report in detail club picnics, contests, hamfests, exhibits, parties, trips and the like. It makes no difference if every member of the club was there and knows what went on; the fellows (and gals) will enjoy reading about it and remembering what happened. You should consider a regular "thumbnail sketch" of one member for each issue, giving some of his background, ham activities and other hobbies. Or write a similar sketch on new members as they join the club.

And there you have one of the keystones of



* 147-17 Charter Road, Jamaica 35, N. Y.

[1] Or, if you're the type for whom work is never any fun, perhaps you'll get some satisfaction or feel noble because you're doing something for someone else.

Club Newspapers

success for any club bulletin: People enjoy reading about themselves and about the folks they know. A column about your members — what Hank is building, Steve's making WAS, an irate neighbor complaining about Ralph's signal in her electric guitar, Frank's new car, Joe's new DX contact, Pete's laryngitis putting him on c.w. — these are the equivalent of a "gossip" column in the local weekly. We call our column "Unsuppressed Carriers" and that name just about describes it.

If your club specializes in any one phase of amateur radio (u.h.f., DX, traffic, etc.) a column of notes on the subject is a good idea. You might invite members to contribute "hints and kinks" which they've worked out and later on, as your paper gets to be more ambitious, you might carry technical articles by your members.

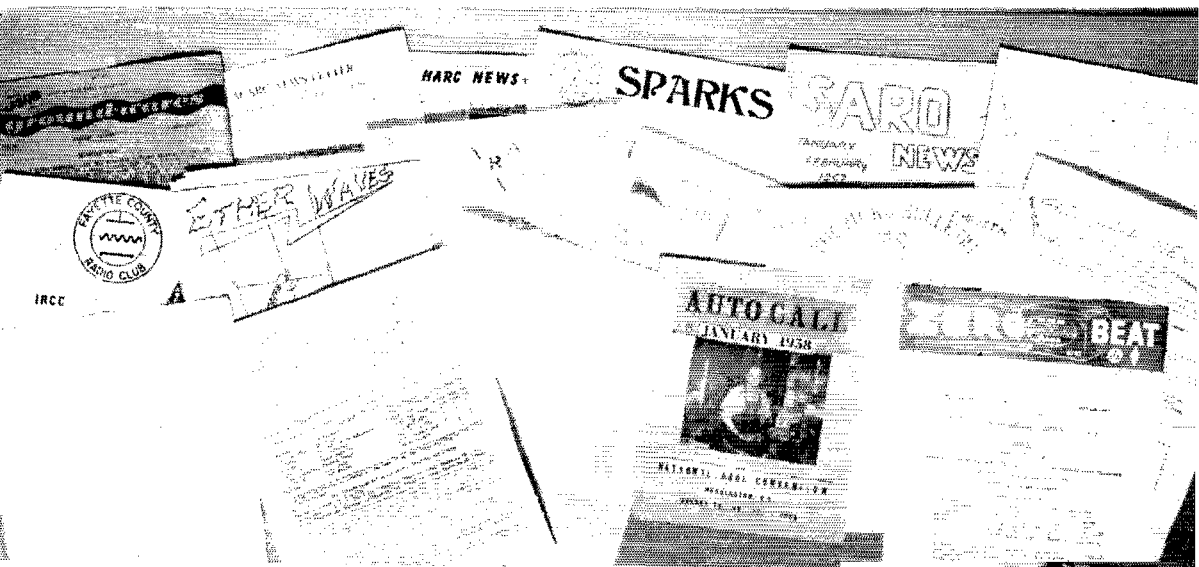
Space should be set aside for the more important ARRL Official Bulletins, or for those which apply specifically to your club's activities. You don't have to print them verbatim: a sentence or two giving the essential data is sufficient. Your club secretary and/or president gets these weekly from the League. And do not neglect to send a couple copies of the newspaper to the League and to your local SCM, to help him to know what's going on among your members. When you print items about your members, include their calls in each instance. You'll find more and more members' activities mentioned in the SCM's column in *QST* that way.

You will notice that a club newspaper starts as a one-man project and may or may not develop into an activity with a staff of several people. Very frequently it remains the work of the person who started it and, as a matter of fact, the club bulletin is one of the few remaining examples of "personal journalism" which are descended from the great one-man newspapers of early American history. As the editor, therefore, you have a responsibility toward your readers to give them a paper which is informative and interesting — and respectable. You may josh your readers and you may even criticize them, but you must not be insulting or crude. You may run an editorial in which you speak very strongly regarding your feelings on certain matters, but you should be prepared to give space for an answer. You must remember that this is the newspaper of an amateur radio club, and properly should deal only with club business and amateur radio matters.

As an editor, you will have to decide when it will be necessary or advantageous to have contributing editors who will concentrate on a specific phase of ham radio. This, in turn, will depend upon the size of your club. Such contributed columns might include DX, v.h.f., novices, traffic, and so on.

Meanwhile you discover that you're not only an editor, but you're in charge of production as well. In other words, you have to get the darned thing printed and distributed. We use the term "printed" in its loosest sense — it is extremely unlikely that you will have your paper printed by letterpress. An exception of course, is the club which has an exceptionally benevolent printer among its membership. Even so, most of the cost of printing is labor, and it's unfair to expect one member to bear the burden of typesetting and press time for a club periodical.

The mimeograph and similar machines come immediately to mind, and these are most practical for club papers. Stencils are easy to cut, and with practice you can do a fine job. We have seen mimeographed bulletins which have color pages, others which are profusely illustrated. There are numerous booklets on the subject which will be helpful. Another possibility is photo-offset (or multilith) from typewritten copy, and if you have a shop nearby which does this work, or if one of



your members has access to this kind of equipment, you might inquire about the technical considerations.

If your club is a very low-budget group, you can still put out a paper, using what was called a "hectograph" when we were young. This is a pan of hardened clear gelatine, on which a master sheet, typed with an indelible ribbon or carbon paper, is placed. Enough ink remains on the gelatine to give about 50 clear copies. You can get information about this gadget in some of the older handicraft books in your public library; a commercial version is available at some stationery stores for under $5.00.

However you do the job, start modestly, increasing the scope of your paper as you gain experience and as the need warrants. We began our club paper with a single mimeographed sheet; from time to time we've run it on a legal-size sheet (8½" x 14") and occasionally we go to two pages when the need arises. But we find that we can crowd a lot of material on one page. On the other hand, we have seen some club papers which are properly called magazines, and good ones, too.

You may find it satisfactory to hand the paper out at meetings, although you will receive constant requests for additional copies from members who miss sessions of the club. A better system is to mail the paper to your members. We began our paper as a gossip sheet built around the regular meeting notice, which had formerly been sent out on a government postal card. The membership liked the idea so well that they voted to have the club underwrite the increased cost of mailing — a jump in the postage bill of 200 percent, since postal cards were a penny in those days! The editor contributed the paper, so the club treasury is not hit too hard.

Perhaps the club treasury will bear the whole brunt of the expense connected with a club bulletin, or perhaps some local radio parts distributor will underwrite the cost through a regular one-page ad or something of the sort.

If your paper specializes in one field of amateur radio (DX, u.h.f., etc.) send a copy to the ARRL staff person involved, plus one to the Communications Department. The League, incidentally, can send you a sample of some other club's paper from around the country, to give you some ideas.

But you'll do the best job if — when you reach the end of this article — you grab a sheet of paper and begin roughing out your own club bulletin.

Strays

Here are the licensed amateur operators at K4USA. Rear row, left to right: K2PVP, K8IJA, K9KLC, K4SOZ, K3CLJ, K6PIA, K3CII and K4TCH. Front row, left to right: K4KNV (Assistant chief, MARS Army), K5OKH, K4VHI, W4PTX, W4ADZ (Chief, MARS Army), W4WVB, W4RDT, W6TST and W4HY.

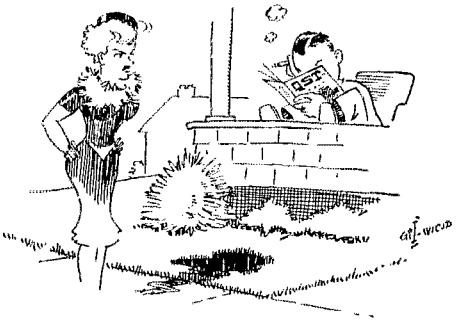
True Love

BY LOIS A. GILLESPIE,* VE7AUF

As EVERYONE KNOWS, all sorts of people take up all sorts of hobbies for all sorts of reasons. Even amateur radio, that noble and exalted avocation, has, on occasion, been used as a means to an end, instead of an end in itself. In some cases — notably those of XYLs with dedicated OMs, it is taken up purely as a defensive measure. In Mary Juanita's case it was purely offensive.

It was also a last resort. She had tried everything else. Ever since the new neighbors moved in, and she had noticed Jasper gazing up at the stars in the early twilight with a rapt expression on his face, she had known that here was a kindred spirit, and had resolved to have him for her own. Of course, she had no way of knowing at that time that he was merely looking for a good place to put his antenna.

Mary Juanita tried hard to meet him. She had walked past his house a hundred times, but he



never even noticed — which was not to be wondered at, since his gaze, when outside the house, was invariably directed upward. She even condescended to play ball with her kid brother, Bob, and contrived to let the ball, accidentally on purpose, fly over the fence into Jasper's garden, but he did not even turn around, and Bob retrieved it before she could stop him.

In desperation, she left the window on that side of the house open, and let her pet budgie escape, but the bird perversely flew up over the roof and took off in the opposite direction. By the time Mary Juanita had found him, Jasper had strung some wires across the garden and disappeared into the house for good.

Then Mary Juanita scraped acquaintance with Jasper's mother, and patiently sat through lurid details of a score of operations, only to learn in the end that Jasper spent all his spare time downstairs in the basement, appearing briefly and belatedly for the occasional meal, and retiring long after the rest of the family had gone to bed.

*Spring Island Loran Station, Kyuquot, British Columbia.

When he came in on their TV set, Mary Juanita was jubilant. Hastily preventing her family from calling the radio inspector, she trotted happily over to Jasper's home. Alas, she was just a minute too late. Jasper had already gone out, summoned by another TV viewer. He would be over later, his mother promised. Mary Juanita waited anxiously all evening, but he did not turn up until after she had left for the office the next day, when he made a few tests, installed a small capacitor, and departed, and that was the last they saw of him on TV.

And so, having come to the end of her resources, Mary Juanita took up ham radio. Valiantly she struggled with her code, drew hundreds of diagrams, memorized numerous formulas and circuits, and finally scraped through her examination without a w.p.m. to spare.

On the day her license arrived, she rushed through dinner, gave Bob two dimes to do the dishes for her, and, descending to her basement shack, proceeded to send out a long CQ. When she listened, she heard a number of annoying phone stations on the frequency, distorted by her b.f.o., but paid no attention to them, and sent out another call, with no better results. When she had no better luck the following night, she decided that she was now justified in asking Jasper for advice, and went over to see him.

This time he was home, and she was ushered into his shack. But he was much too busy to pay any attention to her at first.

"Come again now," he was shouting. "That goon's gone off for a minute."

When he had finished he turned to her with a groan.

"Some dope's been messing up the net for a solid twenty minutes," he told her bitterly. "Two nights now! If ever I get hold of VE7VKO, I'll —"

"But that's MY call," cried Mary Juanita. "I wasn't doing anything."

"Not doing anything!" he yelled, "Ruining our net — an EMERGENCY net! Aren't you

(Continued on page 150)

Hints and Kinks For the Experimenter

REMOTELY-CONTROLLED SWITCHING CIRCUIT FOR COAXIAL FEEDLINES

ANYONE using two to four coaxial-fed antennas may be interested in the "cable-saving" selector circuit shown in Fig. 1. This system uses a single main feedline followed by short branch feeders to replace the four long and costly cables that would ordinarily be installed between the antennas and the transmitter or shack. In addition, the circuit is interlocking to the extent that there is little chance of feeding an antenna by mistake. It is simple to operate, reasonably economical to build, and has a visual-indicator system for identifying the antenna in use.

The complete system consists of a remotely controlled head located at the operating position and a relay unit mounted outside and adjacent to the feed points for the antennas. The control section (shown below the dashed line in Fig. 1) uses S_1, S_2 and S_3 to control the relays and the antenna indicator lamps I_1 through I_4. S_4 is the control head on-off switch and J_1 is a 115-volt chassis-type receptacle.

The relay circuit (section above the dashed line in Fig. 1) uses three coaxial relays, K_1, K_2 and K_3, to connect the main feedline from the transmitter to any one of the four short cables which run to the antennas. J_2 is a coaxial receptacle which accommodates the r.f. output cable from the transmitter. Four-conductor antenna-rotor cable is used for the relay control leads which must be provided between the relay compartment and the control head.

Fig. 1 shows the relays in the normally closed positions and the control switches in the "up" positions. Under these conditions, and with S_4 turned on, the 28-Mc. antenna will be connected to the transmitter and I_1, the 28-Mc. indicator, will light. When S_1 is thrown "down," a.c. control voltage will be fed through to K_1 and S_2, K_1 will transfer the main coaxial cable over to K_2 and then on to the 14-Mc. antenna, I_1 will go out and I_2 will become illuminated. Bringing S_2 "down" switches the transmitter output cable over to K_3 and permits S_3 to select either the 3.5- or the 7-Mc. antenna.

Construction of the control unit may follow any design that goes well with the other gear at the operating position. The unit here at W9QUW uses red-jeweled pilot lamps identified with white decals. The relay housing is an aluminum box made weatherproof by covering open edges with plastic tape and then spraying with clear plastic. Coaxial receptacles may be used for terminating the antenna and control cables, or these leads may be brought out through grommet lined holes drilled or punched in the bottom of the box.

— *Ronald Tauber, W9QUW*

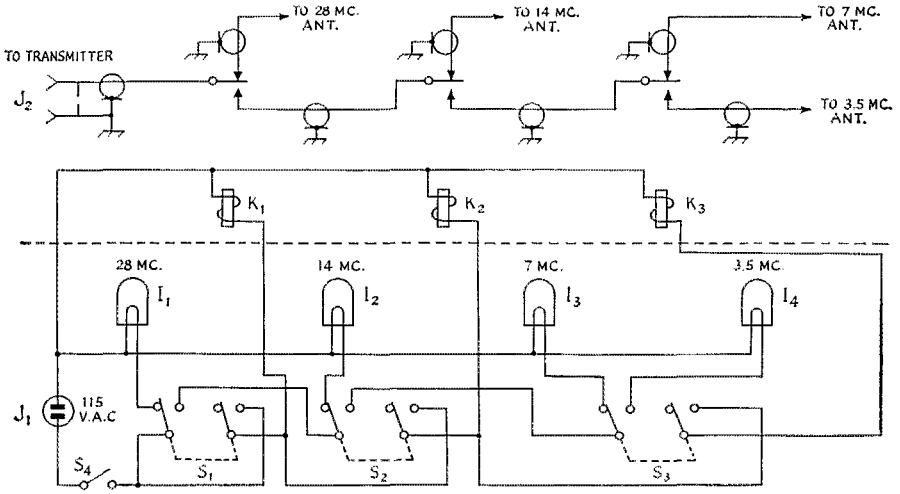


Fig. 1—Circuit diagram of the remotely controlled switching circuit for coaxial feedlines.

I_1, I_2, I_3, I_4—115-volt a.c. pilot lamp assemblies.

J_1—115-volt a.c. chassis-type receptacle.

J_2—Chassis-type coaxial receptacle.

K_1, K_2, K_3—S.p.d.t. coaxial relay (Advance CB/1C/115VA).

S_1, S_2, S_3—D.p.d.t. toggle switch.

S_4—S.p.s.t. toggle switch.

MOBILE HINT: A PENCIL WHEN YOU NEED IT

EVER hunted for a pencil while mobiling? Keep one on the top surface of the dashboard. A piece of magnet from an old speaker will stick to any convenient location on the dash. And an ordinary wooden pencil with about 3 wide-spaced turns of baling wire or equivalent (not copper) around the shaft will cling to the magnet. For long trips a piece of scratch paper can be placed beneath the magnet, which will hold the paper firmly enough for quick operation notes.

— *Harold A. Thomas, W5HJM*

SQUELCH SYSTEM FOR THE GONSET G-66

MOBILE fans who wish to add a squelch system to the popular Gonset G-66 receiver should consider using the circuit shown in *The Mobile Manual for Radio Amateurs*, page 85 (also *QST*, October, 1952). Of several squelch arrangements tested here at WØIBZ, this particular job works exceptionally well.

After installing the squelch, taken *as is* from the *Mobile Manual*, it was found necessary to reduce the audio gain of the receiver. This was done by disabling the triode section of the 6AW8 in the receiver. The modification involves the rewiring of a component or two, but does not affect the resale value of the receiver because the original hookup can be put back in place with just a few minutes' work.

Parts involved in the modification are identified as C_{29} and C_{30} in the Gonset schematic. These two capacitors are mounted on a terminal board near the socket for the 6AW8. Fig. 2 shows the *before* and *after* wiring of the capacitors. Notice

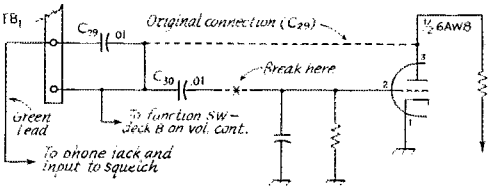


Fig. 2—Partial circuit of a G-66 modified to permit installing a squelch system. C_{29}, C_{30} and TB_1 are referred to in the text. Capacitor and resistors not identified are original components that need not be rewired.

that the plate end of C_{29} is disconnected from Pin 3 of the tube and reconnected to the input side of C_{30}. The connection between C_{30} and the grid of the triode is broken at "X" as indicated. TB_1 is the terminal board referred to above.

The squelch circuit may be built in a small box fastened to the side of the receiver. The 8 ma. or so drawn by the squelch tubes may be taken from the receiver power supply.

— *Melven G. Hart, WØIBZ*

"ANCHORING" THE J-38 KEY

THE POPULAR and inexpensive surplus type J-38 key will normally walk, skid or tip during "brass pounding" unless it is secured to the operating table. Fastening the key to a fixed position to prevent movement is not always the most desirable remedy, especially so when you're new at the game and have not yet determined the best layout for the operating position.

One simple method of anchoring the key without permanently bolting it in position is to reverse the key on its rectangular bakelite mounting base. This places the knob *over* the mounting plate instead of allowing it to extend out and away from the base. Thus, pressure created by keying is exerted directly down onto the base instead of being applied to the end of a lever that extends out over the front end of the unit.

— *Don Simon, KNØJCY*

BC-221 AS A CARRIER INJECTION GENERATOR FOR S.S.B.

ALTHOUGH already appreciated by many amateurs, newcomers to the ranks of s.s.b. operation may not realize that a surplus BC-221 frequency meter makes an excellent single-frequency carrier generator for reception of single-side-band suppressed-carrier phone signals.

Frequency stability and adequate band spread, essential requirements of an s.s.b. injection generator, are already built into the various models of the BC-221. Output amplitude control over a wide range, another requisite of a good generator, can be provided for by replacing R_{38} (in Model 221-N) with a 500K potentiometer.

— *Marlin R. King, KP4RC*

AUDIO FREQUENCY TEST SIGNAL WITHOUT AN AUDIO OSCILLATOR

IF AN audio generator is not available when next needed, or should the one on hand deliver inadequate or badly distorted output, try the system used here at W2ZZG.

A good sine wave, as indicated by an oscilloscope, is obtained by feeding the v.f.o. signal into a communications receiver operated with the b.f.o. turned on. Audio output for test purposes is taken from the last stage of the receiver, and the amplitude of the signal is regulated by the audio gain control. Signal frequency is varied by regulating the b.f.o. control.

Naturally, the stability of the v.f.o. and the receiver play an important part in determining the stability of the audio test signal. Furthermore, coupling between v.f.o. and receiver should be tight enough to mask out any noise that leaks into the front end of the receiver, but not so tight as to overload its r.f. amplifier. By experimenting with the input coupling, and by keeping the r.f. gain *down* in the interest of linearity, it is usually possible to end up with an audio output signal that looks quite good on the face of a scope.

Although the equipment used here is not calibrated in terms of audio frequency, the frequency of the test signal can be intelligently estimated. In any event, the signal obtained is a lot more favorable for many jobs than is the frequently interrupted WWV signal used by some as a source of audio.

— *Arthur H. Pedley, W2ZZG*

CAPACITIVE NEUTRALIZING HINT

THE capacitive neutralizing circuit for screen-grid tubes shown in Fig. 3 will be recognized as the basic arrangement described in Chapter 6 of *The Radio Amateur's Handbook* (see "Stabilizing Amplifiers"). It differs from the *Handbook* system only in that the grid bypass, C_1, is the *variable* control while the neutralizing capacitor, C_2, has a *fixed* value.

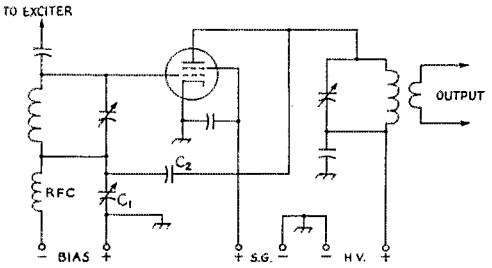


Fig. 3—Circuit of a screen-grid amplifier using the capacitive neutralizing arrangement suggested by W1LU. Notice that a variable capacitor, C_1, is used as the grid-circuit bypass, and that the neutralizing capacitance is of fixed value. Neutralizing is accomplished by adjustment of C_1.

In practice, C_2 usually has a very low value of capacitance — approximately 2 to 10 $\mu\mu$f. Voltage rating for the capacitor must be the same as the amplifier plate voltage for c.w. work and twice this value when plate modulation is used. A *variable* capacitor that will meet these specifications is not always easily come by. However, a suitable fixed unit can usually be easily located or quickly fabricated from scrap aluminum. Of course, the fixed capacitor may be used as long as the grid by-pass capacitor, C_1, is variable. Fortunately, compact wide-range padder capacitors that have adequate voltage rating for grid-circuit duty are available. The voltage rating required must equal the operating bias of the amplifier tube. The knowing ham will select a conservative rating that allows some safety factor.

— *William S. Allen, W1LU*

A "TEE" TRAP FOR V.H.F.

THE construction illustrated in Fig. 4 provides a means of connecting a series-tuned v.h.f. trap across a coaxial cable without actually cutting into the line. The idea was developed for use with a 144-Mc. converter that was picking up Channel 7 TV transmissions along with the 144-Mc. signals, but it may be used to free coaxial lines of other types of interference.

The connector used in the assembly may be either a type 83-1T or a 31-008 (BNC), both made by Amphenol. If the former is used, a good joint between coil and connector can be made with a ½-inch No. 8 brass machine screw. A piece of solid copper wire may be used for the same purpose when the connector is a type BNC. If

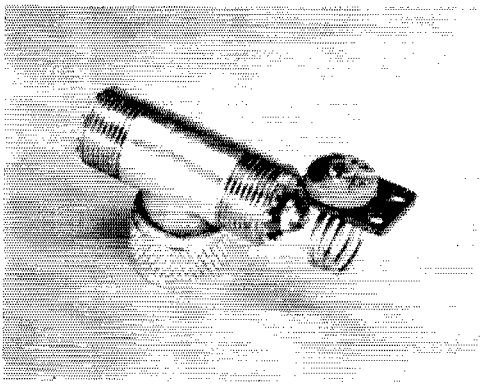


Fig. 4—W8TPL's series-tuned "Tee" trap. C and L, discussed in the text, form a series-resonant circuit at the frequency of an interfering signal. Capacitor illustrated is a Centralab type 827-C, 6- to 30-$\mu\mu$f. trimmer.

possible, solder the rotor arm of the padder to the outside of the connector so it will be grounded when the unit is installed in the line. Naturally, tuning adjustments can be made with less difficulty if the rotor is grounded.

Values of C and L that will series resonate at the interfering frequency can be determined quite easily with the aid of a grid-dip meter. If a grid-dipper is not available, the coil size may be varied — by the cut-and-try method — and the capacitor adjusted until the interference is suppressed or eliminated.

There is no reason why a trap of this type cannot be used to suppress a v.h.f. harmonic generated by a low-power transmitter. However, it may be necessary to rig a shield around the tuned circuit.

— *Robert V. Nedimyer, W8TPL*

REDUCING NOISE IN TRANSISTORIZED AUTO RECEIVERS

SOME MODELS of the transistorized car broadcast receivers are plagued with motor noise interference. Motorola has recognized this problem and has made available a high temperature high capacitance electrolytic that connects directly to the ignition coil. The unit bears part number AK-300, has a capacitance of 1000 μf. and nets for less than $2.00.

— *Donald S. Middleton, WØNIT*

MULTIPLE POSITION CRYSTAL HOLDER

A SIMPLE and inexpensive holder for a group of crystals may be made by mounting salvaged tube socket clips in a sheet of plastic.

Holes drilled to accommodate the clips should have a diameter slightly smaller than that of the clips. This will allow the clips to be force fitted into place. Heating each one with a hot soldering iron will seal it to the plastic. Naturally, the heat should be applied with caution so as not to completely melt the holder.

— *Lowell F. Lind, KJAWQ*

CONDUCTED BY EDWARD P. TILTON,* W1HDQ

YOU CAN hear them wringing out their crying towels almost any night. "I don't have enough power to work out on 6 when the band is open. I've called and called, but nobody ever comes back. I've given up trying." "My location is lousy for DX. I can't raise any of those West Coast guys." "Guess I need a bigger antenna before I can work any DX on 6. I hear lots of stuff, but nobody hears me."

Some fellows aren't having much luck with F2 DX, it seems. But plenty of others are — and power, location and size of the antenna don't necessarily have very much to do with their success or failure. A keen operating sense — knowledge of who, when, where and how to call — may be more important. We've found, for instance, that it is quite possible to have good contacts with West Coast 6-meter stations with nothing more than a measured 2½ watts output feeding a vertical whip, and in such choice locations as the West Hartford parking lot. There are few less desirable DX combinations than that!

The requirements for successful operation may not be quite the same for 144-Mc. work but operating sense is almost equally valuable in working out there. The main idea is to make it easy and desirable for the other fellow to work you. Anything that contributes to this end will help you to get contacts, even under the most adverse conditions.

The high-power fellow doesn't need so much attention to his operating, though careless operating is inexcusable at any time. His big signal will get him contacts through QRM, however, and he doesn't have to work at the job as hard as the fellow who may be as much as 30 or 40 db. lower on the S meter. What helps to get a low-powered signal through?

Most important of all is choice of the right frequency. Hams are queer ducks in this department. They will spend hundreds of dollars and months of effort equipping their station with the best of gear, then control its frequency with a crystal that cost 50 cents or less. If they feel that they need more frequencies, they buy more cheap crystals. These "bargain" crystals are available for only a few scattered frequencies, mostly in the 8-Mc. range, and on multiples of 25 kc. They are fine for net frequencies for local work, but as spots for attempts at DX contacts they are practically hopeless.

This doesn't mean that we have to go v.f.o., and it doesn't necessarily force us to work high in the band. We've found, for example, that a hand-ground rock on 50.134 Mc. brings answers much of the time when the band is not too wide open, and the maximum usable frequency may be none too high. As conditions get better, 50.57 works out nicely, and there are times when random spots above 51 Mc. are good for solid interference-free contacts. When sporadic-*E* skip

*V.H.F. Editor, *QST*.

1 W0ZJB	10 W5MJD	19 W3OJU	28 W1VNH
2 W0BJV	11 W2IDZ	20 W6TMI	29 W0OLY
3 W6CJS	12 W1LLL	21 K6EDX	30 W7HEA
4 W5AJG	13 W0DZM	22 W5SFW	31 K0GQG
5 W9ZHL	14 W0HVW	23 W0ORE	32 W7FFE
6 W9OCA	15 W0WKB	24 W9ALU	33 W0PFP
7 W6OB	16 W0SMJ	25 W8CMS	34 W6BJI
8 W0INI	17 W0OGW	26 W0MVG	35 W2MEU
9 W1HDQ	18 W7ERA	27 W0CNM	

W1CLS	48	K4HOB	44	W7INX	47	W9EPT	41
W1FOS	47	W4QN	44	W7ACD	46	W9IMG	40
W1CGY	46	W4AKX	42	W7FDJ	46	W0QIN	47
W1LSN	46	W4RFR	42	W7JPA	44	W0NFM	47
W1AEP	46	K4DNG	41	W7JRG	44	W0TKX	47
W1RFU	45	W4OXC	41	W7BOC	42	W0KYF	47
W1SUZ	44	W4ZBQ	41	W7FIV	41	W0ZTW	47
W1ELP	44	K4GYZ	41	W7CAM	40	K0JJA	47
W1KHL	44	W4FNR	40	W7MKW	40	W0JOL	46
W1FVZ	41			W7YJE	38	W0USQ	45
W1IKO	40	W5VY	48	W7QDJ	34	W0FKY	45
W1CLH	40	W5LFQ	47	W7UFB	33	W0QVZ	45
		W5GNQ	46			W0OFZ	44
W2RGV	47	W5FSC	45	W8WPD	47	W0YJF	44
K2JNS	46	W5ONS	45	W8OJN	46	W0URQ	44
W2AMJ	46	W5JLY	45	W8SQU	46	W0JHS	43
W2BYM	46	W5ML	44	W8HXT	46	W0IPI	43
W2FHJ	45	W5EXZ	43	W8NQD	45	W0WNU	42
K2CBA	45	W5VV	43	W8UZ	45	K0DXS	42
W2SHV	44	W5FXN	43	W8RFW	45	K9GKR	41
K2AXQ	43	W5JME	42	W8LPD	44	W0PKD	41
K2ITP	43	W5CVW	41	W8HJR	44	K0AKJ	40
K2ITQ	43	W5FAL	41	K8ACC	43		
		W5HEZ	41	W8ESZ	42	VE3AET	46
W3TIF	47	W5BXA	41	K8CIC	42	VE1EF	38
W3KKN	45	K5ABW	40	W8EVH	42	VE3AIR	37
W3KMV	44			W8YLS	41	VE3BBX	33
W3RUE	42	W6WNN	48	W8INQ	40	VE3BHQ	32
W3NKM	41	W6UXN	48			VE1QY	32
W3MQU	41	W6BAZ	47	W9BRN	48	VE1PQ	31
W3MXW	41	K6JCA	47	W9ZHB	48	VE2AOM	31
W3OTC	41	W6ANN	45	W9QUV	48	VE3DER	31
W3FPH	40	W6NDP	45	W9VZP	47	XE1GE	27
W3LFC	40	K6GTC	44	W9RQM	47	EI2W	23
		W6GCG	43	W9QKM	47	PZ1AE	26
W4EQM	47	K6HYY	43	W9JFP	47	CO2ZX	24
W4UCH	47	W6ABN	43	W9DSP	46	VE1ZR	23
W4UMF	47	W6NIT	42	W9AAG	46	VE3OJ	22
W4FBH	46	K6RNQ	41	W9UIA	45	SM6BTT	21
K4DJO	46	W6IWS	41	W9UNS	45	SM7ZN	21
W4EQR	46	W6CAN	40	W9MHP	43	VE1WL	21
W4AZC	45	K6ERG	40	W9KLR	43	CO6WW	21
W4LNG	45	W6BWG	40	W9JCI	42	VE4HS	20
W4CPZ	45			W9MFH	42	LU9MA	16
W4FLW	45	W7BQM	47	W9SWH	42	JA8BU	14
W4MS	44	W7DYD	47	K9EID	41	VQ2PL	11

opens up in May the entire band may often be good.

Just moving up in the band, from one surplus crystal to another, is no solution, however. When the band is hot you can hear the snarls of heterodynes at 50.1, 50.25, 50.29, 50.4, 50.55, 50.7, 50.85, 51, and all the surplus spots higher, up to at least 52 Mc. The band sounds loaded, but it really is not. There is lots of room in between the "bargain" frequencies, if we will just use it. W2IHW showed how to raise the frequency of crystals in his article in January *QST*. A little crystal etching or grinding might be the making of your v.h.f. station!

Operating tactics could fill a book; we won't attempt the full treatment here, but they are mighty important. Should you call CQ, for example, or look for a desirable prospect to call? Chances are that the latter approach is best: there is too much CQ-ing going on most of the time. Look for someone near your frequency, or better yet, someone working a station near your frequency. Call him when he signs, and you have a much better chance than if you wait for him to call a CQ. Be sure the other fellow is off, however. If you're in the low-power class you're going to need a clear channel to get through. And if you have one, you will.

When you call, help the other fellow to recognize you. The currently popular (we never have figured out why!) method of giving the other fellow's call for anywhere up to a hundred times without signing won't help. Sign your own call often, and use clear (not humorous!) phonetics at intervals. Speak clearly, and keep your modulation level well up on all syllables. Good speech can work wonders for a weak-signal readability.

There are countless other points, but they all revolve around good sense, in making your signal easy to hear, easy to identify, and desirable to work. Do some listening and you'll soon find that some fellows work out much better than others, for no apparent technical reason. Study their operating habits, and examine your own critically. You might be building a fence around your signal through sloppy operating practices.

Last, but definitely not least, learn to use a key. C.w. with 10 watts is as effective as plate-modulated phone with 500, believe it or not. You may not care for code as a means of routine communication between friends (your conductor has much the same feelings) but you're missing a lot that v.h.f. work has to offer if you don't key your rig and tune with the b.f.o. on at least part of the time. It can get you contacts you might never make otherwise.

East Coast to Hawaii on 50 Mc.

The long-awaited first 50-Mc. contacts between the Hawaiian Islands and the East Coast were made Jan. 26. Beginning at about 1445 EST, KH6UK, at Kahuku on the Island of Oahu, worked W1CLS, Weston, Mass., and W1CLH, Trumbull, Conn. His signal was audible in New England for some 20 minutes. All work was on c.w.

These contacts and the continuing openings to Europe and between the East and West Coasts, all coming after last year's record DX season had closed, give further evidence of the record-breaking nature of the current solar activity cycle.

Ionospheric Scatter on 144 Mc.?

For several years now we've known that ionospheric scatter is a practical means of communication on 50 Mc., within the legal power limit of 1 kw. input to the final stage. Depending on how solid you want your communication to be, ionospheric scatter can be used with considerably less than the power limit, and with relatively small antennas. Particularly when one end of the circuit is set up for high power, the other can run as low as 50 watts and still get enough information across a circuit of 600 to 1200 miles to more than satisfy the requirements of a QSO.

But what about 144 Mc.? It was the hope that somehow they might be able to break the ionospheric-scatter barrier that kept W4HHK and W2UK banging away at each other at all hours of the day and night, for more than two years. Several times they had faint and almost steady signals, at times of the year when tropospheric propagation would not have been expected over a 1000-mile path. On many other schedules they could talk themselves into believing that a weak background signal was just perceptible in the noise. But they had to rely on meteor bursts for their contacts, in the end, and it was in this effort that their best contribution lay.

Others, before and since, have noted the faint residual signal that is the hallmark of true ionospheric scatter. Throw out the meteor bursts; it's what you have left that we're talking about now. W2NLY and W4HHK heard it, on skeds even before those kept by W2UK and W4HHK. W9KLR, with an efficient kilowatt and a 64-element beam, is getting reports of what appears to be his scatter signal, on meteor burst skeds. But the real effort is currently being made by W2NLY and W4LTU.

If you heard W4LTU's talk at the Adler Planetarium during the National Convention in Chicago, you know something of what these two are up to. We're not talking — yet, but both W4LTU and W2NLY feel that integration techniques offer a good chance of salvaging something useful from the ionospheric scatter signal that lies all but concealed in the receiver background noise. W2NLY is getting a solid 800 watts out of his pair of 4CX300As, running at 1 kw. His beam is probably the largest yet built (and kept up!) for 144 Mc. His receiver gets well below the limiting antenna noise in sensitivity.

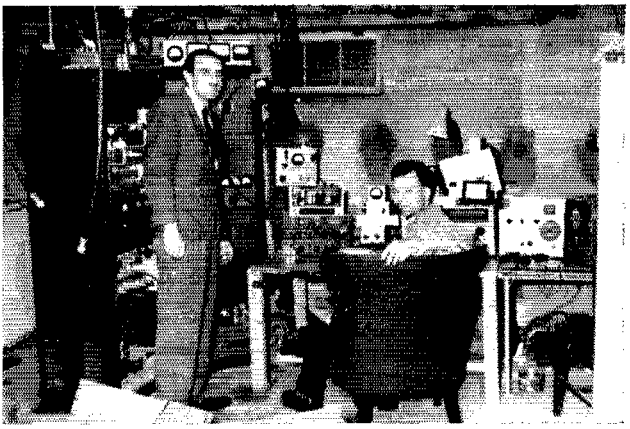
Currently, tests are being made in the form of a series of 10-second A0 transmissions, with 10 seconds separation. High orders of correlation are being achieved fairly regularly, and at times the signal has been strong enough to have provided c.w. copy, if the transmitters had been keyed. This, despite the lower power and smaller antenna (a mere 48 elements; see Oct. *QST*, p. 65) at W4LTU.

The next step? Reduction of ignition noise, which currently poses the greatest problem at both ends of the circuit. Also needed: additional stations, preferably in the west, with operators who have the perseverance and technical know-how to do this kind of work. High power, the best of equipment and really large arrays are musts.

Here and There on the V.H.F. Bands

Some kind of record must have been set by K2QLA, Cortland, N. Y., and W7REV, Portland, Ore. On Jan. 7 they worked on 6 at 0905 PST, maintaining contact until 1210. The early part of the QSO was marred by QRM and fading, but they stuck with it, shifting frequency as needed to get out from under interfering stations. After settling on about 50.5 and 50.34 Mc., respectively, they maintained solid contact for the last 2 hours and 45 minutes. Total time of the QSO: 3 hours and 5 minutes. And yet some people think of 6-meter DX as having a fly-by-night character! Equipment used? No kilowatts here; K2QLA ran 65 watts to a home-built rig, feeding a 5-over-5 array. W7REV has a TBS-50, running about 30 watts, and his antenna is a 10-meter quad.

The life of a side-band operator on the v.h.f. bands still is no bed of roses, says K2AXQ. Bill has a 4-65A rig putting out a whopping s.s.b. signal on 50 Mc., but he finds that most fellows simply do not recognize the signal for what it is.



TVI complaint the hard way. When G3GGN, left, visited W1FOS, Wakefield, Mass., recently, he brought along a tape reccrding of the W1FOS 50-Mc. signal, as received in England on G3GGN's TV set. Photo by W1BB.

W1OAZ, Asby, Mass., voices a similar complaint. He gets plenty of "something-is-terribly-wrong-with-your-modulation" reports when he puts his d.s.b. rig on without the carrier. We blush to admit that he got one from W1HDQ/1, when your conductor was handing out Vermont contacts with a Communicator, just last week end! But it would never happen with the writer's home station. We almost invariably tune with the b.f.o. on, and we recommend that others do the same. You'll never realize anything of the possibilities of the v.h.f. bands if you pass up c.w. and s.s.b. habitually.

The farthest-north 50-Mc. station is a title that seems secure for W2IDZ/VE8. A 6-meter man from away back, Ed knows how to make the most of his chance to operate from Cape Parry on the Amundsen Gulf, at 70.3 degrees north and 124.5 degrees west. The first 50-Mc. QSO from VE8, so far as is known, was made Jan. 16, between W5SFW and W2IDZ/VE8. Ed was also busy on Jan. 19, when W1CLH heard him working W2, 3, 4 and 8. This rare opportunity for work with the far north on 6 will probably be over before this appears in print, but the experience of W2IDZ VE8 should provide much interesting information on 50-Mc. propagation to an area never before reached on a v.h.f. band.

Another far-north possibility is reported by W6BAZ. Paul says that VE2AHQ was to have left Ottawa Jan. 15 for Labrador and Baffin Island. He was to take 50-Mc. gear with him, operating along the way on 50.1 Mc. The equipment will be left with hams now on duty at Baffin when he returns. Nothing has been heard from this prospect as we write in late January.

W2MEU, Bound Brook, N. J., made his 50-Mc. WAS just in time. Sven had already moved to the Florida Keys, with W2QCY, but was back in New Jersey to take care of the sale of his home when he got in his contact with W7QDJ for the Utah confirmation he'd been chasing for so long. Quite the opposite of his long-time 6-meter associate, W2IDZ, Sven now appears a good bet for this country's southernmost regular on 6. He should be in business on 6 at Islamorada, 74 miles south of Miami, before the end of February.

Meteor-scatter skeds on 144 Mc. produced results in January. W2ORI, Lockport, N. Y., and WØZJB, Wichita, Kan., started the New Year right with the first 144-Mc. contact between those two states. This QSO was completed with strong bursts at 1235 and 1249 EST. John also worked WØQDH on Jan. 17, running into very strong bursts at 1750 EST. W4LTU, Orlando, Fla., worked W5RCI, Marks, Miss., Jan. 3 at 0700. Vermont and Kentucky got together for the first time when W1MMN and W1OAK, Orange, Vt., worked W4HJQ, Glendale, and W4WNH, Lexington, Ky., Jan. 3.

First signs of South American 50-Mc. DX of the spring season were observed Jan. 12 by W5SFW, Amarillo, Texas, and W2YYI, Geneseo, N. Y. This was early-morning reception, apparently normal F2, rather than the TE variety. CE8AE, NBS IGY station at Antofagasta, Chile, on 49.96 Mc., was heard by W2YYI, between 0900 and 0937, and again from 0939 to 1000 EST. By the time you read this there should have been considerably more DX to Latin America. One way to tell about DX chances to the south is to keep a sharp lookout for the NBS scatter stations. They are CE8AE, 49.96 Mc., OA3AAE, Arequipa, Peru, 49.92 Mc., and OA3AAF, Huancayo, Peru, 49.88 Mc. For more on the work these stations are designed to do, see August 1957 *QST*, page 11.

Operating note: To claim a contact for a new state, country or whatever, you must do the work yourself. Awards are given to operators, not to stations. If your wife runs the rig during the day when you're away, her contacts do not count for you, even though she uses your call. Same goes in contests. Awards are for individuals, except when specifically earmarked for multiple-operator stations. Log-keeping, check-list maintainance, switch-throwing — all these jobs come under operating. You do them yourself. If anyone helps, you forfeit your claim to single-operator status. We bring these points up because we've received quite a few complaints of unfair or unthinking operating practices on the v.h.f. bands of late.

With the V.H.F. Clubs and Nets

W4HDX, Spartanburg, S. C. — The Piedmont Area Local Net has been on 6 now for about 3 months, after having given up on 75. We had more members on the lower band, but QRM was such that passing traffic was all but impossible. Six is ideal for operation such as ours, covering three counties. We meet Monday through Friday, nightly, on 50.2 Mc., at 1900. In addition to our regular membership of 8 (3 more in construction stage) we have many other stations checking in from distances up to 150 miles or so.

K5JKX, Oklahoma City — Oklahoma Central 6-Meter Net now has 53 members, with 34 reporting in Jan. 12. Plans are afoot to move net frequency from 50.1 to 51.01 Mc.

Central Iowa Amateur Radio Club — Six-meter net operating on 50.748; WØSMJ NCS. Now publishing *The VHF-er*, with KØBAN as editor.

Sioux Falls, S. Dak. — Ten stations now in 2-meter net, meeting at 2100 Wednesdays and Sundays, 144.9 Mc.

How Many States?

With v.h.f. activity booming to an all-time high, our states-worked listings tend to get out of hand. Each month we have around 50 changes, so errors are bound to creep in. Why carry states and call area listings at all? As we see it, the main idea is to show the possibilities of the bands so listed, and to indicate which amateurs in what areas are doing outstanding work.

The first is easy; the second not so simple. Accumulation of deadwood in the form of stations no longer active is almost inevitable, with more of such listings tending to pile up in the lower categories. We try as best we can to carry only active calls, or (in a few cases) the records of some stations that are so outstanding that they cannot well be dropped, even when no longer active.

It is difficult to say who shall or shall not be listed. Par-

ticularly on 144 Mc., what is outstanding in one area may be routine in another. A W6 or W7 with six or more states has to have something on the ball. A W1 with only 12 hasn't even begun to fight. Both boxes are too large, so we've started a new weeding-out process. Please help us to make the result more meaningful.

2-METER STANDINGS

	U. S. States	U. S. Areas	Miles
W1REZ	28	8	1080
W1AZK	22	7	1205
W1RFU	22	7	1120
W1FZJ	21	6	1120
W1ACS	21	7	1150
W1HDQ	20	6	1020
W1AJR	20	6	810
W1OAX	20	6	800
W1MMN	19	6	800
W1IZY	17	6	750
W1UIZ	17	5	680
W1BCN	16	5	650
W1KHL	16	5	540
W1AFO	16	5	810
W2NLY	34	8	1390
W2CXY	34	8	1200
W2ORI	34	8	1200
W2AZL	28	8	1050
K2GQL	25	7	950
W2BLV	23	7	1020
K2IHJ	23	7	1060
W2SMX	22	6	905
W2AMJ	21	6	960
W2KIR	21	7	880
W2DWJ	21	6	720
K2CEH	21	8	910
K2IXJ	21	6	925
W2OPQ	21	6	970
W2AOC	20	7	770
W2PAU	20	6	880
W2CBB	20	6	740
W2UTH	19	7	880
W2AZP	19	7	650
W2RGV	19	6	720
W2LHI	18	7	620
W2LWI	17	6	600
W2SHT	16	6	650
W2PCQ	16	5	650
W3RUE	29	8	950
W3BGT	28	8	740
W3TDF	27	8	880
W3GKP	27	7	1020
W3SGA	26	6	550
W3IBH	23	7	650
W3FPH	21	8	—
W3KCA	21	7	—
W3LNA	20	7	720
W3LZD	20	7	—
W3KWL	19	7	740
W3NKM	19	8	660
W3BNC	18	7	750
W4HHK	33	9	1280
W4HJQ	32	8	825
W4AO	29	8	1100
W4LTU	27	8	1160
W4UMF	26	8	1110
W4MKJ	24	8	725
W4JCJ	22	6	660
W4EQM	21	8	900
W4DWU	20	6	675
W4OLK	19	6	720
W4TLV	18	7	1000
W4JFV	18	7	850
W4IKZ	18	6	720
W4VLA	17	7	825
W4WNH	17	7	750
W4CLY	15	5	720
W2BHS/4	14	7	650
W4ZBU	14	5	800
W4AIH	14	5	705
W4TCR	14	5	720
W4SOP	13	5	680
W4CPZ	12	5	650
W4UDQ	11	5	850
W4MDA	11	5	860
W4KCQ	10	4	860
W4LNG	9	4	800
W4GIS	9	2	335
W5RCI	32	9	1215
W5DFU	25	9	1300
W5AJG	22	8	1280
W5JWL	18	6	1150
W5MMW	14	5	700
W5FSG	12	5	1390
W5ABN	12	5	780
W5PZ	12	5	1255
W5QNL	10	5	1400
W5CVW	10	5	1180
W5SWV	10	3	600
W5KTD	10	4	760
W5ML	9	3	700
W5NDE	8	3	520
W5FEK	8	2	580
W5VY	7	3	1200
W6NLZ	9	3	2540
W6DNG	8	3	1030
W6WSQ	7	3	1380
W6AJF	5	2	640
W6RRZ	4	2	360
W6PJA	4	3	1390
W6ZL	3	2	1400
W6BAZ	3	2	400
W6MMU	3	2	388
W6ORS	3	2	365
W6LSB	2	2	360
W7VMP	11	5	1280
W7LEE	6	3	1020
W7JRG	4	3	1040
W7LHL	4	2	1050
W7JIP	4	2	900
W7JU	4	2	353
W7YZU	3	2	240
W8KAY	36	8	1020
W8WXV	35	8	1200
W8RMH	31	8	1000
W8SVI	30	8	1080
W8LOF	30	8	1060
W8PT	28	8	985
W8WRN	28	8	680
W8SRW	27	7	850
W8SFG	26	7	850
W8JWV	25	8	940
W8ILC	25	8	800
W8LPD	25	8	750
W8DX	25	8	720
W8EHW	24	8	860
W8BAX	23	8	675
W8LCY	18	7	610
W8EP	18	7	800
W8ZCV	17	7	970
W8RWW	17	7	630
W9KLR	37	8	1160
W9WOK	32	9	1050
W9GAB	29	8	1075
W9AAG	27	8	900
W9REM	27	8	850
W9ZIH	27	8	830
W9UCH	27	8	750
W9FVJ	26	8	850
W9EQC	26	8	820
W9ZHL	25	8	760
W9EHX	24	7	725
W9BPV	23	7	1000
W9UED	22	7	960
W9KPS	21	7	690
W9PBP	20	8	820
W9MUD	19	7	640
W9LF	19	6	—
W9ALU	18	7	800
W9JGA	18	6	720
W9MBI	16	7	660
W9DDG	16	6	700
W9JIY	16	7	560
W9LEE	15	6	720
W9DSP	15	6	760
W0IHD	27	7	890
W0GUD	25	7	1085
K0DOK	22	8	930
W0SMJ	20	7	1000
W0TGC	20	7	860
W0LNI	20	6	830
W0RUF	19	7	700
W0UOP	18	6	—
W0ONQ	17	6	1000
W0ZJB	15	5	1200
W0USQ	14	6	750
W0IFS	14	5	—
W0OAC	14	5	725
W0RYG	14	5	600
W0MVG	13	5	700
W0TJF	13	4	—
W0IC	2	2	950
VE3DIR	26	8	915
VE3AIB	26	7	910
VE3BQN	17	7	790
VE3DER	16	7	820
VE3BPB	13	6	715
VE2AOK	12	5	550
VE3AQF	11	7	800
VE1QY	11	4	900
VE7FJ	2	1	365
KH6UK	1	2	2540

On 6 we have dropped all listings below 40 states worked at least for U. S. stations. With activity and conditions as they are, if you haven't worked at least 40 states you either just came on the band, or you haven't been working very hard at it. Making 50-Mc. WAS is still a long hard job, worthy of special recognition, but it definitely isn't what it once was. We issued five 50-Mc. WAS awards in January alone, and another has all 48 worked though not yet confirmed. The new members of the club are: K9GQG, Osseo, Minn., W7FFE, St. Helens, Ore., W0PFP, Ames, Iowa, and W6BJI, Fresno, Cal. W1CLS caught W7JRG for No. 48 on backscatter, of all things, which shows something of the possibilities of this mode, so little used by many 6-meter men who haven't yet developed skill with the code.

If you are consistently active on 6 or 2, check the boxes right now. If your record on either band is equal to or better than others from your area whose calls appear in the boxes, let us have the full information on your work. On 144, give us the states you have worked, the U. S. call areas, and the call of the station you worked for your best DX. On 50, 40 states or more (if you're in this country) will put you in.

Some indication of the 144-Mc. possibilities for a hard-working Middle Westerner show in the record of W9KLR, Rensselaer, Ind. Bill's setup has everything; an efficient kilowatt, a 64-element beam and a low-noise converter. But it still takes operating — lots of it — to work 35 states in a single year, as W9KLR did in 1957. He heard 38 different states, bringing his total for all time to 40 heard and 37 worked! Bill is still looking for Maine, Delaware, and W6 and 7.

There is some clamor for 220- and 432-Mc. listings. We might run these alternately with the 50- or 144-Mc. boxes if there is enough interest. We have some entries; how about your record on the higher bands?

50-Mc. WAC Achieved

The first 50-Mc. WAC award is being processed as we write. It goes to Paul Boberg, W6BAZ, who was the first 50-Mc. operator to corral cards for contacts with all continents. K6GDI beat Paul to the contacts by a couple of days, but he does not yet have the cards to prove it. Others known to have worked all continents two-way on 6 include W6BJI, Fresno, and W6FZA, Porterville, Cal., but neither has the cards as yet. W6BJI will have something to brag about when his WAC goes through. He got his 50-Mc. WAS award Jan. 21, which makes him potentially the first to make both WAC and WAS on 50 Mc.

The trophy shown in these pages last month is still being held for K6GDI, as this award is to be based on the date the contacts were made. Bob is still working on his LU contact of last year for a QSL to prove it.

220 and 420 Mc.

Activity is coming along nicely on 220 in many areas. W2IHW sends us a list of 44 stations, mostly in Northern New Jersey, Eastern New York and Long Island, who operate regularly on 220. Frequencies were included, but since they are all in the first megacycle, and mainly below 220.4 Mc., they should be easy to find.

The 220-Mc. band is good for contacts nightly in the Los Angeles area, according to W6NIZ, K6GKX and others. Many of the 50-Mc. gang go there for local work to avoid the QRM so prevalent at almost any hour on 6.

K6SDX is putting all his eggs in the 432-Mc. basket. His station is devoted entirely to that band, and he is striving for the best possible installation, both as to equipment and antenna system. He would like to keep DX skeds with interested parties.

One of the leading proponents of amateur TV, G3CVO, is now residing in Montreal. Organizer and long-time scribe for the British Amateur Television Club, Mike can be counted on to encourage amateur TV in both Canada and this country. He would be glad to hear from TV enthusiasts, at 1740 Hartenstein St., St. Laurent, Montreal.

OES Notes

W1FIG, Providence, R. I. — With more than 20 new

(*Continued on page 146*)

How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

How?

Our 28-Mc. band's present ecstatic status is bringing QRP back to DX fashion in the ranks of the sleepless. The monthly mailsack affords ample evidence that never before has so much DX been worked by so many DXers with so little *I*-times-*E*.

"Low power" is one of those controversially relative terms (conditions, DX rarity, optimum selectivity, S-meter readings, *ad infinitum*) that spice up amateur radio. A hundred watts can be subliminal QRP in the opinion of the confirmed kilowatteer; conversely, a ten-watt input is outrageous QRO so far as the contemporary h.f. transistor-rig fan is concerned. For DX reportorial usage just what *is* "QRP input"?

Postal consensus of the "How's" readership indicates that something under twenty watts is generally considered to be noteworthy QRP for W/K/VEs in pursuit of DX. That's good enough for us. No — we don't hold, as do some, that the use of such low power is necessarily a virtue. Hunting big game with bow and arrow may be more sporting than with standard firearm, but no more righteous. In any case, few will deny that QRP can be a gratifying and highly specialized approach to DX kicks, a gay gamble against stacked odds. Fun!

In the sporting interest, then, we continue to welcome and encourage communiqués from our QRP constituents. Even high-power men occasionally confess to keen interest in their derring-do.

—···—

Off-beat might describe the preceding patter, what with your 24th ARRL International DX Competition readying for its deafening finale. But not entirely so. We've pointed this up before for the benefit of W/K low-power code entrants who are inclined to be driven underground by the opening Test week end's brutal barrage: The ARRL DX Contest's c.w. quota rule can be a boon to less-potent Yank and Canadian participants.

Before the free-for-all clatters to a close this month, our high-power pack will show signs of filling up on contacts with the more available overseas denominations. Big bruisers then trend toward stray multipliers and the scarcer DX species. And that's when a feeble fellow hereabouts can get in some joyful licks. True, you certainly won't beard the lions with this carrion strategy. But you may come to agree that DX contest effort with modest means and a little finesse can be worth while. Be a KG1!

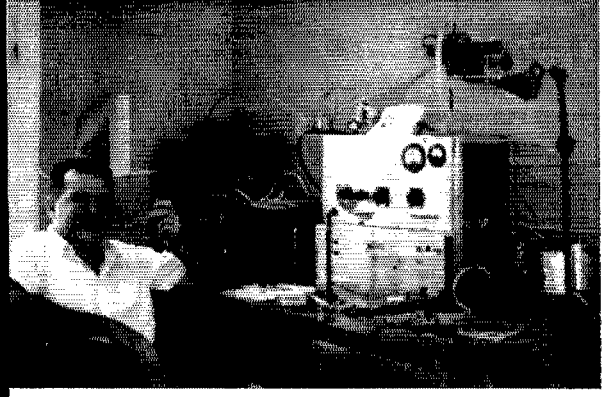
*4822 West Berteau Avenue, Chicago 41, Ill.

What:

Unquestionably among the marvels of this electronic age: the extrication of wispy DX signals from the crushing bedlam pervading the initial sessions of the 24th ARRL International. Detecting the puny plaints of muted piccolos in crescendos of the *William Tell Overture* would be a comparable achievement. . . . On our multibandstand we find the East Coast brasses, the Fourth and Fifth Call Area woodwinds, the Midwest rhythm boys, the VE string section and the West Coast percussion cats, all rockin' and rollin' under the groovy direction of O.M. Sol. *Crazy*, man! More music, maestro — please. . . .

75 phone arranges to swipe the DX limelight at least once each twelvemonth. This time it's **ZL1ABZ** of the Kermadecs who draws the glare. W6ZEN, second U. S. A. contact for Mike (after W6GBK), hears that this rare one must stick to 75 and 80 meters unless his class of license is upgraded. ZL1ABZ is a member of an eleven-man CAA-type detachment which has six or seven months left in the islands. Mail arrives every three or four months.

20 c.w. treated **W1**s ARR MBX MDO RAN RB YNP, **W2**s AJR AOY GVZ HBV HMJ QHH SUC, **W3**s CMN QYG ZKB, **W6**s KG RLP RZS ZEN ZZ, **W7**s DJU GYR, **W8**s BMX CXK ESR GLK IBX KX WBV YIN, **W9**s JJN OEW UBI YYF YYG ZTK, **WØ**BCI; **K2**s ECL SBT SRF VAB, **K4**s IEX JOS KWW MWB PHY, **K6**s HFA QHC SHJ SXA UFX, **K9**AGB, **KØ**HGB, **VE**s IPQ (206/185), 2ABE 7CQ 7KX, **KL7**s BPK JDO, **KP4**KD, **KR6**BW and **DL4**YE to such delicacies as **AP2**B (14,020 kc.) 2 GMT, **C9**XF, **CE9**AE, **CN2**s AB 22, AQ (45) 6, **CN8**s EE FH IF JX, **CR6**s AI (60) 22, CS FC (75) 21, **CR7**s CH (75) 17, DA DQ (69) 4, FC (80) 16, IZ (55) 16, **CR8**AC, **CR9**AH (30) 4, **CR10**AA, **CT**s 2BO 3AB (60) 1, **DU7**SV, **EA**s 6AW 8BF 9AP (122) 0, 9BM (56) 18, EL1S, **FB8**s BD (90) 18, CB (90) 17, CD of the Comoros, XX (25) 17 of the Kerguelens, ZZ (20) 17 of Amsterdam, **FF8**s AC AD, one **FK8**AD 15, **FL8**AB, **FM7**WT, **FO8**s AC AO (332) 7, **FP8**AP (70) 18, **FO8**s AF AG AU, **FR7**ZC, **FY7**s YE (70) 1, YF, **GC**s 2FZC 3AAE 3HFE, HA5AM/**ZA**, **HAØ**HNH, **HC1**s HL (20), JW (10) 22, **HE9**LAC, **HH2**s CL LD OT, **HK**s 3TH **0**AI (85) 23, **HL2**AG (40) 23, **HP1**LO, **HZ1**s AB NA, **I5**LV (48) 19, **IS1**s CXF (10) 21, FIC, IT1s AGA TAI, **JA1**JG of Japan's Antarctica base at Syowa, **JT1**AA 12, Ks 2HJQ/**KG6** 6BAZ/**FO8** 6TSQ/**KG6**, KAs 2KS 8KW, **KC4**USA, one KF6AA (35) 11-12 on Lisianski isle, **KG1**s DT (330) 5 on T-3, EE (50) 18, GY, **KP6**AL, **KR6**s AC BW ES JL (44) 14, QW SS, **KS6**AD, **KV4**s AA BO, KX6BQ/



FR7ZC long has ranked in the first magnitude of DX rarity, representing Reunion Island almost single-handedly. It's the on-the-ball DX man who catches this one, for Paul apparently subscribes to the axiom: The best DX is *rare* DX. FR7ZC is known to perform intermittently on Sundays, 1200 GMT, around 14,108 kc. VQ8AS on near-by Rodriguez is appetizing local QRM.
(Photo via W6YY)

KC6 2, far-south **LUs** 1**ZS** 4**ZD** 5**ZD** (100), 6**ZI** 6**ZV** (30) 1, **7ZI** 7**ZO** (70) 9, **LX**2GH (50), **LZ**1s AH KBA KNB KPZ KSZ (12), 18, **OAs** 1Q (43) 13, 4BP (40) 5, **OD5**s BZ LJ LX (33) 1–5, **OQ5**s EH (65) 17, GU IE, **OX3**s DL WE, **OY**s 2H 7ML (10) 9, **PJ**2s AA AN (70) 1–2, ME, **PZ1**AP, RAEM (34) 5, **SU1**s IC IM 2, SV1AE, **SVØ**s WI WP WR WS, **TF**s 2WCC 2WCO 3AB (70) 22, 3RF, **TI**2CAH, **UA9**s AA (55) 5, AO KAG KCA KCC KCE KDL KEA KEK KOA (30) 12, KSA OB OI VB, **UAØ**s AG AZ CD FA FR IG KAR KDA KFF KIB KKB KKD KOA (80) 7–8, KQB (100) 8, KUA OM RK SJ (80) 15, **UC2**s AR (40) 19, AX (80) 7–8, KAC, **UD6**s AL BI, **UF6**s AF KAC 0, PB, **UG6**s AB KAA, **UI8**s AA (55) 10, BA, **UI8**s AE KAE KAI VL, **UJ8**s AF (60) 3, AG 4, KAA (60) 15, **UL7**s FA 1, HB 14, KAA, **UM8**KAA, **UN1**s AE (85) 14, AN (72) 22, AO, **UO5**s AA (60) 19, CA, **UP2**AT 11, UPO1s 6 and 7 (69) 17, **UQ2**s AA (42) 21, AD (59) 2, AH AS KAA KAG, **UR2**s AK AO BU, **VE8**PB, **VK9**AT (82) 13 of T.N.G., **VKØ**s AB AS (80) 16, PK, **VPs** 2LU 3VN 5FH 7FH 7NM 8BO 8CE 8CP, **VQs** 2AS 2EW (90) 15, 3CF (31) 5, 4KRL 6LQ (40) 4–5, 8AJ 8AS 3 of Rodriguez, **VR6**TC (18) 7, **VSs** 1HU (25) 0–1, 6DV 9AC (24) 5, 9AN, **VU2**s AJ AL CK 1, JG 2, KM (28) 13, RM 12, SA SX 2, W9NTJ/**KG6**, **XW8**AE (90) 16, **XZ2**s GM TH (35) 16, **YK1**AT (330) 6–7, **YS2**LR 3–4, **YVs** 4AU 5AE 5GY 1, 5HL 4, **ZA1**AF (40) 23–0, **ZBs** 1JM 2A (55) 23, 2J, **ZCs** 3AC (109) 13–14, 5AL (51) 17, **ZC4**s AH CB CH FL FM IP PM WY, **ZD3**G (90) 23–0, **ZEs** 1JN 1JV (80) 16, 3JU, **ZKs** 1BS 2AD 22–23, **ZM6**AS 9, **ZPs** 5AQ 5CF 9AU, **ZSs** 3AC (55) 19, 8R (47) 15, **3V8**s AS AU (60) 23, KS (58) 8, **4X4**s BT BX (32) 19, CJ CK DR FS GB, **4S7**WP 13, **5A**s 1TB 2TY (15) 2, 5TE, **9G**s 1CM (84) 20–21, **5B**BE and **9K2**AN.

20 **phone** offered **BV1**US, **CN8**IF*, **CO2**YZ*, **CT2**AH, **EA**s 2CA* 9BK, **EL4**A*, **ET2**US, **FU8**AD (140), **GD3**FBS, **HA7**AY, **HH**s 1HB 2R, **HK**s 7LX **ØA**I (142) 3 of San Andres, **HL9**KT (132) 14, K7BDE/**KG6***, **KA7**LB, **KG1**BW, **KR6**s CC DR* JL (180) 11, **LU**s 1ZS of So. Shetlands, **LUØ**AC, **MP4K**AM (315) 13, **OA7**I, **OD5**s AB (137) 6, BZ, **OH2**YV/**Ø**, **SPs** 3HC 5KAB 9EU, **TFs** 3AD 5AD, **UA**s 1DZ 1KBB 9DN, **UB5**FG (167) 5, **UD6**s AB KAB, **UF6**s AB PB, **UI8**KAA, **UJ8**KAA, **UL7**KAA, **UN1**KAA, **UP2**KBC, **UQ2**AT, **UR2**AO, VE3BQL/**SU**, **VK9**AD (170) 8 of Norfolk Island, **VPs** 1HA 7NM 9BDA 9BY 9CY, **VQ6**ST, **VSs** 4JT* (305) 11–13, 5AT, 6AE* 6AZ* 6BE* 9AJ, XQ8AG 6 of Chile, **ZBs** 1CZ* (315) 16, 1JM 2Y (199) 5, **ZK1BS***, **ZS3**AC (55) 19, **3A2**BF (164) 7, **3V8**CM, 4X4s BO GB nnd **9K2**AZ for the approbation of **W1**PNR, **W6**s EUV ZEN, **W7**HTB (205 worked), **W8**s IBX YIN*, **W9**s UBI* WHM YYF YSX (up to 213/201 in only 24 months); **K2**s QXG* SRF, **K4**KWW, **KL7**JDO (a fast 64/17) and **DL4**YE. Asterisks signify known users of single side band.

15 **c.w.** fostered interviews with **CE3**s AX RE, **CN2**AQ, **CN8**s BK CR FM (18), **CR6**s 7CV (88), **9A**H, **CX**s 1RY 2CO 4BC 5CO 7CO (50) 2, **DM2**s AGH AHB XLO, **DU**s 1SCS (70) 3, 7SV, **EA8**BF, F9QV/**FC**, **FA8**HI, **FF8**s AJ (60) 20, BF, **FM7**WR, **FQ8**s AC AG, G6UC/m, **HA**s 1KSA (140) 20, 5KBP 8WS, **HC1**s JW LE, **HE9**LAC, **HP1**LO, **HS1**C, IT1ZGY (35) 12–13 who counts as Italy, **JA**s 1ACB 2BL 3BB 3BP 3JM 3LK 5AF 6CS 7AD, K6TSQ/**KG6**, **KA**s 2KS 5MC 8RA, **KG**s 4AI 6FAE, **KP6**AL 2, **KR6**s AK BF BW QW 5, **KW6**CA, LX2GH (22) 19, **LZ1**s KBA KNB (58) 13, **OA**s 4BP 4FM 7I, **OD5**LX, **OQ5**s CB (80) 20, CP GU, **OY1**R (102) 18, **PJ**s 2AV (85) 17, 2ME of Sint Maarten, 5CA (G5RV), **SVØ**s WP WR, **TF3**SF, **TI2**s CAH RO VA, **UAØ**s CD GF KCA KFC KFG KKB, **UB5**s EF (45) 9, KAB WF, **UC2**s AU CB, **UJ8**AF (70) 12, **UO5**AA (63) 18, **UQ2**s AE AS (79) 16–17, BG (70) 12–13, **UR2**AO 13, **VPs** 3AD 5FH (80) 16, 9CY 19, 9IVM, **VQs** 2AD 2AS 2JN 4AQ (70) 20, 4RF, **VSs** 1BB 6CQ, shipboard W4DGW/OQ5, **WH6**CKK, **WP4**AKS 20, XE1AX, **ZBs** 1GUH (41) 20, 2I, **ZC4**IP (13) 12, **ZD3**G (25), **ZEs** 1JV (64) 19, 6JE (62) 18–19, **ZK1**BS, **3V8**AB, **4X4**s DR and JS for diligent **W1**YNP, **W2**s AOY HMJ JBL, **W3**s CMN RZL (climbed to 141), ZKB, **W6**s ZOL ZZ, **W7**s DJU GYR QNI, **W8**s BMX CSK IBX YGR, **WØ**SLB; **K1**CCA, **K2**s SBT TCD UPD, **K4**s IEX KWW MOF MWB OTG/4 PHY RXQ, **K5**KBH, **K6**s QHC (now 92/11), SXA, **KØ**HGB, **VE7**CQ, **KL7**s BPK JDO, **KP4**KD, **KR6**BW and **DL4**YE.

15 **phone,** a heavily traveled highway toward A3 DXCC, contributes **CE1**AGI 23, **CN8**s EY FV* GW GX (235) 23, IN IR JP JY, **CO2**USA, **CP1**AM 2, **CR4**AS, **CT1**BT, **EA8**s AX BO, **ELs** 2F 4A* 5A, **ET3**LF, **FE8**AH, **FY7**YH (248) 2, **GD3**IYS (180) 12, **HCs** 1MO 21, 2AF, **HHs** 2LD 2WC 2Z 5LA, **HI7**LS, **HP1**LB, **HRs** 2EZ 3HH, **HZ1**AB*, **KC4**USW*, **KC6**CG, 5, **KG1**HL, **KM6**EVK (382) 4, **KS6**AF (275) 5, **KX6**BP 5, **MP4**BCC, **OA4**s CS EP EY (235), HR* IGY 12, **OQ5**s CS EP, **OY7**ML (50) 11, **PJ**2s AK CH, **SP6**EG, **TGs** 7JD 9AD (228) 6, 9RB (223), **UA9**OK (200) 3, **UAØ**s GF (162) KCA OE, **UB5**s KAB WF, **UD6**AL (300) 4, **UR2**KAA (247), **VPs** 1BS 1DL 2AB 2AZ* 4LB 4LF 4MM 5RS (233) 0 5WS 15, 6BS 6GT 6LT 7BQ 7BR 9DL, VQs 2DC 3DQ (180) 20, 4DT, **VRs** 2AG (180), 2BC (190) 3, 2DF 3A 6TC, **VS9**AE, **XEØ**s AP GZW, XQ8AG, YN1s CJ KK TF, **YVs** 3BD 4HL, **ZB2**I, **ZEs** 1JV 2JS 2KR (215) 21, **ZK1BS*** (220) 3–4, **ZPs** 5HZ 5KA 6BA 2, **4X4**GB, **5As** 1TS (230) 22, 4TM 5TM, **9G1**s AA BV 21, CI CO and others choice to stalwart **W1**PNR, **W3**s CMN RZL, **W4**s EJP UWC (reached 112/100), **W6**s RLP ZEN ZZ, **W9**s WHM YSX; **K2**s EYZ SBT TSW UTC (85/37), **K4**s IEX ILW JWL LEE*, **K5**s JEH KBH, **K6**SXA, **KØ**s BIB (home on vacation from Harvard U.'s W1AF), HGB and **KL7**JDO.

15 **Novice** DX news arrives from all call areas but Nos. 7 and 9 this month. The newcomers are doin' just dandy: **CE3**RE, **CNs** 2AY 8IJ, **CT1**s DJ JL ST, **CX3**CF, **DU7**SV, **EA9**AY, **EL1**s K P, **FA8**s RJ TT, **FF8**BF, **GM3**s DUS EHI EZO HSF, **GW3**LJN, **HAs** 5KBP 5KPY 8WS, **HK7**AB, **JAs** 1ACB 3GM 3GX 8AI 9BE, **KGs** 1EE 4AO, **KP6**AL, **KZ5**s ANN DNN, **LAs** 4AF 5S, **LUs** 1DEN 3DEN 3FO 8BAJ, **LZ1**s KNB KPZ, **OA4**s AS FA FN, **OHs** 2FO 3UJ, **OK1**s ARS UR, **OQ5**HS, **PJ2**ME, **PY7**ACJ, RAEM of Moscow, **SPs** 1KAA 3PL 6KA, **SVØ**WR, **TFs** 2WBZ 5TP, TI2LA, **UAs** 9CQ 9CR **ØK**IA **Ø**OM, **UB5**s FG SB, **UQ2**AS, **VKs** 6RU 9XK of T.N.G., **VPs** 6GT 6LT 7NB 9CY 9DO, **VQs** 2RG 4RF, **WB6**BG, **WL7**CIW, **WP4**s AKJ AKS ALC ALL ALQ ALR ALU, **XE1**s LM RM, **YV5**HL, **YO4**AQ, **YU3**OS. **ZBs** 1DC 2I, **ZCs** 4IK 5AL, **ZLs** 1APM 3DT 3GC, **ZP5**JP, ZSs aplenty, **3V8**AD, **4X4**s JT JU LA and **5A3**TO fell prey to the radiations of **KN1**CBR, **KN2**ZDZ, **KN3**ASH, **KN4**s RID (swift 58/21 tally), RJN, **KN5**s KIZ KMQ LNN, **KN6**YCB (now K6YCB), **KN8**s EEW (63 countries worked), GPI HTI, **KNØ**s LFY and LZJ. Solid sendin', men.

10 **c.w.** maintains its munificence, allowing **W2**HMJ, **W3**ZKH (142/117), **W4**s EJP UWA/1, **W6**ZOL, **W8**s BMX CSK KX (100/75 28-Mc. c.w. only), WTO, **W9**YYG, **WØ**QGI; **K2**YFE, **K4**PHY, **K6**QHC, **KØ**CER; **VE7**CQ, **DL4**YE, **KL7**s BPK and JDO to toddle off with such trophies as **CE3**AG (60) 20, **CN2**AQ, **CN8**s DJ IF MB, **CR6**s 6AI 6DA 7AD, **CX**s 6CB (50) 23, 9AJ (50) 23, **DM**s 2AFD 3KEF, **DU7**SV, **FA9**IO, **FF8**s AD AL, **FO8**s AC (100) 23, AO, **GC3**HFE (40) 14, **HA**s 1KSA (150) 16, 5BW 5DH 5DU 8WS, IT1TAI (79) 13, **JA**s 1CO 2BL 3AB (100) 22, 3AF 3AH 3DY, **KA2**GW (75), **KW6**CA (44) 3, **LX2**GH, **LZ1**WD, **OA4**FM, **OQ5**s CP IE RU, **OX3**DL (45) 16, **OYs** 1R 2A 7Z, **PI1**LC/MM, **PJ2**ME, **SL5**AR (52) 14 of the Swedish military, **SP5**AA, **SVØ**s WQ WR, **TF2**WCO (106) 20, **UAØ**LA (85), **UB5**s BY KAB SB UB WF 8, **UC2**s AF KAB (110) 14, **UR2**BU, VK9XK, **VP2**LU, **VQs** 2RG 3SS (110) 19, **YN1**AA, **YO3**WL (22) 15, **ZB1**DZ, **ZC4**s IK IP, **ZDs** 3G 6JL 6RM, **ZE5**JA, **4X4**s BX FS and IV. Interestingly, several 10-meter code men comment on the singular scarcity of Oceania DX and/or favorable skip; VK/ZLs are toughies to come by.

10 **phone** tempted **W1**s EKU PNR YNP, **W2**VCZ, **W3**s ZKH ZWZ (81/65), **W4**s EJP YQB, **W6**ZZ, **W8**IBX, **W9**YYF, **WØ**QGI (now 204); **K2**s ALA CMN SBT SFA VAB YFE, **K3**AMH/4, **K4**CJK/5, **K6**SXA, K8BDZ, **KØ**s BIB (operating W1AF), CER; **DL4**YE and **KL7**JDO to test the reflexes of **AP2**O (350), **BV1**US (492), **CE4**s EC EI 1, **CN2**s AK BP, **CRs** 4AS (410), 7DS 9AH 9AK, **CT3**AF, CXs in number, **DU**s 1UP 6IV 7SV, **EA8**CF 18, **ELs** 1C 2F, **FF8**AP, **FK8**AU, FQ8s AF AP, **FY7**YE, **GCs** 2ASO 8DO (450) 16, **GD3**UB (500), **HA5**AM, **HE9**LAA 11, **HHs** 2LO 2Z, **HIs** 7LS (360) 23, 8RM, **HK7**LX, **HLs** 2AJ 9KT (140), **HP2**s ER ON 21, **HS1**B (400), **HZ1**AB (650 s.s.b.) 14, **IS1**ZDT (620), **Ks** 2GPZ/

For the past two years Radio Society of Southern Rhodesia's Manicaland Branch has displayed ZE1JUM at the August Manicaland Agricultural Show in Umtali. This clean-cut installation includes ZE2JC's 40-watt 807 transmitter and ZE2KP's 100-watter, the latter feeding a rotary beam for DX demonstrations. ZEs 1JN 2JK 2KJ and 4JH also participated in the 1957 exhibition. That tea generator and associated apparatus (left) is counterpart to the indispensable W/K coffee pot, of course.

VE8 (600), 2QOO/VE8 6BAZ/**FO8**, **KAs** 2AL 2AP 2EB 2JB 2MA 23, 7LB 7RD 8RA (410), **ØIJ** (950) 21 of Iwo Jima, **KB6**BC, **KC6**CG (950) 21, **KG1s** BW CB (815), CH (510), **KG6**IG of Chichi Jima, KH6CEJ/**KJ6**, **KM6**EVK (420), **KR6s** BN DR 23, SO, **KW6**CB, **KX6**BQ, **LX1**DC, **MP4BBL**, **OAs** 3AGI 4IGY, **OD5s** AB (290), AC, **OQ5s** BK 16, DG (350) 22, RS, **OX3**KW (655) 15, **OYs** 1R (410) 13, 2A (290), **PJ2s** AP (470) 20, AW AZ, **SPs** 3DG 3FL (310), 9FR 18, **SVs** 1AE ØFR ØWP, **TF2s** WBD (505) 12, WBG WCC (800), **TG9s** AD 21, US, **UAs** 1AB 1DG 1GF 3AG, **UB5UW**, **UN1AD** 14, **UR2BU** (175), Baffin's **VE8NH**, **VK9DB**, **VPs** 1HA (400) 22, 1SD 19, 5BL 6GT 7BO (440), 9CY, **VQs** 2AT 3SS 4RF 6ST, **VRs** 2DB 3E, **VS1s** AF EC, W5HYG/**KG6**, **XQ8**AG (480) at Antofagasta, **YO2**KAB 12, **YS1**LA 2, **YV5**HN, **ZB1s** DC LQ, **ZD3**BFC 21, **ZK1**BS (390), **ZS3**AG, **3V8**BW, **4X4s** AB BD DK FF FK FV HK, **5A4**TT, **9G1**CI and **9K2**AZ . _ . _ . Eleven is profitable for the contest clan. **W6**ZZ, **K5**KBH, **KØ**CER and **KL7**JDO found **CN8**IH, **KL7**BP, **KP4**AEB, **KW6**CA, **VK2s** ADV and AHZ warming up their 27-Mc. techniques for the spree.

40 c.w. settles down for a sprightly spring DX run, making **CT3**AB (30) 1, **CX6**CB, **DM2**ADL 4, **DU7**SV (35) 11, **EA9**EF, **FA8**RJ, **HAs** 2MF 3KMP 8KWG 5, **HE9**LAC (25), **HI8**BE, **HK3**KG, **HL1**AE (HL2AE?) 14, **HR1**JH (37) 10, IT1AGA, **JA1s** AEA AEO AHS AXJ BEZ BLM BNA BRR CE HD MQ NI PS QN, **JA2s** AQ BL BP DY JW LC OF UX, **JA3s** AAJ EY ZY, **JAs** 6AK 6MF 7BO 7IN 8AH 9BR 9BY ØGG ØHX (not Iwo), KA2FF, **KG6**FAE, **KR6**AK (25) 8, **LZ2**KBW, **OX3**DL (6), **SPs** 2AP 8HU 9KAD, **TF3**RF, **UAØs** AZ CN FA KDA KIA, a slew of UB5s, **UP2**KBC (7) 8, **UQ2**KAB (23), **UR2**AN (4) 4, **VE8s** OM OW (35) 10, **VK9X**K (40) 8, **VPs** 2LU 3AD 5FH 7XZ (9), **VQ8**AS (6) 20, **VS1s** CN HW, **VU2**RM, **XEs** 2OK 3BL (43) 2, YOs galore, YUs ditto, **YS2**AF, **ZC4**BL, **ZM6**BB (115) 11, **3V8**DZ (28) 7–8 and **4X4**CJ (10) 6 available to such night owls and early risers as **W1s** ARR MBX MDO YNP, **W2s** AOY HMJ HUG JBL QHH, **W8s** GB (117 countries on 7 Mc.), YGR, **W9**YYG; **K2s** ALA UBC, **K4s** IEX MOF, **K6**QHC, **KØ**HGB; **KL7**JDO and **VE7**CQ . _ . _ . This month's lone 10-meter Novice report: **KN6**ZGI captured **WH6**COL . _ . _ . The first week of 1958 saw *very* peculiar conditions prevailing in the 7-Mc. range. From **W7**DJU: "On January 1st, for the first time here, I heard 40 open for Europe from 6 to 8:30 A.M. PST. Could hardly believe my ears!" VE8OW's observations: "On the 5th of January, at a time when I normally work only Europeans or an occasional JA, I worked **UA9**CM, **VKØ**AB, and heard VE3BQL/**SU** with exceptional strengths." Hmmm!

80 c.w.'s noncontest reports barely make a paragraph this trip. But **W1s** BCN YNP, **K6**QHC and **KL7**JDO keep 3.5 Mc. on the "How's" Bandwagon itinerary through luck with **FA8**II, **HAs** 1EW 3MA, **JA1s** AAX BJS, **KZ5**IF, **LZ1s** DR KRU, **UB5**KIA and **ZL1**CI (17). Eighty-meter men should keep an ear to the ground, though; note what began to happen ten years ago (see "Whence" finale).

160 c.w. is giving its adherents a rough go this season, according to the bulletins of W1BB & Co. Openings to Europe are few and far between. Nevertheless, **W1s** BB LYV and others two-wayed with folk like **G8**s 3ERN 6GM and **GW6**HB in early '58. **TF2**WCC is tape-recording W/K and European signals with interesting results . _ . _ . Some of the stuff known to be hunting North Americans on 1.8 Mc.: **DJ1**BZ, **DL8**s 1FF 2GZ, **G3**s DXJ FPQ JLH JVI KNL KOX LHQ LPX MAC PU, **G8**s 5JU 6BQ 8GP 8JR 8NF, **HB9**QA, **UB5**EP (one watt!), **YU3**s EU FU, **ZB1**s BJ and HKO. Another avid available heard from: "I operate on approximately 1805 kc. every Sunday at 0300–0400 GMT and am able to hear numerous carriers between 1800 and 1825 kc. at this time, presumably U. S. phones. I will listen for calls above 1810 kc. and welcome schedules, although there is a high static level on 160 meters in this country. **ZE3**JO often is on around the same time and frequency." So writes **VQ2**GR, ex-G3KKX-ZE1JC, with a v.f.o., 807 final, and 300-foot wire in readiness . _ . _ . _ Mobile-DX 1.8-Mc. note from WØDIB: "Running 13 watts to a 6L6G, I worked W8GPC/m near Detroit who had a 50-watter in his car." Anybody tie this 160-meter mobile long-haul?

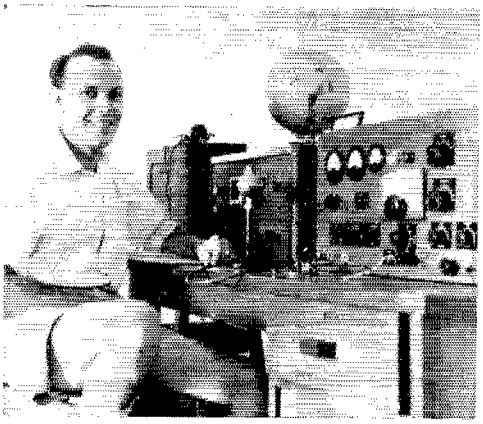
FQ8AP generously provides French Equatorial Africa QSOs on 7 through 28 Mc. with 50 watts, a trusty double-con superhet and a set of unpretentious quarter-wave whips. Serge is DXCC and expects to hold his present location for the remainder of the Geophysical Year. *(Photo via W4LHT)*

March 1958

Where:

Oceania — VE7ASL/KM6 desires no mail through his old Canadian QTH, only via the address to follow. Chas. requests s.a.s. envelopes with QSL inquiries, and he may leave Midway in a month or so. A paltry 50-per-cent return for his 100-per-cent QSL efforts at VR2CD and VR3D still rankles . _ . _ . _ "I am handling VS4JT cards for the sixth call area," K6GMA tells W1DX. "Jim forwards them to me in bulk, and I hold them till corresponding s.a.s. envelopes arrive from the boys." . _ . _ . _ K6BAZ, roaming Pacific paradises aboard *MV Spencer F. Baird*, did some but not all of his K6BAZ/FO8 operating ashore . _ . _ . _ KH6CMM/KJ6's QSL efforts will be aided by W8CSK. John will make direct mailings where s.a.s. envelopes are involved, otherwise via bureau . _ . _ . _ VR4CW tells W7HDL that IRCs are not convertible at Honiara. Save 'em . _ . _ . _ WIA QSL chief VK3RJ noticed a sharp dip in the number of QSLs through his bureau during last October's sputnik watch.

Africa — ZD3G (VS9AG/ZD3) tells WØBCI that he receives QSLs via W2ZGB and routes outgoing cards through RSGB . _ . _ . _ The OQ5HM to follow is a new holder of the call who cannot accept responsibility for OQ5HM QSL matters prior to August, 1957 . _ . _ . _ VQ4AY, inactive since 1953, notifies K6BWX that his call apparently is being pirated on 20 c.w. "I hope to be on the air again early in '58 with phone on 14, 21 and 28 Mc. I have never worked the U. S. A." Not many VQ4s can make that statement . _ . _ . _ "Just completed sending cards to all who QSLd VE3AHU/SU. It was quite a chore, although a pleasant one, what with moving about the country, settling down in a new QTH, and enjoying holidays. Write me in care of the VE3 bureau if there are any problems regarding QSLs; a thousand have gone forward so far." VE3AHU enjoys QSOing his Gaza Strip successor, VE3BQL/SU. The latter is stressing phonetics after notification by VE3QE that numerous VE3*D*QL/SU-bound QSLs arrived the Ontario bureau. Elvin further advises that VE8NP/SU is clandestine . _ . _ . _ "All QSLs requested from ZD4BR will be



VQ3GC, a favorite of the North American crowd, has been prominent in East Africa DX circles for some time, handling c.w. and phone with equal aplomb. You may have worked Neville under his previous call, VQ5GC. (*Photo via W6YY*)

despatched as soon as possible. As of January 1st my call sign changed to 9G1BA." This note from ex-ZD4BR confirms that there were some suffix changes along with that recent Ghana prefix shuffle.

Europe — From LA5HE via W9EU and W1WPO: "I have had 100 QSLs printed for LA2JE/P, Hope Island, and the cards will be sent forth as soon as I receive the necessary log details from him over the air. For direct QSLs one IRC is required for each card, three IRCs for airmail." . . . . . To nip an inquiry or two: The SL prefix (as in SL3AG) goes for Swedish military-ham stations, calls listed *after* the SM roster in your *Call Book* . . . . . W1RAN learns that all outstanding OH1RX/Ø Aland QSL debts are paid in full as of mid-January . . . . . SM7CWC, formerly SM8CWC, tells W6DF via W1AW (W1WPR) that a spurious SM8CWC is afloat. There have been no legitimate SM8CWC QSOs since 1955 . . . . . ARRL's W1CUT relays a new address for Italy's ARI bureau: Viale Vittorio, Veneto 12, Milano . . . . . DL4YE (W9QVY) pens, "I've shipped some 1800 QSLs Statesward and if any have strayed just let me know. Our QSL bureau, the gang at DL4HAB, does a terrific job. By the way, the 'U' boys have been quite good about QSLing us DL4s." . . . . . W9EVX wonders if W/K/VEs appreciate the recent improvement in U.S.S.R. Box 88 output. Slow QSLs from Asiatic Russian areas still provoke laments, however . . . . . As noted by NCDXC's *DXer*, W6HVN still accepts QSL inquiries concerning his pre-1955 activity as OE13HVN and OE13USA . . . . . WVDXC learns that 3000 HV1CN QSLs are in stock, the first batch filled out and shipped by last December 1st.

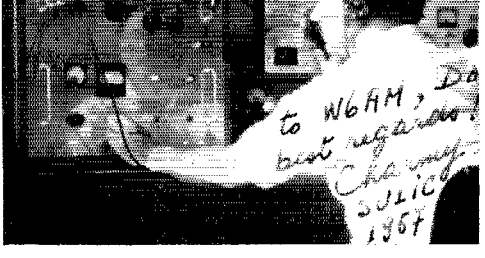
South America — "PY7s AN and ACY say their Fernando de Noronha QSLs will be printed upon return to the mainland and they will QSL 100 per cent. I will receive QSLs for them and deliver them but mail here is slow; have patience." So writes missileer WØYFE-WØYJU, stationed on the island, who adds: "Seems hopeless for American hams to operate here unless regulations are changed." . . . . . From ex-CP1CJ: "I promise to QSL all cards received, but this may take some time." Clifford plans reactivation as a W/K shortly, QTH not disclosed.

Asia — An HZ1AB spokesman states, "In the past our activities have been limited and some QSLs went unanswered. Now, however, the Dhahran Radio Club's membership is in the twenties and rapidly increasing, so all cards will be answered punctually." . . . . . "During three months of s.s.b. action as KR6HN I sent out 737 QSLs," remarks K4DKG who will sign K4DKG/KH6 at his permanent Oahu location pending receipt of a KH6 suffix . . . . . "KR6SS, a club enterprise, strives to QSL 100 per cent. At present I handle all QSLs for the station and we maintain a file for remitted cards — date of QSO, operator's name, equipment used, etc. W/Ks listed in the *Call Book* receive QSLs direct; others via bureaus." This from W5RNU, chief op at KR6SS . . . . . Philatelist NZ2TH goes for the U. S. wildlife series, a worth-while hint from WØBCI.

Hereabouts — W3KT, ARRL's W3/K3 QSL chief, revises our conclusions regarding QSLs incoming for DX work performed while operating portable outside one's home call area. "The proper procedure requires that the operator of such a portable station file his envelopes and QTH with his home call area manager, even when operating portable on the other side of the world," Jesse assures that interbureau liaison efficiently reroutes cards incoming to the wrong bureau, such as QSLs for W1UWA/1 which might arrive at the W1/K1 office . . . . . W1RQR (ex-KH6DD), intending extensive operation at varied Caribbean points, insists on stamped self-addressed envelopes with all U. S. QSLs received . . . . . One's first few months of DX chasing will be recalled by this K2UBC lamentation: "Doesn't *anybody* QSL?" . . . . . W3EQK (and Ws 7GBY and 8HTP as well) is forced to withdraw his offer of assistance in YS1MS QSL matters. Reason: a total lack of cooperation from Salvador after preliminary overtures . . . . . British Honduras QSL boss VP1HA informs W3ZKB that a crackdown is in progress against such illicits as VP1KT . . . . . Ex-HR1BG stands by for QSL inquiries at the address to follow, ready with a stack of blank Honduras QSLs for those still deserving . . . . . "Anyone who worked me and has not received my card should let me know." VE8OM is a stickler about confirming first-contact QSOs . . . . . We trust a few of the addresses in the following directory will be just what you've been looking for. Your benefactors are W1s ARR BB ELR HWH VG WPO YNP ZW, W2s AIW AJR GVZ HBV HMJ KKT QHH SUC, W3s CMN GHD QYG, W4s YQB YZC, W6s EUV KG RLP, W7s QNI SUI, W8s CSK GLK KX LCI YIN, W9s EU JJN JUV TPA, WØs BCI QGI WMA; K2s EYZ SFA TCD VAB YFE, K4JOS, K5AUZ, K6s BWX GMA HFA SXA, K8DJC, K9AGB, KØs DQI HGB, plus clubs and groups listed at the conclusion of "Whence":

CEØAG-K6BAZ/FO8/MM (via K6GKU)
CO2USA, MARS, c/o U. S. Embassy, Havana, Cuba
CN8FM, 1975th AACS, APO 117, New York, N. Y.
CN8GU, Capt. T. R. Donovan (ex-W2MYY-W9FJY), 1975 AACS, APO 117, New York, N. Y.
ex-CN8HX, F. Murray (W1IRE), SUSLO Unit, Box 55, Navy 100, FPO, New York, N. Y.
CN8ID, A. Simpson (K2DNW), USN Comm. Fac., Navy 214, Box 50, FPO, New York, N. Y.
ex-CR9AL (to CT1BH via REP)
CX4BC, S. Almada, Patria Calle 723, Montevideo, Uruguay
DL4AAQ (to W7WHB)
DL4AAU, L. J. Miller, 36th ABG, APO 132, New York, N. Y.
DL4USN, NSGA, Navy 913, FPO, New York, N. Y.
DL4YE, Lt. R. E. Nielsen (W9QVY), 184th USASACO (Field), APO 171, New York, N. Y.
HC1JW, Box 2536, Quito, Ecuador
HH2Y, H. Borno, P. O. Box 428, Port-au-Prince, Haiti
HI8RM, U. S. Embassy, Ciudad Trujillo, Dominican Republic
HL9KS, M/Sgt. F. M. Williams, Sig. Sect., KMAG Det. M, APO 102, San Francisco, Calif.; SP/2 Wm. Shipp, Hq. KMAG, APO 103, San Francisco, Calif.
ex-HR1BG, Wm. B. Gist, 805 Potomac Ave., New Alexandria, Va.
HS1C, Capt. H. Christensen, JUSMAG, Box B, APO 74, San Francisco, Calif.
ex-JY1PB-VU2ZZ-VQ4FI (to VP9DU)
KA8KW, Col. J. Branch, USAF, 6921st RGM, APO 919, San Francisco, Calif.
KG1DT, Fletcher's Ice Island, APO 23, New York, N. Y.
KG1FB, APO 121, New York, N. Y.
KH6MM/KJ6 (via W8CSK)
KL7FLA, Project Ice Skate, Stn. Alpha, APO 731, Seattle, Wash.

SU1IC continues his role as the most active DX specialist among a handful of resident Egyptian amateurs, effectively radiating from Cairo with low-power c.w. and phone.



Jerusalem's 4X4DK now battles nip and tuck with 4X4RE for over-all Asia DXCC supremacy, and duels OD5AB for continental radiotelephone leadership. (*Photo via W1 WPO*)

KM6EVK, U. S. Naval Stn., Navy 3080, Box 19, FPO, San Francisco, Calif.
KP6AL (via W7FNK, KH6BA or W6NZW)
KP6AM (to KH6CIY)
KP4ALR, Box 120, Ramey AFB, Puerto Rico
ex-KR6HN, H. L. Newsome, K4KDG/KH6, 54-213 Keala St., Hanula, Oahu, T. H.
KX6BQ/KC6, Box 2073, APO 435, San Francisco, Calif.
LA2JE/P (via LA5HE; see preceding text)
LUØDAB (to LU1DAB)
OA1Q, A. Ibanez, International Petroleum Co., Talara, Peru
OQ5HM, L. H. Giltay, P. O. Box 6518, Leopoldville, Belgian Congo
OQ5IE (via OQ5GU)
OX3AP, P. A. Anderson, Godthaab, Greenland (via EDR)
PY1GV, H. Gomes, Rue Sa Viana 179, Aptdo. 30, Rio de Janeiro, Brazil
PY4CB, H. B. Fontes, Rua Delfim Moreira 248, Juiz de Fora, M. G., Brazil
PY4OD, c/o LABRE, P. O. Box 314, Belo Horizonte, M.G., Brazil
PY7AN, J. V. de Araujo, Ave. 10 de Novembre 93, Olinda, Pernambuco, Brazil
PY9EM, M. Siqueira, Apt. Postal 98, Corumba, Mato Grosso, Brazil
SV1AB, G. Vernardakis, 3 Erithrea St., Peristri, Athens, Greece
TF2WCO, APO 81, New York, N. Y.
UB5TV, J. R. Grebnev, 71-42 Pushkin St., Dnepropetrovsk 6, Ukrainian S.S.R.
UR2KAA, A. Kaleste, Ristiku 73, Tallinn, Estonia
ex-VE3AHU/SU (via VE3QE)
VE7ASL/KM6, Chas. Freeman, 99-139e Heen Way, Oahu, T. H.
VE8OM, D. C. Matheson, Repulse Bay, N.W.T., via Churchill, Manitoba, Canada
VK9EP, E. P. Black, c/o PMG Dept., Single Qtrs., Radio 9PA, Port Moresby, P. T.
VK9LE, L. K. Earp, DCA, Cocos Island, Cocos-Keeling Gp.
VK9RD, Mrs. R. G. Donovan, c/o P. O., Port Moresby, P. T.
VK9SB, D. S. Brown, c/o P&T, Port Moresby, P. T.
VKØAB (via VK2EG)
VKØs AT PC PB (via WIA)
VKØKT (to VK3KT)
VP8BK (to LA1RC)
VP8BN, J. Booth, P. O. Box 207, Port Stanley, Falkland Islands via Montevideo, Uruguay
VP9DU, N. E. Wicks, c/o Cable & Wireless Ltd., St Georges, Bermuda
VPØRT (to W6ITH)
VQ2EW, A. E. E. Way, Box 110, Bancroft, No. Rhodesia
VQ8AJ (via VQ8AF)
VR2DF (via VR2AP)
VS1HS, H. Goodwill, Sgts. Mess, RAF, Seletar, Singapore
VS2FN, R. Ford, 15/19 Hussars, Ipoh, Malaya
VS4JT (W6/K6s see preceding, text)
ex-VS9AI, Wm. Gardner, GM3FYR, Met Officer R/S, Stornoway Airport, Outer Hebrides, U. K.
VU2BK (via W4ANE)
W4IHW/KS4, I. Vosbrink, Swan Island, W. I. via Tampa, Fla.
XE1ID, P. O. Box 28, Mexico 15, D. F., Mexico
XE1YT, R. Villasenor, Presa Las Pilas 10-8, Mexico 10, D.F., Mexico
XEØAP, G. Bunje, 111 La Creciente, Tuscon, Ariz.
XV5A, L. M. Rundlett, MSUG Box 34, Navy 150, FPO, San Francisco, Calif. (see "Whence")
XW8AE (via REF)
YN1CJ, c/o U. S. Embassy, Managua, Nicaragua
YN1FF, Box 781, Managua, Nicaragua
YS1MS (see preceding text)
ZA1AF, Box 131, Dürres, Albania
ZB1CL, S. Scott, Malta Workshop, REMA, British Forces, P. O., 51, Malta
ex-ZB1EB, E. Briggs, G3IJU, 10 Farnboro Rd., AMQ, RAF, Watton, Norfolk, England
ZB2X (via ZB2I)
ZC5WT (to ZC5CZ)
ZD3G-VS9AG/ZD3, Lee Grant, P. O. Box 285, Bathurst, Gambia (or via W2ZGB)
ex-ZD4BR (to 9G1BA)
ZL5AC (via NZART)
ex-3W8AA (via OK1HI)
5A1TA, P. O. Box 372, Tripoli, Libya
9G1BA, W. A. Ashplant, P. O. Box 2436, Accra, Ghana
9G1BV, T. C. M. Wiggs, Box 3400, Accra, Ghana
9G5BBE (formerly MP4BBE)
9K2AN, M. Nasir, P. O. Box 73, Kuwait, Persian Gulf
9K2AZ (formerly MP4KAC)

Whence:

Asia — If the history of recent ham events in Thailand and Korea is repeated in Vietnam, FCC-licensed amateurs soon will be free to contact XVs. You'll recall that scant progress was made toward lifting ITU/FCC QSO sanctions for HS and HL stations until visiting Yanks HS1A, HL2AM, *et al*, showed up. Now we have XV5A (W3ZA) blazing a like trail from Saigon beginning in early January with an SSB-100F, SSB-1000, 75A-4 and WRL triband spinner. Rundy bagged thirty countries in his first few days of activity on 20-meter c.w. and phone. "My operating time is very limited at present. The following schedule will be adhered to as closely as possible (frequencies subject to change without notice, but generally as noted): 0045-0115 and 1000-1100 GMT, 14,305-kc. s.s.b.; and 1100-1145 GMT, 14,030- or 14,080-kc. c.w." As of February 1st Vietnam, Cambodia, Indonesia and Iran still were off limits for FCC-licensed personnel (and all other International Telecommunications Union signatories, for that matter). For late developments in this and other pertinent matters we urge all DXers to audit the scheduled bulletin transmissions of ARRL's W1AW . . . . . Via W1VG we hear that VU2MID seeks QSOs with Ala., Ariz., Ark., Colo., Del., Idaho, Me., Miss., Mont., Nev., N. Mex., N. Dak., R. I., S. C., Utah and Vt. — long way to go! — most mornings from 0030 to 0300 GMT on 20 c.w., 0900-1630 on 21 or 28 Mc. during week ends. The colonel also pursues WAE/III, PACC, H-22 and WAJD certifications with a vengeance . . . . . "In the offing is a trip to the Maldives, the most likely call being VS1BB/VS9," hints tantalizing VS1BB . . . . . Korea activity continues its upswing. HL9KS, reported by Ws 1ZW and 7SUI, is multimanned on 14 Mc. with 400 watts and a 3-element array, this layout synthesized from odds and ends in the best amateur tradition . . . . . W8FAZ, ably translating Russia's *Radio*, notes report of fresh Kirghiz activity by UM8s AA and AC . . . . . JT1AA will beef up his 21-Mc. agenda, according to K5AUZ . . . . . K4KDS-KL7BAL goes to Taiwan for Uncle Sam and hopes to BV1 a bit, side-band style . . . . . Lt. Gustafson of HZ1AB & Co. writes: "The Dhahran Radio Club includes projects to obtain new antennae for our KWS-1 and 75A-4, produce a course for beginners, and plan innumerable meetings to improve our situation." . . . . . KA8KW's DX-100, Super-Pro and dipole are fresh arrivals to 20 c.w. Other Japanotes: K6CQM reports, "JAs are allowed to operate on 7100-7150 kc. as of early December, 1957. JA1AEA hears many U. S. A. Novices on 7 Mc. and wants them to listen for his s.s.b. on 7130 or 7143 kc." Bob also suggests a check with JARL regarding JCC award details, with JA1AEA re JAC certifications, and with JA1s EL or FF pertaining to WAT (Worked All Tokyo) diplomas. K2ECL brings up another Japanese sheepskin, DC-25, a test of one's ability to work such double- or triple-letter calls as JA1ZZ, JA2YY, JA3BBB, etc. Consult JA1CC for specs. . . . JA3BB tells W8KX that there are 350 first-class-ticketed JAs qualified to use 10, 15 and 20 meters . . . . . Ex-KR6HN, now K4DKG/KH6, worked all continents, 31 states and 56 countries via two-way side band before leaving Okinawa . . . . . KR6SS, with six operators on hand, is consistently workable on 14,040- or 14,080-kc. c.w. and 14,135-14,155-kc. phone . . . . . OD5AM and/or OD5BA expressed 4W1 operational intentions to eager WGDXC listeners.

Oceania — "Ex-VK6ZAE now is active as VK9LE on Cocos," confirms VS1BB. "I took an AR-88 down to him a few weeks ago. My own Cocos-Keeling call has been approved and I'll be active there as VK9BB, mostly on 15 and 20 meters." . . . . . VE7ASL/KM6, who finally clinched permission to fire up on Midway last December, is ex-ZL4FH-ZL3AE-ZL1BI-VR2CD-VR3D . . . . . K6-BAZ/FO8/MM-CEØAG gets about so handily by way of

an IGY oceanographic research assignment. Doug left San Diego last October 21st aboard the *Baird* and hammed on or near Fakarava, Tahiti, Rapa and other Pacific islands before stops at Peru and Easter isle . . . . . VKØAB of Mawson Base, assisted by W4BPD, captured Vermont and W1ELR on 11 Mc. to complete a neat antarctic WAS . . . . . After closing down in April, VR2BC (ex-VP1GG) will spend the period May 19th to July 1st in the States, setting sail for England on the latter date. Greg would be delighted to visit as many W/K/VE amateurs and ham clubs as his itinerary permits. VR2BC filed for A3 DXCC membership and his DX score stands at 138/115, the first 100-plus-countries Fiji phone achievement. Greg advises that VR2s BT DB and DD have closed; ex-VR2DB now is ZL4LB, and ex-VR2BT intends to try his luck as a VQ3. VR2s DE and DF are new licensees with more in prospect . . . . . Ws 6ZEN 8DAW and others report FKØAD stirring up a 14-Mc. c.w. storm. Operator "Ben" claims to be using a 100-watter and that 'twill be "several months until QSL." He chose to represent the Chesterfields, eleven normally uninhabited Coral Sea islets, a group clearly designated on your ARRL *Amateur Radio Map of the World.* Another eyebrow-raiser is KF6AA, reportedly ensconced on Lisianski Island, a bird sanctuary in the Hawaiian Leewards . . . . . ZC5AL, with over 100 countries and 44 states in the log, tells W8KX his WAS holdouts are all New Englanders . . . . . K6LZU encountered KP6AL's 35-watter and long-wire 'way up on 7050 kc. of all places . . . . . From W2AIW: "On learning that CR1ØAA was using a small 6-volt vibrapack for his rig, the writer sent along a dual unit on hand here and not being used, plus info on how he could get better regulation from his rig. Ruy writes that he now has the new rig working and is getting out much better." . . . . . Club notes from Oceania, first SCDXC: ZL2ACV is to sign ZL5AC at the Cape Hallett IGY outpost till early next year; VK3CX frequently assists ZC3AC's 20-c.w. DX efforts between 1300 and 1600 GMT. Now from WGDXC sources: Ex-JZØAG is expected back in Biak; VR2AP arranged to operate 14,340-kc. c.w. and phone with a 20-watt outfit while traveling on business through North Borneo, Solomons, New Hebrides and Timor territory.

UO5AA demonstrates the most consistent DX enthusiasm among Moldavian S.S.R. amateurs with his 200 watts, 7-tube super and 2-element rotary. Valentin launched his ham career back in '36 when not much older than his junior operatrix, right.
(Photo via W9WHM and WØUQV)

Africa — ZD3G (ex-ET2NG-ST2NG-VS9AG) received his Gambia call sign January 1st after a short session as VS9AG/ZD3 and is having a ball on several bands. W8KX acknowledges his potent radiations on 10 c.w. where Lee feeds eleven ambitious watts to a 450-foot wire. WØBCI finds ZD3G workable on 14-Mc. code around 2200 GMT . . . . . CN8HX (W1IRE) accepted assignment and consequent s.w.l. status in Cheltenham, England. Neighbor CN8IF mentioned a tentative 3A2 DXcursion to W8GKB . . . . . At QRT-time VE3AHU/SU had accumulated 1942 QSOs and a 120/88 DX tally. Contacts with 171 VEs and 252 W/Ks were recorded, the latter scattered among 37 states. Now in his native Ontario once more, VE3AHU prepares a fresh DX onslaught with 200 watts phone and c.w., a cubical-quad squirter and other strictly-homebrew gear. Art's replacement, now battling pile-ups as VE3BQL/SU, hits 20 phone Mondays through Fridays at these GMT hours: 0100-0500, 1430-1530 and 1600-2030. On week ends it's Saturdays at 0100-0600 and 1600-1900; Sundays at 0100-0600, 1100-1530 and 1600-1900. Forty-meter phone gets a tumble on Saturdays at 1200-1530, and 21-Mc. work will be inaugurated shortly. VE3BQL/SU assures DX hogs that impatient slobbery will continue to get them nowhere so far as he is concerned because traffic work with Canada and other points must maintain priority over routine DX contacts . . . . . ZD9AG is a fresh Gough Island entry reported by WGDXC.

Europe — From LA5HE via W9EU: LA2JE/P of Svalbard's Hope Island is expected to be active there until late summer. A naval radiop, Odd's principal duties lie in relaying meteorological reports to Tromso with a surplus-style MK3 military transmitter, a 6L6-final job running 15 or 20 watts input . . . . . W7KVU of DX and SS contest renown is reported visiting SVØWE/Rhodes for a brief QSO spree . . . . . W7RT lately bagged RSGB BERTA certification No. 1122, c.w. WBE No. 2945 and phone WBE No. 768 . . . . . Mainly found on 20 s.s.b., DL4USN's HT-30, HT-31 and SX-101 quickly managed 33 countries in the North Sea Radio Club station's first few weeks of activity. Club trustee DL4AAQ (W7WHB) soon returns to Oregon . . . . . W2KKT identifies DM2ABB as old-timer D4ADF-D4AL . . . . . Courtesy WØBCI: GC2FZC determinedly hunts N. Dak., Nev. and Utah at 0715-0745 and 1830-1900 GMT almost daily on 14 Mc., with additional Tuesday and Friday eruptions at 0615-0645. Around 0900-1330, Tuesdays, and 1515-1700, Thursdays, Walter casually roams 14, 21 or 28 Mc. as befits conditions . . . . . U.S.S.R. YL operators increase; W7DJU discovered Oksana at the key of UA3KKB and Lida telegraphing from UA4KYA . . . . . DL4YE (W9QVY) has 138 countries worked after seven swift months of Continental DX sport . . . . . W8FAZ relays word that Greece-national SV1s AB AE SM and SP now are legitimate in Athens. SV1AD in Pyraeus. All appear to prefer 15 or 20 meters . . . . . UA1KAE/1 and UA1KAE/2 are roving detachments of the U.S.S.R. UA1KAE antarctic main-base station, Pt. Mirny . . . . . WVDXC has it that SP5LM/LA/P of the Polish Spitzbergen Expedition is whipping up a v.f.o. for hamming purposes. Also that I1s AMU and CL assist with HV1CN's QSO procedures; Domenico transmits near 14,110 kc. and tunes around 14,250 kc. as a rule, 0600-0645 and 1700-2000 GMT.

South America — Further Fernando de Noronha data from on-the-scene WØYFE-WØYJU: PY7s AN/Ø and ACY/Ø tallied 1049 QSOs in some 40 countries in their 72-hour December outburst. Gear featured NC-183D and HQ-100 receivers, a preselector, PY7AN's 120-watt 813 rig for c.w., an ART-13 for phone work, and doublet radiators. A schoolhouse in the village of St. Anna served as ham shack. Major Mafra, governor of this Brazilian island-territory, awaits his own PYØ call; PY7s LR and SC are other amateurs stationed there . . . . . "My hearty thanks to all the fine fellows who made my Bolivian stay more enjoyable by creating so many diverting pile-ups," writes ex-CP1CJ. "Say what you may, I enjoy a pile-up and *I prefer to work stations on my own frequency.*" [Italics ours. — Ed.] Clifford's QRT leaves no one around to pass out CP c.w. QSOs. CP1CA inherits the CP1CJ DX-35 and works only A3 . . . . . LU2BN of RCA (Argentina) surrendered TPA certification No. 239 and CAA No. 2172 to persevering W7RT . . . . . Ex-ZC4FB writes, "I'm bound for ZHF66, the FIDS base control station at Admiralty Bay, King George Island, South Shetlands, where I'll be senior operator. Gear at VP8s consists mainly of RCA-89 transmitters, Marconi CR-100 and Eddystone-750 receivers." By now you may have worked Ted with his new VP8 handle . . . . . W4-RQR (ex-KH6DD) expects to range as far south as Trinidad in Caribbean travels as a Marine Corps transport pilot on navigational training flights. Major Bob will fully investigate the possibility of firing up his s.s.b. portable outfit in such areas as the Azores, Bermuda, the Caicos, Caymans, Guadeloupe, Martinique and so forth.

Hereabouts — In rejoinder to January's jabber concerning W2AOY's 20-year-spread QSOs with F3II in 1937 and 1957, W2EQS calls attention to his contacts with OK1CX in 1936 and 1957. And we moved W6AM to recall a chat between 6OC and 6EA in 1912 and another between W6AM and W6EA in 1956, same ops at each end. Not DX, but O! the years . . . . . "After a four-year layoff it's hard to catch up!" declares DXCCer W7HTD, now gunning for his second hundred on phone . . . . . W2CTO and K2BU concoct an operationaly jaunt to Vermont, May 29 through June 1. Twenty-meter phone and c.w. DX sport will be the basis and purpose . . . . . From W6ZZ: OX3UD, after an interlude of OZ3UD activity back home, changes Greenland QTH from Angmagssalik to Frederikshaab . . . . . Avers Repulse Bay's VE8OM: "I've been operating on 40-meter c.w. mostly and I'm quite content to rag-chew with anyone who calls. I hope to manage WAS before leaving here." . . . . . W7BSP applied for DXCC with a 119/104 balance sheet, then joined the Navy aboard *USS Monticello.* "May be able to get duty as a KA or KG6 — wouldn't mind trying my luck behind the bug at KG6IG!" . . . . . W3CMN suggests you check with W3OY for details on Lancaster (Penna.) Radio Transmitting Society's colorful certification for confirmed QSOs with any thirteen Lancaster County amateurs . . . . . KL7BPK is much pleased with his shiny new ARRL WAS diploma, well earned from Ketchikan

(Continued on page 148)

Correspondence From Members-

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

QSL OR SWL

718 Carl Avenue
New Kensington, Pa.

Editor, *QST:*

Just got my cards back with your turn-down of UL7KBA (for DXCC). This actually did represent a QSO but you are perfectly correct. The card is only an SWL. I have another UL7 which I will submit with the next batch.

Very pleased to see you check the QSLs so closely. Keep up the good work.

— *M. Scott Hunter, W3NCF*

SAVE 'EM

6306 Grovewood Lane
Houston, Texas

Editor, *QST:*

A recent contact with a ZL finally prompted me to write this letter.

The ZL mentioned above was using a 1949 *Call Book*. In particular, my QTH had been changed several times during the intervening years. It certainly does not list thousands of hams who have entered our ranks during this period of greatest growth.

This is, as you may suspect by now, a plea for the sending of surplus *Call Books* to foreign lands where they will be greatly appreciated.

Twenty to fifty cents will take a *Call Book* just about anywhere in the world.*

If you are a subscriber to the *Call Book* you will find that the carton surrounding your new issue will fit the old one to perfection.

— *Joe A. Fallin, W5SU*

MICROWAVE

4632 — 2nd St., So.
Arlington 4, Va.

Editor, *QST:*

The article in your December issue describing the activities of the San Bernardino Microwave Society was one of the most interesting that I have read in a long time. Another good article in the same issue was the one on the Microlock receiver.

This microwave group is pioneering a new and challenging field for the amateur, and they are using home-constructed gear to do it. I hope you will publish more info on their activities and methods.

If copy space is limited, you can just as well delete some of the usual tripe on how the high-power contest was won by a so-called "ham" with a boughten kilowatt, boughten beam, and boughten Super XXX receiver, all complete with handbooks from the manufacturer describing how to turn on the on-off switch.

— *F. V. Kohl, W3QIG*

Box 158-N, Rt. #1
Pineville, La.

Editor, *QST:*

This is just a note to express my appreciation of your microwave articles in the December issue. I personally would like to see a microwave section in every month. I suppose that this should come under "The World Above 50 Mc.," but I don't find much there except through 420 Mc. Microwave is a phase of hamming that truly deserves a special section all its own in any ham technical publication.

The touble with hams, I think, now is that they seem to be afraid to experiment. Let's get some good articles on construction and operation of microwave equipment.

Wake up, fellers, to a real thrill in u.h.f.!

— *Lars Williamson, W5CMG*

38 Pashley Rd.
Scotia 2, N. Y.

Editor, *QST:*

I thought that article on microwave communications was very informative and I wish that W6VIX would write another on simple u.h.f. equipment very soon.

— *William Havens, KN2ZLX*

ARE YOU A TEST PEST?

27 Thornhill Road
Riverside, Connecticut

Editor, *QST:*

Any testing in the crowded low-frequency amateur bands is almost certain to cause interference. Such "on air" testing is done by some amateurs — especially after changing from one band to another.

The immediate solution to this increasing problem is the use of a dummy antenna or lamp load before going on the air. This writer believes that the use of such loads should be compulsory.

A good slogan for amateur radio would be, "Don't Be a Test Pest"!

— *William C. Ellsworth, W1ZF*

TIRED OF QRM?

9801 Florence Heights Blvd.
Omaha, Nebraska

Editor, *QST:*

On December 25, I got sick of QRM, and tied the ends of my 75-meter doublet together and went on 160. I ended up in a round-table with a station in Montana, W7YUB, Colorado, WØSHJ, and WØDDP at Gresham, Nebraska, all 5 9 plus all the way around. So later on I called CQ and got K5EJS, in Arkansas. All this from a residential neighborhood in Omaha. I also heard W6SK calling CQ from San Francisco several times and answered him, but was taken out by W6 QRM. W7YUB was using exactly the same transmitter, exactly the same antenna tied together in exactly the same way at the same time as I!!

Anybody for a WAS on 160? ? ? ?

— *Eugene Austin, WØLZL*

LET THE DX RAGCHEW!

P.O. Box 109
Tarkwa, Ghana
West Africa

Editor, *QST:*

I read with interest W2AOY's comments (Dec. 1957 *QST*). Ghana may not be a rare country on fone but believe me it certainly is on c.w. any band. I cannot answer Ed's query but would like to express my opinion, as an average DX operator who pounds a key.

To quote Ed, he says "I would like to ask why the average DX c.w. operator apparently finds it more satisfactory or exciting to have 25 or so rubber-stamp QSOs with W stations when he could have some interesting rag chews . . ."

You try it, Ed. I am 9G1BQ (ex ZD4BQ), and positively hate rubber-stamp contacts. As soon as 9G1 gets on the air, there is one terrific pile-up. Within seconds of a rag chew with a W, I can guarantee thirty or so stations calling me

(*Continued on page 150*)

* [The amount would depend in part on the packing. The book rate is 1½ cents per 2 ounces to any foreign destination. — *Editor.*]

YL News and Views

BY ELEANOR WILSON,* W1QON

HOW'S YOUR S.A.?[1]

WE'VE often thought that one particular way YLs might reap a lot of favorable publicity for amateur radio would be through appearances on radio and television shows for the purpose of explaining or demonstrating our hobby to the public. Now in our opinion, biased as it may well be, YLs, with all their innate feminine charm, are ideally equipped to attract the attention of an audience. The salesmanship is the thing, and our YLs should be able to sell amateur radio to a good many receptive people with their own brand of simple, forthright, enthusiastic explanation.

Now that we're convinced that we can do something, how do we go about doing it? This is the part that will take a bit of initiative and planning. There are two ways we might get to appear on a radio or TV show for our purpose. One is to be invited: the other is to ask if we might appear. The first should be a little easier, for someone already knows who we are and what we do and is already convinced that our appearance would be a good idea. The second way involves another obvious selling job, but then, didn't we conclude that YLs have sales ability?

We might be invited to appear on any kind of program — from a homemaker's morning program to an afternoon quiz show or children's hour to an early evening hobby show to any type of late, late show. Whichever it is, we make the best of it and do the best we can by amateur radio. There will be an interview of some kind, and if it's on video, you may have arranged to set up a station for a demonstration. Relax, don't worry — your nervousness will disappear when it's all over and you're able to reflect on the experience you've gained and the good you've done for "the cause."

As already indicated, you may have to seek an invitation to appear on a program before you actually can appear, of course. It's possible that the personnel of the radio or TV station in your city just never would give amateur radio a thought unless you prompted their thinking about it first. So, how to do this? A letter to the station program director explaining what you have in mind might set wheels in motion. A phone call to a friend who works at the station or to someone who knows someone who works there might provide an introduction. There might even be a ham or two employed by the station who might intercede for you.

Assuming you're "in" somehow, planning for the actual program comes next. As every good ARRL member knows, the League has prepared for situations fitting this exact category, a suggested script for use in planning a broadcast program on amateur radio. Ask for a copy and use it as a guide, enlarging or altering it to suit your specific purpose. Or plan out your interview or little speech on your own. As a bona fide ham you should know your material well enough to sail through this part of it. Just remember what you are attempting to do — tell non-hams about amateur radio in an interesting, informative, easy-to-understand way. Keep this foremost in mind and your success is virtually guaranteed. Your Hooper rating may be so high that you will be called later for a second guest appearance.

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

[1] In this case, "Sales Ability."

Photo courtesy W9GKZ

Viewers of WFRV-TV, Green Bay, Wisconsin, were introduced to ham radio recently by Ora Showers, W9RNS, who appeared on Marianne James' afternoon homemakers' program. Ora highlighted the YL's role in the hobby, while W9GKZ and W9IKY, both of WFRV-TV, explained technical aspects and staged a C-D communications demonstration in cooperation with K9DOL and W9s LON and NOR. In the photo Marianne (right) modulates the rig, set up in the studio living room, after a few minutes of Ora's (left) expert coaching. W9RNS is partial to 10 meters, although she sometimes switches to 40-meter phone in the evening when her duties as mother of two and part-time university teacher leave time for ragchewing. Husband W9HDV is EC for Brown County.

The President of the YLRL for 1958 is Beth Taylor, W7NJS, of Manzanita, Oregon. Licensed in 1949, Beth was formerly chairman of the seventh district for the YLRL. She is a member of the Oregon Emergency Net, Tillamook RC, Asst. R.O. of Tillamook County, a Master BRAT and holds OPS and PAM appointments. With only partial vision herself, Beth has taught twelve years in schools for the blind. W7PPG is her OM.

A high-school senior who manages such activities as alternate NCS of the Pa. Phone Net to riding show horses is Mena Rose, W3UKJ, of Philadelphia, Pa. A novice at 11, a general class licensee at 13, Mena, with her father, W3UKF, uses a KWS-1 and HT-32 and a 75A-4 and 51-J4 for s.s.b. contacts on 15 and 20. For many of her DX contacts (50 countries confirmed) Mena converses fluently in French and Spanish.

It seems to us that a project like this would be a good one for a YL club to tackle. Drawing upon "strength in numbers" and the versatility and talents of several YLs should make for a really worthwhile concerted effort.

The surface of the subject has just been scratched. There are many possibilities and ramifications. The idea is offered as a challenge to your initiative and feeling toward amateur radio. We know we've got a good thing in our hobby — let's share it with others!

P.S. See photo of W9RNS (over on the preceding page) which prompted this month's discourse.

First place winner in the phone section of the 1957 YLRL A.P. was Sarah Hengen, W3URU, of Norristown, Pennsylvania. Skipper and her OM, W3CNO, are both instructors in swimming, scouting, and radio at the Norristown High School. A DX-100 and a Collins A-3 did some of the work for Skipper in the contest. She used a ground-plane antenna for 10 and 11 meters, and a Windham on "other bands."

KEEPING UP WITH THE GIRLS

CLUBS:

Gulf Area YL Amateur Radio Klub — a new YL club which invites all YLs in the Gulf Area to membership. Meetings are the last Tuesday each month. Officers are Pres. K5BJU; V.P. W5DRA; Secy. KN5MIZ. Charter members are K5s CZZ, LIU and W5s EGD, ERH, EUG, MBB, and officers.

Penn-Jersey YL Club — Pres. W4VCB 3 announces a change in requirements for a club certificate. U. S. amateurs

One of the newest of the YL clubs is the Georgia Peaches, organized a few months ago. Six of the 17 Georgia Peaches, who met to draw up a club constitution, are shown here: standing, l. to r.—K4s LVE, KKW, CZR, GCT; seated—K4s DNL and KKR. President K4KKR announces that the new frequency of the Georgia Peach YL Net, which meets Thursday at 0900 EST, is 7260 kc. The club offers a certificate to YLs and OMs who confirm contact with ten of the Georgia Peaches.

must work 10 club members; foreign stations must work 5 members. QSLs not necessary. Send list of stations worked with name, date, time and band to W3GTC.

Rhode Island YL Club — New slate of officers: Pres. K1AAK; V.P. W1WED; Secy. W1GSD; Treas. W1OTI. A new net on six meters meets Tuesdays at 8:30 P.M. on 51.007 Mc. W1GSD, net manager, tunes the entire band for check-ins. The club continues to offer a certificate to any YL or OM who works ten members.

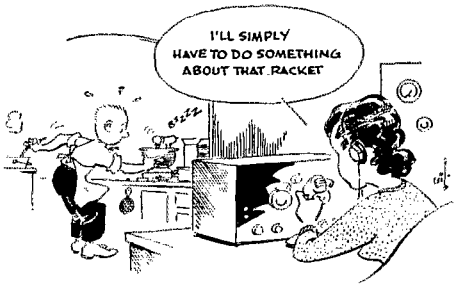
Floridora YLs — Offers a certificate to any licensed amateur who submits confirmation of contact with ten members. QSLs should be sent to Shirley Hill, W4WPD, with return postage included.

San Francisco YL Radio Club — Continues its sponsorship of SWOOP (Suffering Wives of Operators Protectorate), an organization designed to make XYLs feel welcome at hamfests, conventions, etc. Esther Given, W6BDE, will gladly furnish information and certificates.

Young Ladies Radio League — Pres. W7NJS asks the help of all members in an intensified membership campaign in 1958. Membership Committee Chairmen are W7DVH, W8OTK, and K6BUS. K4LMB, treasurer, reports the total paid membership for 1957 was 613. A committee for amending the constitution during 1958 consists of W2s OWL, JZX, W3RXV, K4LMB, W6s NAZ, QGX, W9YWH, and KØLYV.

Frances Viers, W7COX, of Vashon, Washington, topped all other c.w. participants in the 1957 Anniversary Party of the YLRL of last November, making her first place winner of the c.w. section. (For complete listing of contest scores see last month's column.) Frances believes she was the first licensed YL in Montana when she became W7COX in 1932. During World War II as W9SUN she worked as radio operator at the FCC Monitoring Station at Grand Island, Nebraska. In 1947 she retrieved her original call when she moved to her present home on Vashon Island, Washington. Frances' contest-winning rig included a DX-100 modified for vacuum tube keying and a new SX-101. She had a choice of using two antennas, at right angles, each 45' high and 120' long, either separately or together on any band ten thru 160 meters. On c.w. only, Frances enjoys DX on 15 and 20 and long ragchews on 40 and 80. Her OM is W7AAT.

Miscellany: Does Delaware have only two YLs? W3CTM, Eleanor, and W3MDJ, Marie, report they are swamped with requests for skeds. . . . K6JRL, Peg, wonders if she is the first YL in the Los Angeles area to go to 220 Mc. . . . K6OQD has made her third BPL in a row. Jean is now an OPS too. . . . W1HLF, Arlie, has retired as NCS of the Blue Ridge Net, after four years of service. K4CZP, Mattie, is the new control. . . . Another all ham family: Rowena Reynolds of Messick, Va., is K4GKO, her OM is K4GKN, daughter Polly, age 8, is KN4LXL, and Rowena's mother is K4GUD, Ruthella. . . And another ham wedding: At the marriage of K4LFA, Dot, to K4ENW, George, the best man was K4BNE, Dick, and Father Doug, W4KQR, gave the bride away. The wedding-breakfast menu featured ham, of course! . . . W4TDK, Naomi, started another of her beginner's code classes in January. . . . W4ETR, Mary, moved to W7 land and is now W7TNA. . . . Following an article in the Oct. '57 *RN*, a nationally circulated magazine for nurses, which featured RN



W4BIL as an amateur, Fran was besieged by calls and letters from other nurses interested in learning more about ham radio. . . . W5EYE was chosen Operator of the Month for the Fourth Army Area for June, 1957, marking the second time Marian has received this honor (first time, Dec. '54). Another item about Marian — when a wanted criminal, object of a widespread manhunt in the Houston area, was spotted in her neighborhood, Marian's OM Ernie, W5KXJ, went mobile and kept her informed of the suspect's action. Through radio they were able to keep the police informed of the man's route, and he was apprehended. . . . Some W5 YLs reported often heard on MARS frequencies are W5s CBK, CCK, DEW, GCT, HII, KRJ, PTR and YAJ. . . . OM W4ATE forwarded a picture of a beautiful photographer's model. She's not licensed, so we're withholding the picture, but were she a ham, her name, to say naught of her pulchritude, would make her a desirable contact on s.s.b. particularly. She's Miss Sideband of Schenectady, N. Y., and W4ATE says it shouldn't be necessary to emphasize the fact that she is "single"!

—···—

Get-together, hamfest, and convention time is coming up. We'll be glad to include your affair in our Coming Events calendar, provided the notice is received at least two months prior to the issue in which you would like the item mentioned.

—···—

Have you built any new gear lately? If you have, why not tell us about it. It's been some time since we've had enough information to feature YLs who wield a soldering iron. Perhaps your experience will inspire another YL to tackle a bit of building. What say?

—···—

MY OM

A ship that sails the seven seas
Would bring my sailor home to me.
The stars that guide him in the night
Would bring my pilot from his flight;
The greyhound speeds its merry way
My driver home for just a day.

No menace these my sleep to mar,
No voice to call me from afar.
My lover here not far does roam
But safely near and in our home.

Then! battered sounds of noise and squeak,
The air resounds with hiss and shriek.
I jump from bed, what can it be?
A tortured animal I dread to see.
Surely someone reached their doom,
The yowling carries through the room.

Oh heaven, what a fool I am
I'm only married to a Ham.
No sailor, pilot, driver he,
His occupation sets me free,
But Ham he is, and Ham he'll be,
From now until eternity.

— *Lee Barr,*
Linden, New Jersey

Operating News

F. E. HANDY, WIBDI, Communications Mgr.
GEORGE HART, WINJM, Natl. Emerg. Coordinator
PHIL SIMMONS, WIZDP, Asst. Comm. Mgr., C.W.

ROBERT L. WHITE, DXCCC Awards
LILLIAN M. SALTER, WIZJE, Administrative Aide
ELLEN WHITE, WIYYM, Asst. Comm. Mgr. Phone

DX Test Top Attraction for March. Our ARRL International DX Competition has a second phone (Mar. 7–9) and a second c.w. week *end* (Mar. 21–23). These bid fair to command top operating interest for this coming month. This world-wide testing of our stations is announced for week ends of two different months so that any disappointments in propagation conditions occurring in one month may be canceled out by some spread in time of the two parts of the test. Also, if business or family circumstances take priority one month, we still can have a crack at some DX work. Scores started in February may be extended in the *proper* March period. If you weren't all set last month or now have improved your antenna or setup, it's pleasant to know you still can give your station a DX tryout in March!

Full rules and announcement of this annual DX opportunity appear in January *QST*, if you need to review them. Scores large or small should be reported to assist in the cross checking, and to aid the showing made for your country or ARRL Section. Even postal cards confirming individual contacts are welcome and in the right spirit. Best luck and DX.

Re QSLs. *In making out QSLs confirming DX* contacts please *be sure* that these are sufficiently complete in the information they carry to be useful to the amateurs receiving them for *state* or *country* credits. The date, the band, the mode, the state (for WAS), the report for phone or c.w., type emission, and the fraternal spirit should all be conveyed by your QSL. Your card, and your signature or operator sine inscribed upon it or lack of data can show you either as a careless newcomer or a careful experienced operator, aware of and in step with all our best traditions. So *have your card indicate your* goodwill; by its completeness make it informative and of value to the recipient. A 73 instead of 73s on your QSL shows that you know that part of radio abbreviations and usage. Circumstances *seem to indicate that you are a juvenile* if you don't know enough to find and indicate the last name of your addressee when you are sending a card, as part of the address. Always address each card or any message sent as fully as possible so that it can be delivered. Otherwise the whole process becomes pointless. Not all of us can add "this station will QSL photo for photo." However, a philosophy of full fraternal exchange is indeed in keeping with amateur traditions. In conclusion we just have to add the truism that "A QSL is the final courtesy of a QSO."

"It is . . . absolutely forbidden . . . to transmit international communications on behalf of third parties." It was an observer (W7FSK) who just wrote, in his report, "Operation out of the band is excessive. Also the handling of certain traffic and phone patches illegally is increasing all the time." Several letters from amateurs also ask *what* countries, if any, permit third-party work, so it may be timely to get back to the subject language taken right out of Art. 42,

A.R.R.L. ACTIVITIES CALENDAR

Feb. 21–23: DX Competition (c.w.)
Mar. 6: CP Qualifying Run — W6OWP
Mar. 7–9: DX Competition (phone)
Mar. 19: CP Qualifying Run — W1AW
Mar. 21–23: DX Competition (c.w.)
Apr. 2: CP Qualifying Run — W6OWP
Apr. 12–13: CD QSO Party (c.w.)
Apr. 17: CP Qualifying Run — W1AW
Apr. 19–20: CD QSO Party (phone)
May 1: CP Qualifying Run — W6OWP
May 23: CP Qualifying Run — W1AW
June 4: CP Qualifying Run — W6OWP
June 14–15: V.H.F. QSO Party
June 23: CP Qualifying Run — W1AW
June 28–29: Field Day

OTHER ACTIVITIES

The following lists date, name, sponsor, and page reference of *QST* issue in which more details appear.

Mar. 1–2: French Contest (phone), REF (p. 80, last month).

Mar. 1–2: YL-OM Contest (phone), YLRL (p. 72, last month).

Mar. 15–16: YL-OM Contest (c.w.), YLRL (p. 72, last month).

Mar. 15–16: Delaware QSO Party, Delaware ARC (p. 92, *this issue*).

Mar. 29–30: New Hampshire QSO Party, Concord Brasspounders (p. 120, this issue).

Apr. 4–6: WAE DX Contest (phone), DARC (p. 82, last December *QST*).

Apr. 4–10: Goose Bay QSO Party, Goose Bay Amateur Radio Club (p. 142, this issue).

Apr. 5–6: Pennsylvania QSO Party, W3GJY and W3JNQ p. 96, this issue

Apr. 12–13: Ohio Intrastate QSO Party, Ohio Council of Amateur Radio Clubs (next month).

Apr. 12–13: French Contest (c.w.), REF (p. 80, last month).

May 17–18: Helvetia-22 Contest, USKA (details coming soon).

and to list the nine countries where special third-party agreements between them and the U. S. A. allow a limited exception. These are Canada, Chile, Peru, Ecuador, Liberia, Cuba, Panama, Costa Rica and Nicaragua. We suggest that you review carefully all Chapter 9 of the *Radio Amateur's License Manual* has to say about international regulations. The term third party of course refers to any parties *other* than the amateur radio station licensee. The reference to transmissions (and elsewhere to radio communications) gives no comfort to those who would try to interpret the regulation as applicable only to a radiogram or formal communication, or to c.w. and not to phone! The section cited must govern your station and mine in our international work; it applies to all amateur frequency band operation. An amateur who violates Article 42 of the International Telecommunications arrangements is more likely to be cited directly by FCC for his infractions than he is to hear from an ARRL Official Observer. That is because the standing instructions of observers deal in the main with your station's signal effects and whether they meet FCC requirements more than with other basic arrangements.

It is our impression that those who violate this regulation in spirit or practice are doing more to harm the standing of the amateur in international councils than they may know. So let us not yield to the importunities or temptation of those who would like some word conveyed to any third party. We can be thankful that we are free to engage in self-training in good operating and traffic handling with each other *domestically* under liberal FCC regulations . . . and on occasion have more than an exchange of RST reports with amateurs in the few countries where a special agreement permits this.

TVI Committees. Seasonal longer openings of the 10-meter band may give rise to the need at some points for forming new TVI committee groups, or reactivating committees that became inactive where no problems appeared. This is just a reminder that ARRL headquarters has a complete folder of information or TVI kit available for TVI committee chairmen, or clubs that are interested in how these committees are set up and information on the best procedure in handling cases.

Harmonics? Check Your Own Station. Not a day passes but ARRL receives cooperative-notice forms from Official Observers to be forwarded relative to second harmonics. Many of these — but not all — are for Novices. The majority of the notices are directed to trouble in the 7.4-7.5 Mc. part of the spectrum. Forwarding service is given as rapidly as can be supplied, but we hear that FCC notices sometimes beat us to the punch, to the great discomfort of new or, on occasion, older licensees!

Perhaps you have already read the practical comments of an Official Observer in an article on p. 66, last December *QST*. All amateurs have the responsibility of operating their transmitters so that signals are in compliance with FCC regulations. To keep clear of FCC citations or even OO notices, every amateur should make frequent checks with someone across town for possible trouble. Have him listen for you and check your field strength in his station on all the different harmonic frequencies, not the second alone. Review in your *Handbook* those sections listed in the index pertinent to harmonic reduction, operation of antennas, etc. If these checks are made and an operational routine for all transmitter adjustment set up and followed at all times, there shouldn't be any necessity for citations or OO advice. See last March *QST* (pp. 26–27) if you need some extra harmonic reduction between the rig and the antenna.

—*F. E. H.*

We amateurs are sometimes prone to forget that we are amateurs and think we are ordinary people in their right minds. Again and again we receive letters, reports, applications and other types of communications in which the person signing does not indicate his call letters after his name. There are names and names, and very few are unique because of a singular lack of originality in naming our children. Your name identifies you to us only if it is followed by your full address, and even then it is not complete identity as far as being an amateur is concerned; in fact, it doesn't even tell us if you *are* an amateur or not.

But your call is your *amateur* identity, and that is mainly what we here at headquarters are interested in. There is no other call just like it. From it alone, we can obtain your full name and address from the call book. It tells us that you *are* an amateur. It individualizes you as no given name, lovingly assigned to you at birth by your parents, without your consent, can do. We can do without knowing your name, but *please indicate your call* on correspondence, reports, messages or in any other kind of written or spoken communication. Without it, we are lost. Even if you are a League member, your name alone is meaningless, because the membership files are alphabetical by state and city, not by name.

In AREC work particularly, this is important. What brings it to mind is the present analysis of SET reports and traffic received. A report received might have the EC's signature, sure enough, but no call or address, and his area of jurisdiction is given as "Podunk County," without any state. We're sunk. If we're lucky, he might give some calls of participating stations, which we can then look up and decide, with the help of an atlas or postal guide, which state this particular Podunk County is in. Then we look through our EC file to get the guy's call and address — that is, if he's an EC. If he's not, then we have to run down to the membership file and look up cities in the state we think this Podunk County is in until we find him — that is, if he's a League member. Usually, we are able to identify him in the end.

So, you ask, what are you kicking about? You found him, didn't you? Yes, but the amount of time spent in doing so is way out of proportion to what would have been required for him to jot down the name of the state and his call letters. If that's too much trouble, just skip signing the name and use call letters instead. But it's not the trouble, it's the thought. They just don't think. *Everybody* knows that Podunk County is in the state of Confusion. *Everybody* knows that John Smith's call is W9-blankety-blank. If they don't, they should.

SET messages received, too, have this discrepancy. We have a message signed Joe Blow saying he participated in the SET. Usually, Joe Blow is the station of origin,

These seven amateurs provided communications for the 1957 *Cleveland Press* Christmas Parade. Operation was on six and ten meters, both mobile and fixed. Shown in the picture, left to right, are W8AEU (Cleveland EC), K8ABA, W8LHX, W8PVC, W8FAG, W8INW and W8QXG.

but we still have to look it up to make sure. If he's not, then who the heck is he? We have to do research if we want to find out. Time is wasted. There is no time to waste — we're all overloaded with detail work as it is. Efficiency declines, errors occur, omissions are committed. Use your call letters, fellows, will ya, huh? Please?

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A bee sting doesn't sound like much of an emergency, but when you're allergic to bee stings they can be quite serious. One little boy at the Tamaqua, Pa., parade, on October 5, was in bad shape as a result of a bee sting. Luckily, the Tamaqua AREC gang was on the job handling parade communications. W3ZXF was dispatched for a needed medication, but the drugstore was closed and he couldn't get it, although he almost hammered the door down. W3KJJ then arranged to get the medication from another store, and it was delivered within 11 minutes after the first call, possibly saving the boy's life. W3CMA was also involved in the communications in this incident.

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Amateurs in the Rutherford, N. J., area were involved in a grim emergency when a man drowned in Berry's Creek. Their task was to supply communications involved in the dragging operation for the body. Four portable units, complete with storage batteries, were rounded up and put into service. Although the group disclaims having done much, they nevertheless received a nice letter from the borough chief of police for their efforts. Participating amateurs included *W2s* OGM DRA DBW and LKW.

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More on the car-truck accident near Great Falls, Mont., reported in last month's column: First of all, it was W7YQZ, not W7YZQ, who was first contacted by W7SFK. The latter maintained contact with W7TGG, his XYL from the scene of the accident. After the victim had been dispatched to the hospital, W7SFK contacted W7THP, who arrived with a winch truck to clear the road. The patrolman not yet having arrived, amateur communication was put to work to find his whereabouts via W7YIO and W7MIM. When he finally got there, a phone call was arranged to check the condition of the injured driver; this was handled through W7ZKA. Amateur radio was responsible for all activities. — *W7KUH, SEC Mont.*

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Members of the Washington Radio Club and the Washington Mobile Radio Club worked together in providing communications during the heavy snowfall which hit that area on Dec. 4. Mobiles fighting their way through city streets advised the control stations which routes were best, who could then advise other mobiles the best routes to follow. Fixed stations at W3PZA, W3RPE, W3ECP, and W4NJF acted as net controls for mobiles. W3DAG and W3THP also assisted briefly. Information on file included street and highway conditions, spots to avoid, blocked roads, accidents and traffic jams. W3PZA also had the additional benefit of reports from Red Cross units. Mobiles included W3HV, *W4s* ESH ZND and W5VGE/4. Others who checked in to assist in the operation were *W3s* BEH EOV FZ, *W4s* OP YWF JSG CMB BF. — *W3CN.*

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Amateurs in Illinois were involved for three days in the search for a girl reportedly lost or kidnapped in the area of Sycamore, Illinois. The story begins at 0915, Dec. 6, when W9AAH, NCS of the Ogle County RACES net, was contacted by W9BKW/m and asked to provide mobile-to-fixed communications for the search party. The deputy sheriff in that area needed communication with the sheriff's office. W9BKW/m, with the search party, maintained constant contact with W9AAH until 1615, passing along much useful information to the sheriff's office. W9RXY assisted in operation of W9AAH. Operation of this net continued through Dec. 8.

At 0800 Dec. 7 fourteen area mobiles and some 25 amateurs met with the searchers at the Greater Rockford airport and were assigned "prowl" areas by the Sheriff's Department. Eight of the mobiles operated on 10 meters, the other 6 on 75 meters, and a wide search area was covered; some of the mobiles came from as far away as Janesville, Wis. A list of participating amateurs reported by W9BQC and forwarded by W9NJG include *W9s* BQC BQV CZB ERU HSY IBV KBP KDK LRZ NJG NUC SRQ TRF USR UYB VYL, *K9s* AQB AVW AVY DJG GGZ IUD JHH JWG and JYP.

On December 8 the search continued, spreading out to cover a wider area. Ogle County Civil Defense units activated a net on 3871 kc. with W9AAH as net control (operated by W9RXY), with three mobiles on that frequency (*W9s* BWK DET and KZM) and four on 145.26 Mc. (*W9s* BKW AAH CBZ and CKM). W9BKW provided liaison between the 75- and 2-meter units and the NCS. The search covered an area of 30 square miles in Ogle County with the center of the search at Monroe Center. The net was secured at 1310.

In the vicinity of Sheridan, an area of 12,000 acres was searched on Dec. 8. Fifteen hundred volunteers were divided into teams with leaders who were familiar with the terrain, and a communications unit was assigned to each. A base station was set up on 29,640 kc. W9PNY acted as NCS, with mobiles *W9s* JID SEV and VOK. Operation commenced at 0900, and at noon four amateurs from Lombard arrived with six meter portable units to assist. It was very apparent during the search, says our reporter W9VOK, that the value of amateur radio in an emergency was again proved to those who saw it in action.

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Returning home on the Trenton (N. J.) freeway at 2230 on Dec. 21, K2MQM had just called a CQ on two meters from his mobile when he came upon a bad accident. The CQ was answered by W2HIT, who was informed of the wreck and notified police. Thanks to amateur radio, an ambulance was on the scene within five minutes. — *W2POC.*

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On Dec. 28 a private plane carrying four people became overdue at Cottage Grove, Ore. W7QPA, CAP Communications Officer at Cottage Grove, put out a call on the Oregon Emergency Net of 3840 kc. asking for assistance. He was aided by *W7s* QFY JDX DIC and WOX in alerting CAP search planes, which sighted the wreckage near Mt. Shasta within two hours. Unfortunately, there were no survivors. — *W7JDX, SCM Oregon.*

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Around noon on January 2, W6AIUJ heard about a girl lost in the desert near Vallecitos, Calif., and that sheriff's cars were unable to communicate back to San Diego. He called W6KBT and suggested that the AREC 2 meter net might be able to assist. The latter called the sheriff's office and offered his assistance. K6SZM set up a station at search headquarters at Vallecitos Stage Station. KN6AQE and

In a Canada-wide contest of amateurs enrolled in civil defense, VE6BM was declared the winner for having submitted the best papers on an ideal mobile rig and methods of cooperation between civil defense and amateurs. The prize was an electric transistor chronometer and a complete electronics course at the Radio College of Canada. Shown in the picture are (l. to r.) Mayor William Hawrelak of Edmonton; L. C. Halmrast, Alberta Minister of Agriculture and civil defense; VE6BM; and R. F. Lambert of the Radio College of Canada.

KØIVX 6 located at a relay point atop Monument Peak in the Laguna Mountains. K6BPI acted as terminal at the San Diego end. The frequency used was 145.6 Mc. Says our unidentified reporter, "The circuit proved to be an S9 pipeline both ways. K6BPI was able to copy K6SZM direct and possibly could have done without the relay, but with KN6AQE relaying over the mountain it was duck soup." The search was called off when darkness fell, but was continued the next morning, and the nine-year-old girl was found at 0745 Jan. 3 in fair condition about a mile from camp. K6SZM at search headquarters had his mike open at the time and the gun shots announcing the finding were plainly heard by all monitoring the frequency, which included five other amateurs standing by to assist. Says our reporter, "The local newspaper reported that the first news of the finding was sent in by a sheriff's car, but we of the AREC know who reported it first and we are justly proud of our accomplishment."

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Twenty-one SEC's reported November activities on behalf of 5445 AREC members. This is the same number of reports as received last November, slightly fewer AREC members. One newcomer, the new SEC for East Bay section in California, brings the total number of sections heard from in 1957 to 36, one more than at this time last year. Other sections reporting: S. Tex., Conn., Ga., N. M., Mont., NYC-LI, W. N. Y., Nevada, Colo., San Joaquin Valley, E. Fla., Ala., Minn., Santa Barbara, Ore., Santa Clara Valley, Md.-Del.-D. C., Nebr., Mo., N. Texas.

RACES News

The Glendora (Calif.) RACES group was called into duty on Nov. 21 in connection with the windstorm that occurred at that time. A mobile was out with each crew clearing fallen trees, and as phone calls reporting additional ones came into police headquarters, the information was given to the mobile nearest that point. Frequencies on 2 and 6 meters were used. Since power was available from commercial lines, the group's emergency power unit was loaned out to the crews for their floodlights. The operation lasted until 0100 Nov. 22. Amateurs participating were *K6s* IUH LHA OQC OQD PHS and PLV. — *K6OQD.*

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We received a very fine summary of 1957 Operation Alert activities in Wisconsin from W9UFX, too late to make the regular writeup. It is worth summarizing here.

Amateur operators, members of the Stevens Point Radio Club, were on duty from the time the control center at Central State College went into operation the morning of July 12 until the control center shut down the following day at 1800, functioning more than 55 consecutive hours, handling both c.w. and voice. More than 20 operators stood shifts during that period. Messages were transmitted to FCDA regional office in Battle Creek, to county c.d. coordinators throughout the state, and to Disaster Region 1 Control Center in Watertown. The messages covered summaries of situations created by simulated bombings of Milwaukee, Madison, and Duluth-Superior, information pertaining to radioactive fallout, and general operational traffic. More than 350 messages were handled by the RACES group. The circuit to Battle Creek was excellent, but some of the voice circuits within the state experienced atmospheric difficulties. 32 civil defense areas called in at one time or another during the test. The c.w. circuit functioned without a hitch. State Civil Defense Director Olson and Director of Warning and Communications Blume gave the amateurs lavish praise for their work. W9HDJ and W9BCC helped in relay operations from their home stations. State Radio Officer W9UFX gave high praise for the efforts of the Stevens Point Radio Club in the operation.

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The Nevada RACES organization is being formed under the leadership of W7ZT, state RACES radio officer. Alternates are W7HJ and W7ZU. County RACES plans have been approved for Clark and Washoe Counties with W7YLO and W7PC as radio officers respectively. Other counties are being included in RACES as personnel and stations become available. — *W7ZT, State Radio Officer, Nevada.*

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RACES members in South Bend, Ind., are being used to assist in parking problems connected with Notre Dame football games. A mobile is placed at each entrance to a parking field. Thence the ability of a certain parking area to handle more cars can be radioed to a mobile unit stationed at a key junction leading to the parking areas. The mobile, in conjunction with the local police department, acts as a valve to channel the flow in another direction in the event of a sudden saturation of a parking area or the route leading to it. The RACES amateurs use this activity as practice for what could very easily be a similar situation in the event of a real emergency.

NATIONAL CALLING AND EMERGENCY FREQUENCIES (Kc.)

3550	3875	7100	7250
14,050	14,225	21,050	21,400
28,100	29,610	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.

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for December traffic:

Call	Orig.	Recd.	Rel.	Del.	Total
W2KEB	220	2565	1906	647	5428
W7BA	31	2548	2475	67	5121
W3CUL	399	2272	1686	398	4755
W3WIQ	183	1691	1745	139	3758
W0SCA	54	1762	1651	2	3469
W0PZO	18	1246	1220	6	2490
W0BDR	99	1202	1029	20	2350
W0CPL	10	1164	1060	104	2338
W1UEQ	4	1063	1021	42	2130
K6SLB	20	1045	1021	24	2110
W7PGY	62	1011	914	93	2080
W0LCX	50	966	916	142	2074
W4PL	13	1049	969	37	2068
W0LGG	60	976	927	51	2014
W5RCF	12	968	915	41	1936
K6MCA	165	994	664	80	1903
W8UPH	38	930	791	129	1888
W9NZZ	362	742	1	738	1843
W8DJN	19	860	807	48	1734
W6GYH	570	499	510	15	1594
K6SNA	205	672	507	168	1552
W9DO	24	735	683	76	1518
K2PHF	253	702	476	13	1444
W1ARR	422	505	431	25	1383
W9JOZ	13	663	633	9	1318
W0GAR	8	646	648	6	1308
W3CVE	731	264	139	125	1259
W9CNY	10	593	550	43	1196
W9MAK	117	478	356	94	1045
W1BXT	70	493	468	6	1037
W6EOT	9	499	471	36	1015
W0BJP	3	497	492	5	997
W0BLJ	1	500	492	3	996
K4FCT	34	455	445	16	950
KH6AJF	225	362	265	93	945
K4KNP	4	466	462	0	932
W0CZ	33	448	388	45	914
K6UOD	12	444	349	104	909
K0BCQ	1	429	0	428	858
W4SHJ	692	92	50	22	856
W1TYQ	13	422	389	8	832
W0GXQ	40	400	371	20	831
K1BCS	228	298	252	46	824
K6GK	10	395	169	226	800
W0OHJ	4	395	385	10	794
W1EMG	9	394	287	97	787
K4MCL	256	272	192	66	786
W0RQD	88	370	290	38	786
K6OZJ	6	388	376	12	782
W0IA	39	365	361	2	767
W4LDM	115	357	246	21	739
K4AET	12	357	326	22	717
K4DSN	56	328	313	15	712
W6CQY	333	143	132	83	691
W7VAZ	0	344	201	143	688
W3WHK	37	323	179	140	679
W7APF	9	335	323	3	670
W0ZWL	11	356	8	293	668
W9TT	24	325	218	81	648
W7VIU	53	296	229	67	645
W9ZYK	12	311	308	12	643
W9JYO	303	180	147	11	641
W0WMK	16	317	301	6	640
K4OAH	64	278	262	27	631
W0SCT	49	295	275	8	627
W0TOL	68	297	250	11	626
W9VAY	11	313	292	6	622
W1FYF	66	288	244	18	616
W7FZQ	19	286	295	7	607
W4THM	243	236	111	16	606
W3AFF	39	289	183	94	605
W4PJU	23	289	240	49	601
W5ESB	27	282	265	17	591
K6HOV	150	150	150	140	590
W0FNS	6	295	273	14	588
W9EQO	8	285	283	1	577
W9SVL	11	282	280	2	575
K2RYH	27	272	255	14	568
K8AEC	11	271	269	2	553
W1YBH	111	237	128	63	539
W6BPT	6	264	258	4	532
W0KJZ	59	296	110	67	532
W7FKK	110	216	170	35	531
W3UE	28	257	227	16	528
K6GZ	264	131	42	89	526
W4QDY	106	211	160	48	525
K6DYX	9	267	235	14	525
W4IA	19	287	204	14	524
W3GYP	39	250	187	47	523
W3TEJ	3	262	220	38	523
W2RUF	76	244	150	49	519
W7UWT	13	253	230	23	519
K4LVE	132	195	159	29	515
W6QMO	43	257	169	43	512
K4AIS	61	229	190	30	510
K2IYP	10	247	215	36	508
W5UMY	7	249	216	33	505
W1EFW	45	250	201	5	501
Late Report:					
W6GQY (Nov.)	356	24	388	10	778

More-Than-One-Operator Stations

Call	Orig.	Recd.	Rel.	Del.	Total
W6YDK	615	149	52	97	913
K3WBJ	299	190	139	51	679
KG1DT	197	195	19	194	605
Late Report:					
K7FAE (Nov.)	113	212	152	49	526

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

W7ESO/5	322	W3EPL	139	W1DIY	112
W4TYU	299	W5EGD	131	W9YT/9	111
K6HPI	269	W1FJJ	129	W8WGU	110
W8OCU	220	K2SOW	127	K0GCN	110
W9PCQ	204	W4PIM	126	W0KLG	109
K9ELT	195	K9AUI	126	K5AEX	107
K0BXF	178	W3YDX	124	K2YTD	104
K9GDF	177	KN9IXD	124	W3BZR	104
K8NAW	167	W8GFE	122	K0DEX	104
W4DDY	165	K2OOK	120	W9RAW	102
W2VDT	163	K6ICS	119	W0LJW	102
K6JQB	161	K6EWY	118	K2OIY	100
W8WXO	158	W8DAE	117	K2QYI	100
K0CI8	149	W3ZRQ	116		
W1AWA	148	W9TZN	116	Late Report:	
W6BHG	140	K0EJZ	116	KH6AJF (Nov.)	109

More-Than-One-Operator Stations

W2AEE	121	W9AB	120	W2YNU	104

A BPL medallion (see Aug. 1954 *QST*, p. 64) has been awarded to the following amateur since last month's listing: K6OUD.

The BPL is open to all amateurs in the United States, Canada, Cuba, 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.

TRAFFIC TOPICS

We want this month to cover three topics that seem of current interest to traffic men:

BPL medallions. It is not necessary to apply for your BPL medallion after you have qualified, unless it appears that for some reason you have been overlooked. They are issued automatically, but not until after your third BPL has appeared in *QST*. This occurs in the issue of *QST* three months following the month in which the qualifying traffic total was made; for example, this month's *QST* BPL totals are for the month of December. The issue date of this *QST* is approximately February 20. Each station who qualifies for his third BPL with this issue of *QST* will receive, about the time this issue is in general circulation, a form letter and a card, the latter to be signed and returned to us. Once we have it back, a medallion is sent to the engraver to have your call letters engraved on the back of it. This takes about ten days. Then it is shipped to you. Thus, if you qualified for BPL medallion in December, you ordinarily would not receive your medallion until some time in March. If you returned your card promptly, and still did not get your medallion by the end of the third month following the month in which you qualified, that is soon enough to inquire.

Net recognition. Several nets feel that they are not getting the amount of "publicity" in *QST* that they think they deserve. In this as in other things, we have to follow a set procedure, space limitations being what they are. Often this works a hardship on some local nets who are doing a very fine job. Each month we receive at least half a dozen requests for *QST* publicity for nets who feel that their efforts on behalf of the AREC or traffic handling should be rewarded by at least a small paragraph in this column. If we printed all these (which we cannot do), we would be deluged with information on other nets, net rosters, procedural rules, solicitations for members for new nets, detailed net data aimed at the glorification of that net without any significant contribution to net operation or traffic work as a whole. We just can't do it, fellows. We hate to turn you down, but there is no alternative. The best we can do is to summarize very briefly some traffic figures for certain wide-area coverage nets, and suggest that other nets, those operating within section boundaries, submit their data to their SCM for use in his monthly column. The only reports we solicit for this column are those for NTS nets, so we can report a general picture of the system below. Other reports come to us unsolicited. We shall endeavor to summarize unsolicited reports (provided they are intersection) until or unless they

become too numerous; then, we'll have to decide what to do about it. Many nets have their own bulletins, financed by members, to fulfill this need — an excellent medium for it. Be this as it may, the present space allocations in *QST* will not permit general "publicity" on individual net operation.

Let's start a net. The latest "rage" seems to be to start nets, new nets, more nets, nets for special purposes, nets for select groups, nets just for the sake of starting nets. Our 1957 year-end net directory lists over 500 of them, and you will find more in this issue of *QST*. We have nets that haven't registered yet and never will. The grand total must be well over 1,000. It's a tremendous job involving weeks of labor to compile the net directory, get it put on stencils and through the multi-lith facilities and in circulation before it becomes obsolete. And still, day by day, we get letters announcing the formation of new nets, requesting *QST* listing and "publicity." Some of them, quite frankly, sound pretty silly, but so far we have registered all who request registration.

We have often wondered at this tendency to start nets when there are already nets operating in the same area doing the same thing. A group of hams get together, for example, and decide they would like to handle some traffic, so they start a traffic net. Don't they ever look around to see what nets are already in operation in which they might take part? We're very much afraid that there is an increasing tendency for amateurs, especially the new crop of youngsters we're glad to see coming along, to want to have nets of their own so they can start out by being "chiefs" instead of "indians." The existing traffic organizations are pretty good, most of them, and they are always on the lookout for new members. You report in green and you flounder around, but eventually you get the hang of it, get important liaison assignments, and first thing you know you are taking a leadership part in a net organization that *means* something. So before you haul off and start your own net, give some thought to putting your weight behind those already in existence. Want to know what nets are available in your neck of the woods? Ask us for a copy of the net directory.

—•••—

By this time most traffic men know that we have lost Mert Meade, WØKXL NIY, founder and publisher of the widely-known "Midwest Clixs." It is only fitting that we take note of his passing in this column, but no matter what we say, it will add up to this: Mert was a good traffic man, in every sense of the word. We are very sorry to lose him. We wish he were still here. We shall miss him. Vale, Mert.

—•••—

Net Reports. Interstate Single Sideband Net held 31 December sessions, handled 1321 messages, averaged 58 stations per session. Early Bird Transcontinental Net reports 31 sessions and 1800 messages handled. Transcontinental Phone Net report: 1st Call Area, 3607; 2nd Call Area, 3212; 4th, 9th and Øth Call Areas, 2038; total, 8857. North Texas Oklahoma Net had 31 sessions, 1119 check-ins, traffic total of 616.

—•••—

National Traffic System. We are glad to see some NTS activity on phone these days. The new net directory shows that of the 88 NTS nets registered at section level, 37 operate on phone. Incidentally, our NTS is now 102 nets strong and ever growing stronger. So far, all regional, area and TCC activity is by c.w., but watch out for some of these energetic phone organizers. They are just as liable as not to show that it can be done by phone, especially where it is not now being done by c.w. C.w. may be more logical for medium and long range work, but if we can't have the ideal we use what we have.

We also note that several local v.h.f. nets are tying into NTS via their section phone or c.w. nets. This brings up some potent possibilities. First of all, a fourth category of NTS net, the Local Net. Large cities in each section will develop nets on v.h.f. (mostly 6 or 2 meters, we suppose) for local traffic delivery, sending a representative to each section net. This would keep the number of participants in the section net down to a reasonable level and extend the NTS tentacles further into metropolitan areas so that deliveries can be made by stations ever nearer to the destination point and avoid delays inherent in mailing traffic. We haven't fully studied this out yet, but we see in it the possibility of working your local AREC organization, if it is an active one, into a nation-wide and Canadian-wide traffic network. Bringing the local level into NTS poses many intriguing possibilities, but much organizational ground work must be done first if the transition is to be smooth.

Meanwhile, local or metropolitan nets can be considered a part of NTS by tying in with their NTS section nets.

December reports:

Net	*Sessions*	*Traffic*	*Rate*	*Average*	*Representation %*
1RN	26	681	.493	26.2	96.1[1]
2RN	50	787	.490	15.8	97.6
3RN	39	398	.365	10.2	95.7
4RN	51	1047	.459	20.5	66.1
RN5	52	1222	.293	23.5	86.9
RN6	54	965	.640	17.8	24.3
8RN	49	289	——	5.9	85.7
9RN	59	2077	.738	35.2	79.7
TEN	93	2885	.774	23.0	80.1
ECN	17	59	.190	3.4	78.4[1]
EAN	24	1648	1.177	68.7	98.6
CAN	31	2497	1.257	80.7	100.0
PAN	31	2087	.685	67.3	96.8
Sections[2]	818	8851		10.8	
TCC East	37[3]	216			
TCC Central	62[3]	495			
TCC Pacific	83[3]	1845			
Summary/Total	1394	28049	CAN	18.3	CAN
Record	1394	28049	1.257	23.5	100.0

[1] Regional net representation based on one session per night. Others are based on two or more sessions.

[2] Section nets reporting: GSN (Ga.); QKN & QKS (Kans.); ORVTN (Tenn.); CPN & CN (Conn.); TLCN (Iowa); ILN (Ill.); SCN (Calif.); Iowa 75 Phone; Tenn. CW; QMN (Mich.); KNN, KPN, KSN & KYN (Ky.); NMN (N. Mex.); CWXN (Colo.); MSPN, MSN, MJN (Minn.); FMTN (Fla.); BN (Ohio); WSN (Wash.); WVN (W. Va.); S. Dak. 75 Phone & S. Dak. 40 Phone; NJN (N. J.); AENB, AENP & AENT (Ala.).

[3] TCC functions reported not counted as net sessions.

This was the biggest December in NTS history, and we've had some big ones. Each month records continue to fall, and we keep wondering how long this can go on. Note that for the first time since we instituted the new "rate" figure (total traffic divided by the total time in session) two of our area nets have exceeded 1.00 — an indication of the high-speed efficiency of these nets, as required to complete the business they have to handle each night.

First Regional Net certificates have been issued to *W1s* MQT HTQ GQJ AJX DGL KGJ and K1BCS. The 2RN figure of 787 in the traffic-handled column is a new record for that net; manager W2ZRC wishes to commend *W2s* PHX HDW RG, *K2s* BHQ PNF for their reliability; certificates have been issued to W2ATA and K2RYH. W3UE has issued 3RN certificates to *W3s* GYP HIZ and PZW; the net has returned to the standard 1945/2130 sessions and both are working out fine. Get a load of the 4RN traffic report for December; net certificates have been issued to *K4s* AVU and KDN. Representation from laggard sections in the Fifth Region is picking up; W5RCF estimates that over 1000 overseas messages were delivered in the region during December. W6CMA has issued RN6 certificates to *K6s* RLX YKG SXA and YBV. W4KKW has issued 9RN certificates to K9GDF and K4OAH. WØKJZ submits here last report as TEN manager, showing the highest traffic total in TEN history. W9DO says that during the Christmas rush each region had from 5 to 6 representatives in CAN so traffic was cleared with maximum

NATIONAL RTTY CALLING AND WORKING FREQUENCIES

3620 kc. 7140 kc.

These frequencies are employed throughout the United States by amateurs using radioteletype.

efficiency. PAN certificates have been issued to W7KZ and W6CMA; the mountain area is becoming more active, with W7OCX doing a fine job for Utah.

Transcontinental Corps. The biggest TCC news at the moment is the availability of new certificates to regular TCC stations who qualify for them. These certificates are to be issued by the TCC directors. We would also like to announce the appointment of W6BPT to replace WØKQD as director of TCC-Pacific. Pinky has a lot of experience in TCC work and should do a crackerjack job.

December reports:

Area	*Functions*	*% Successful*	*Traffic*	*Out-of-Net Traffic*
Eastern	37	83.8	988	216
Central	62	87.1	2073	495
Pacific	83	96.4	3681	1845
Total	182	90.7	6742	2556

The TCC roster: Eastern Area (W3WG Manager) — *W1s* EMG TYQ AW NJM, *W2s* HDW ZRC, *W3s* COK WG, *W9s* CXY DO. Central Area (WØBDR Manager) — *W9s* CXY DO, *WØs* BDR LCX LGG SCA. Pacific Area (WØKQD Manager) — W5DWB, *W6s* ADB GIW PLG EOT VZT BPT HC, *K6s* DYX GZ EWY ORT, *W7s* VIU GMC, *WØs* KQD WMK.

SUPPLEMENT TO NET DIRECTORY

The following list of nets will supplement and correct the listings on page 98, Nov. 1957 *QST*, and page 83, Jan. 1958 *QST*. Please inform us of any errors or omissions so that they can be included in the final May *QST* installment. An asterisk (*) indicates correction from previous listing. These nets, or corrections thereof, may be used to bring up to date or correct the cross-indexed master ARRL Net Directory. With the above two listings, this brings the registry up to date as of January 17, 1958.

Important note: ARRL lists of nets are for *information only.* They do not carry any official significance. Nets are registered as closely as possible in accordance with information given by the registrant. Certain common abbreviations are used to conserve space.

Name of Net	*Freq.*	*Time*	*Days*
Amateur UHF Club of Jamaica 420 Mc. Net	432,900	2130 EST	Tue.-Thu.
Antietam Net of Antietam Radio Assn., Inc. (AN) (Md.)	3827	1800 EST	1/3 Tue.
AREC Cuyahoga Co. Thunderhead Weather East Side Net (Ohio)	50,600	1945 EST	Wed.
AREC Cuyahoga Co. Thunderhead Weather West Side Net (Ohio)	50,500	2000 EST	Wed.
AREC Net (Calif.)	3900	1030 PST	Sun.
	7250	1130 PST	Sun.
Blossomland Net (Mich.)	29,610	1705 EST	Mon.-Sat.
Centre Co. Civil Defense Net (Pa.)	28,570	2130 EST	Sun.
Charlotte Races Net (N. C.)	3825	1330 EST	Sun.
Christian Fellowship Net (CFN)	3865	1430 EST	Sun.
College Net	3895	1530 EST	Fri.
Eastern N. Y. AREC Net	145,350	2100 EST	Fri.
Erie Co. Emerg. Net (ECEN) (N. Y.)*	3915	1230 EST	Sun.
Framingham Radio Club Emerg. Net (Mass.)	28,700	2045 EST	Wed.
Framingham Radio Club Net (Mass.)	51,000	1945 EST	Wed.
	145,350	1900 EST	Wed.
Golden Isles Emerg. Phone Net (Ga.)	29,200	2030 EST	Tue., Thu.
Horsetraders Net	50,100	1930 EST	Tue.
Hudson Traffic Net (HTN)	7060	1645 EST	Daily
Illinois CW Net (ILN)*	3515	1900 CST	Daily
Iowa Des Moines Emergency (Traffic) Net (IDM)*	7130	1730 CST	Mon.-Sat.
Kansas Novice Net (QKN)*	3735	1730 CST	Mon., Wed., Fri.
		1700 CST	Sun.
Kings Co. RACES-AREC 6 Meter Net (N. Y.)*	50,400	2030 EST	Mon.
Lombard 6 MTR Net (Ill.)	50,700	1930 CST	Fri.

During Operation Alert, 1957, the Wisconsin State Control Center at Stevens Point was operated on c.w. by W9CFL (foreground) and on phone by W9CFO.

Name of Net	*Freq.*	*Time*	*Days*
Mich. Six Meter Net	50,250	2200 EST	Sun.
The Mich. Outer State Net	7160	1600 EST	Sat.
Minn. Section Net (MSN)*	3595	1830 CST	Daily
Miss. Magnolia Emerg. Net	3870	1330 CST	Sun.
		2000 CST	Mon.-Fri.
Nittany Valley Phone Net (Centre Co., Pa.)	29,600	2200 EST	Sun.
North West Texas Emerg. Net	3950	0800 CST	Sun.
Northern Va. Emerg. Net	29,200	1230 EST	Sun.
Ontario 2 M Amateur Net (OTMAN)	145,006	2100 EST	Tue., Sun.
Quicen City Emerg. Net (QCEN)	29,600	2000 EST	Mon.
RACES Mich 4th Area Net (EC-4)	3507.5	0830 EST	Sun.
Regional Novice Net (RNN)	7152	1730 CST	Daily
Science League Net (SLN)	3525	1800 EST	Daily
	7125	2100 EST	Daily
The Silverado Six-Shooters Net (Calif.)	51,450	0900 PST	Tue.
Sinus Net	7050	1000 EST	Sat., Sun.
Six Meter Club Net (Chicago)	50,400	2230 CST	Tue.
Six Meter RACES Net (Chicago Area)	50,620	2200 CST	Thu.
South Car. Phone Net*	3930	1930 EST	Mon.-Fri.
		0830 EST	Sun.
		1530 EST	Sun.
Third Region Net (3RN)*	3590	1945 EST	Mon.-Fri.
		2130 EST	
West Coast Novice Net (WCNN)	7195	1000 EST	Sat.
West Mich. V.H.G. Emerg. Net	145,260	2000 EST	Mon.
Wheat Belt Phone Net (WBN)*	3825	1230 CST	Sat.

The Cedar Valley Amateur Radio Club of Cedar Rapids, Iowa, gave the local police department a hand in curbing vandalism on October 30 and 31 during Hallowe'en activities. Operation was on 29.6 Mc. with net control WØWSV at the police station. Sixty messages given by police officials asking for help in curbing vandals, checking on large groups of kids, reporting incidents and handling traffic violators were all efficiently dispatched. Every amateur mobile had a policeman with him on designated routes. The police department was very pleased with results and sent a letter of appreciation to each amateur taking part. Over twenty amateurs took part in this activity. — *KØJIY.*

Oklahoma amateurs have been working closely with the U. S. Weather Bureau for years on the Oklahoma Weather Net, but about three years ago they started giving and getting weather information to the Oklahoma City Weather Bureau and by making checks of information they get on radar. When the radar unit quit during a bad storm front in Western Oklahoma and the amateurs kept the weather station supplied with first-hand information, they were accepted officially as a vital source of weather information by the bureau. The net now works with Oklahoma City, Tulsa, Wichita Falls and other agencies. Says Sandy, W5AZO, "Listen on 3860 kc. and you will hear a smooth operating net during tornado season down here."

W1AW OPERATING SCHEDULE

(All times given are Eastern Standard Time)

Operating-Visiting Hours:
Monday through Friday: 1500–0300 (following day).
Saturday: 1900–0230 (Sunday).
Sunday: 1500-2230.

Exception: W1AW will be closed from 0300 April 4 to 1900 April 5 in observance of Good Friday.

General Operation: Use the chart on page 101, last November *QST*, for determining times during which W1AW engages in general operation on various frequencies, phone and c.w. Note that since the schedule is organized in EST, certain morning operating periods may fall on the evening of the previous days in western time zones. W1AW will participate in all official ARRL operating activities, using scheduled general operating periods for this purpose if necessary.

Official ARRL Bulletin Schedule: Bulletins containing latest information on matters of general amateur interest are transmitted on regular schedules:

Frequencies (kc.):
C.w.: 1885, 3555, 7080, 14,100, 21,010, 28,060, 50,900, 145,600.
Phone: 1885, 3945, 7255, 14,280, 21,330, 29,000, 50,600, 145,600.

Frequencies may vary slightly from round figures given; they are to assist in finding the W1AW signal, not for exact calibration purposes.

Times:
Sunday through Friday: 2000 by c.w., 2100 by phone.
Monday through Saturday: 2330 by phone, 2400 by c.w.

Code Proficiency Program: Practice transmissions are made on the above listed c.w. frequencies, starting at 2130 daily. Speeds are 15, 20, 25, 30 and 35 w.p.m. on Monday, Wednesday and Friday, and 5, 7½, 10 and 13 w.p.m. on Sunday, Tuesday, Thursday and Saturday. Approximately ten minutes of practice is given at each speed. *Exceptions:* On March 19 and on April 17 W1AW will transmit ARRL Code Proficiency Qualifying Runs instead of the regular code practice.

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 on March 19 at 2130 Eastern Standard Time. Identical texts will be sent simultaneously by automatic transmitters on 1885, 3555, 7080, 14,100, 21,010, 28,060, 50,900 and 145,600 kc. The next qualifying run from W6OWP only will be transmitted on March 6 at 2100 PST on 3590 and 7128 kc.

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.

Code-practice transmissions are made from W1AW each evening at 2130 EST. Approximately 10 minutes' practice is given at each speed. References to texts used on several of the transmissions are given below. These make it possible to check your copy. For practice purposes, the order of words in each line of *QST* text sometimes is reversed. To improve your fist, hook up your own key and audio oscillator and attempt to send in step with W1AW.

Date	Subject of Practice Text from January *QST*
Mar. 4:	*The Year in Review*, p. 9
Mar. 10:	*VXO — A Variable Crystal Oscillator*, p. 11
Mar. 13:	*Adjustable 4-Element 10-Meter Beam*, p. 16
Mar. 18:	*A Safe Method for Etching Crystals*, p. 20
Mar. 21:	*Transistorized Q Multiplier*, p. 38
Mar. 26:	*Occurrence in Alpha Sub 1*, p. 47
Mar. 28:	*From Somera to Samoa*, p. 54

DXCC NOTES

Announcement is hereby made of the addition to the ARRL Countries List of Fernando de Noronha. This island, a Federal Territory of Brazil, is located approximately 225 miles due east of Natal in the Atlantic Ocean. Addition is made by virtue of point 2, with qualified support from point 1. These points are explained in May 1955 *QST*, page 68.

DXCC credit will be given starting May 2, 1958 for creditable confirmations dated on or after November 15, 1945. This is to permit foreign amateurs to start receiving credits at the same time as those in the U. S. A. Confirmations received prior to May 2, 1958, for this country will be returned without credit.

Those making contact in the '58 ARRL DX Competition with amateur stations located on Fernando de Noronha may claim credit for a separate country in accordance with DXCC rules.

DX CENTURY CLUB AWARDS

HONOR ROLL

W1FH.....275
W6AM.....275
W8HGW....272
W9NDA....272
KV4AA....272
W3GHD....271
W6ENV....270
W6MX.....270
W8BRA....270
W6DZZ....269
W8NBK....269
PY2CK....269
W2AGW....269
W6SYG....268
W6RW.....267
W3JNN....267
W6TT.....266
W6CUQ....266
ZL2GX....266
W2HUQ....266
W3KT.....265
W3BES....265
G2PL.....265
W7AMX....265
W8KIA....264
W6TS.....264

Radiotelephone

PY2CK....268
VQ4ERR...262
W1FH.....259
W8CZ.....257
W8HGW....255
ZS6BW....255
CN8MM....251
W9RBI....248
W8BF.....248
W3JNN....248
W9NDA....247
CX2CO....245
W6AM.....245
ZL2GX....236

From December 15, 1957 to January 1, 1958 DXCC certificates and endorsements based on postwar contacts with 100-or more countries have been issued by the ARRL Communications Department to the amateurs listed below.

NEW MEMBERS

WØAGO....150
CR5SP....145
W1HPI....121
W3YDF....121
K4JOU....114
K2OLS....113
ST2AR....107
ST2NG....107
W6FZL....105
W9VZP....103
KH6CBP...103
KØDMY....101
LU5AH....101
VE5DR....101
W2MOF....100
W3YZI....100
W5DA.....100
K9EAB....100
W9OAN....100
WØUCG....100
OE3AS....100
OE8SH....100
VE5VL....100
YV5ABD...100

Radiotelephone

CR5SP....141
LU6DJY...128
W7TMF....106
SM5RQ....105
W9ZNY....104
CX2AY....104
TI2RAF...102
W5JRF....101
KL7ALZ...101
W1YPK....100
OE1FF....100

ENDORSEMENTS

W1CLX....260
W1KFV....225
W1TYQ....213
W6WO.....213
W6YMD....213
CO2BL....213
W6IBD....212
W9Y8X....201
VK3YL....188
W1RB.....186
W2FBS....180
W6GMC....180
WØSYK....180
DL1GU....180
W1EOB....174
ON4FL....174
W3NCF....171
W3WGH....171
W3SOH....170
DL1DX....168
SM5KX....168
W1KXU....164
WØCPM....162
SM5CCE...161
W6LTX....160
OE1FF....160
W1ICW....150
W2PZI....150
W6TKX....150
HB9NU....144
W4YK.....143
PAØFAB...141
OH2OJ....137
EA2CR....136
K9CLO....135
SM7VX....131
W1IJB....130
W6VX.....130
W6BAG....125
W3MWC....123
W4VCB/3..120
K2LWR....119
W3VXE....110
W7TMF....110
W8AAI....110

Radiotelephone

W3GHD....211
CO2BL....210
CO2BK....204
W4DCR....190
DL3IR....190
ZS1DO....170
HB9NU....141
WØAGO....140
W2HTI....131
WØGUV....130
W3RPG....121
W7KT.....112
W6NOT....110

W/VE/VO Call Area and Continental Leaders

W4TM.....255
W5ASG....262
W5ADZ....262
WØAIW....252
VE1PQ....183
VE2WW....203
VE3QD....210
VE4XO....118
VE5QZ....140
VE6VK....180
VE7ZM....233
VE8AW....195
ZS6BW....257
4X4DK....234
VO6EP....190

Radiotelephone

W2BXA....210
W4HA.....212
W5BGP....224
W7HIA....190
WØAIW....232
VE1CR....120
VE2WW....131
VE3AIU...170
VE5RU....116
VE6NX....106
VE7ZM....185
G2PL.....231
4X4DK....322

AN ACOUSTICAL TRANSDUCER

A TRANSDUCER is a device which can accept one form of energy and supply a second form of energy. Thus, microphones and loud speakers are acoustical transducers.

THEIR proper selection and application can do much to improve all around operating efficiency. The choice of microphones is beyond the scope of this discussion which will be concerned only with transducers as applicable to a radio receiver.

THE modern receiver for amateur band operation must be highly selective, in order to reproduce the desired signal with the least possible interference. It should be well known, by now, that highly acceptable intelligence can be conveyed by transmitting and reproducing a band of speech frequencies from only 300 to 3000 C.P.S.

WHEN listening to any of the better modern commercially manufactured transmitters, it is extremely doubtful that even with an older receiver having a somewhat wide i.f., any intelligence above 3000 C.P.S. can be heard.

INTERFERENCE — *Yes;* INTELLIGENCE — *No!*

IF YOU are a hi-fi enthusiast, for your own amazement try to feed the wide range sound system from your communications receiver into the hi-fi speaker. The higher frequency noises and interference reproduced will make a Q.S.O. intolerable.

THE moral is this. An acoustical transducer for amateur receiver use should be specifically designed to reproduce only the narrow range of frequencies from 300 to 3000 C.P.S. This restricted frequency range can be accomplished by the choice of transducer diaphragm size, mass, magnet strength and the enclosure.

STOP in at your jobber soon and hear and see our new R-47 loud speaker (transducer). He has them in stock. The R-47, we believe, will improve amateur band performance of almost any receiver at a surprisingly nominal cost.

— FRITZ A. FRANKE

Bud Hallygan Jr. W. J. Hallygan W9AG for **hallicrafters**

Dominate your frequency...

WITH FULL COMMUNICATION POWER!

2000 watts P.E.P.—no other amplifier offers you so much of everything!*

In a class by itself . . . the ultimate in contemporary transmitter design! The Viking "Kilowatt" is the only transmitter available that provides full, maximum legal power in all modes—SSB, CW, and AM. Class C final amplifier operation provides plate circuit efficiencies in excess of 70% with unequaled broadcast-type HIGH LEVEL AMPLITUDE MODULATION with more than three times the AM power obtained in KW class linear equipments! Over-modulation effects are reduced by plate saturation limiting, audio response is better than 1 db. from 200 to 3500 cps.

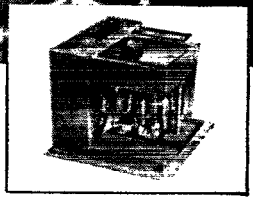
New, revised circuitry and a pair of 4-400A tubes in Class AB_2 easily deliver maximum legal power of 2000 watts peak envelope power input in SSB mode—provides a full 1000 watts input in AM mode with a husky modulation transformer and a pair of push-pull Type 810 tubes in Class B modulator service. 1000 watts input in Class C CW mode. High efficiency pi-network output circuit will match nominal 50 to 500 ohm antenna loads and will tune out large amounts of load reactance.

Compact pedestal contains the complete kilowatt—rolls out for easy adjustment or maintenance. Excitation requirements: 30 watts RF and 10 watts audio for AM; 2-3 watts peak for SSB. Completely wired and tested, with tubes.

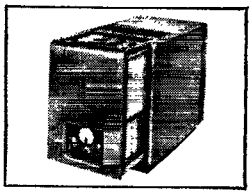
Cat. No. 240-1000..Wired and tested.....Amateur Net $1595.00
Matching accessory desk top, back, and three-drawer pedestal.

Cat. No. 251-101-1.....FOB Corry, Pa. $132.00

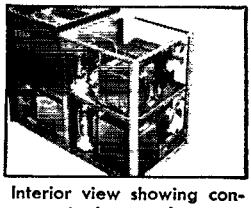
**The F.C.C. permits a maximum one kilowatt average power input for the amateur service. In SSB operation under normal conditions this results in peak envelope power inputs of 2000 watts or more depending upon individual voice characteristics.*



Completely shielded, plug-in power amplifier.



Complete accessibility—unit rolls out for easy adjustment or maintenance.



Interior view showing conservatively rated power equipment, heavy duty modulator.

VIKING "COURIER"

Rated a solid one-half kilowatt P.E.P. input with auxiliary SSB exciter as a Class B linear amplifier; one-half kilowatt input CW or 200 watts in AM linear mode. Completely self-contained desk-top package—may be driven by the Viking "Navigator," "Ranger," "Pacemaker," or other unit of comparable output. Continuous coverage 3.5 to 30 mcs. Drive requirements: 5 to 35 watts depending upon mode and frequency desired. Pi-network output designed to match 40 to 600 ohm antenna loads. Fully TVI suppressed. Complete with tubes and built-in power supply.

Cat. No.	Amateur Net
240-352-1..Kit	$244.50
240-352-2..Wired and tested	$289.50

Two exciting new linear amplifiers

VIKING "THUNDERBOLT"

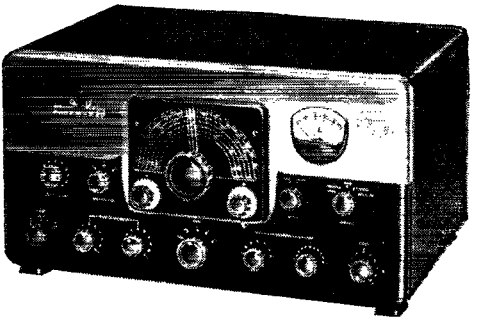
The hottest linear amplifier on the market—2000 watts P.E.P.* input SSB; 1000 watts CW; 800 watts AM linear; in a completely self-contained desk-top package. Continuous coverage 3.5 to 30 mcs.—instant bandswitching. May be driven by the Viking "Navigator," "Ranger," "Pacemaker," or other unit of comparable output. Drive requirements: approximately 10 watts in Class AB_2 linear, 20 watts Class C continuous wave. With tubes and built-in power supply.

Cat. No.	Amateur Net
240-353-1..Kit	$524.50
240-353-2..Wired and tested	$589.50

Drive them with the "Pacemaker"

This exciting transmitter offers you the ultimate in single sideband . . . 90 watts SSB P.E.P. and CW input . . . 35 watts AM. Self-contained—effectively TVI suppressed. Instant bandswitching on 80, 40, 20, 15, and 10 meters. Excellent stability and suppression. Temperature compensated built-in VFO . . . separate crystal control provided for each band. VOX and anti-trip circuits provide excellent voice controlled operation. Pi-network output matches antenna loads from 50 to 600 ohms. More than enough power to drive the Viking Kilowatt or grounded-grid kilowatt amplifiers. (Requires Cat. No. 250-34 Power Divider with Viking Kilowatt.) With tubes and crystals, less key and microphone.

Cat. No.	Amateur Net
240-301-2..Wired and tested	$495.00



POWER DIVIDER—Provides up to 35 watts continuous dissipation. Designed to provide the proper output loading of the "Pacemaker" SSB Transmitter when used to drive the Viking Kilowatt Amplifier.
Cat. No. 250-34.....Amateur Net $25.50

E. F. Johnson Company

2805 SECOND AVENUE S.W. • WASECA, MINNESOTA

All of these licensed radio amateurs make important contributions to the Heath line of fine ham kits. In a sense, they are your personal representatives within the company, because their design ideas and performance preferences reflect not only their own "on-the-air" experiences, but those of the amateur fraternity with which they are in constant contact. With this kind of representation in Benton Harbor, you can continue to rely on high-performance Heathkit amateur radio equipment designed by hams, for hams!

HEATH *hams work to bring you*

ROGER MACE (W8MWZ)
SENIOR HAM ENGINEER
HEATH COMPANY

HEATHKIT 50-WATT CW TRANSMITTER KIT

MODEL DX-20

$35.95

If high efficiency at low cost in a CW transmitter interests you, you should be using a DX-20! It employs a single 6DQ6A tube in the final Amplifier stage for plate power input of 50 watts. The oscillator stage is a 6CL6, and the rectifier is a 5U4GB. Single-knob band-switching is featured to cover 80, 40, 20, 15, 11 and 10 meters, and a pi network output circuit matches antenna impedances between 500 and 1000 ohms to reduce harmonic output. Designed for the novice as well as the advanced class CW operator. The transmitter is actually fun to build, even for a beginner, with complete step-by-step instructions and pictorial diagrams. All the parts are top-quality and well rated for their application. "Potted" transformers, copper-plated chassis, and ceramic switch insulation are typical. Mechanical and electrical construction is such that TVI problems are minimized. If you desire a good clean CW signal, this is the transmitter for you! Shpg. Wt. 18 lbs.

HEATHKIT DX-100 PHONE & CW TRANSMITTER KIT

MODEL DX-100

$189.50

Shipped motor freight unless otherwise specified. $50.00 deposit required on C.O.D. orders.

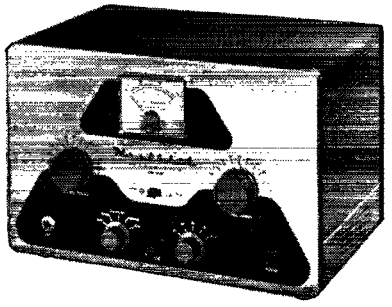
You get more for your transmitter dollar when you decide on a DX-100 for your ham shack! Recognized as a leader in its power class, the DX-100 offers such features as a built in VFO, built in modulator, TVI suppression, Pi network output coupling to match a variety of antenna impedances from 50 to 600 ohms, Pi network interstage coupling, and high quality materials throughout. Copperplated No. 16 gauge steel chassis, ceramic switch and coil insulation, silver-plated or solid silver switch contacts, etc., are typical of the kind of parts you get, to use in assembling this fine rig. The DX-100 covers 160, 80, 40, 20, 15, 11, and 10 meters with a single band switch, and with VFO or crystal operation on all bands. RF output is in excess of 100 watts on phone and 120 watts on CW, with a pair of 6146 tubes in parallel for the final Amplifier, modulated by a pair of 1625 tubes in parallel. Other tubes featured are: 6AL5 bias rectifier, 5V4 low voltage rectifier, 2-5R4GY high voltage rectifiers, OA2 voltage regulator, 12AX7 speech amplifier, 12BY7 Audio driver, 6AV6 VFO, 12BY7 crystal oscillator-buffer, 5763 r.f. driver, and a 6AQ5 clamp tube. VFO tuning dial and panel meter are both illuminated for easy reading, even under subdued lighting conditions. Attractive front panel and case styling is completely functional, for operating convenience. The DX-100 was designed exclusively for easy step-by-step assembly, and no other transmitter in this power class combines high quality and real economy so effectively. Listen to any ham band between 160 meters and 10 meters and make a mental note of how many DX transmitters you hear! This kind of acceptance by the amateur fraternity testifies to the performance and quality of the rig. Its the kind of a transmitter you will be proud to own, and one that will give you a very respectable signal on the air. Time payments available! Shpg. Wt. 107 lbs.

...top quality at lowest prices!

NEW HEATHKIT PHONE & CW TRANSMITTER KIT

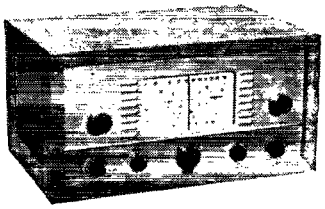
MODEL DX-40

$64.95



The new DX-40 incorporates the same high quality and stability as the DX-100, but is a lower powered rig, for crystal operation, or for use with an external VFO. Plate power input is 75 watts on CW, permitting the novice to utilize maximum power. An efficient, controlled-carrier modulator for phone operation peaks up to 60 watts, so that the rig has tremendous appeal to the general class operator also. Single-knob switching covers 80, 40, 20, 15, 11 and 10 meters. Pi network output coupling makes for easy antenna loading, and Pi network interstage coupling between the buffer and final amplifier improves stability and attenuates harmonics. A line filter is incorporated for power line isolation. The efficient oscillator and buffer circuits provide adequate drive to the 6146 final amplifier from 80 to 10 meters, even with an 80 meter crystal. A drive control adjustment is provided, and the function switch incorporates an extra "tune" position so the buffer stage can be pretuned before the final is on, and so the operator can locate his own signal on the band. Tubes used are a 6CL6 Colpitts oscillator, a 6CL6 buffer, a 6146 final amplifier, a 12AX7 speech amplifier, a 6DE7 modulator, and 5U4GB rectifier. The modulator, incidentally, has plenty of "punch" for clear, strong phone operation. A switch selects any of three crystals, or a jack for external VFO. A high-quality meter with D'Arsonval movement mounts on the front panel for tuning. Whether you are a newcomer or an old-timer, you will find the DX-40 an ideal rig in its power class! Shpg. Wt. 26 lbs.

HEATH COMPANY A Subsidiary of Daystrom, Inc. BENTON HARBOR 9, MICH.



ALL-BAND RECEIVER

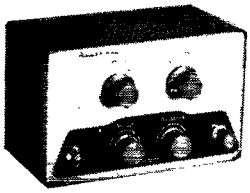
HEATHKIT ALL-BAND COMMUNICATIONS-TYPE RECEIVER KIT

Ideal for the short wave listener or beginning amateur, this Receiver covers 550 KC through 30 MC in four bands. It provides good sensitivity and selectivity, combined with fine image rejection. Amateur bands are clearly marked on the illuminated dial scale. Features transformer type—power supply—electrical band spread—antenna trimmer—separate RF and AF gain controls—noise limiter—internal 5½" speaker—head phone jack and AGC. Has built-in BFO for CW reception. An accessory power socket is also provided for connecting the Heathkit model QF-1 Q Multiplier. Will supply 250 VDC at 15 ma and 12.6 VAC at 300 ma. Shpg. Wt. 12 lbs.

MODEL AR-3

Cabinet: Fabric covered cabinet with aluminum panel as shown part 91-15A. Shpg. Wt. 5 lbs. **$4.95**

$29.95



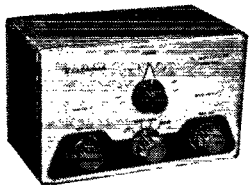
ELECTRONIC VOICE CONTROL

HEATHKIT ELECTRONIC VOICE CONTROL KIT

Here is a new and exciting kit that will add greatly to your enjoyment in the ham shack. Allows you to switch from Receiver to Transmitter merely by talking into your microphone. Lets you operate "break-in" with an ordinary AM transmitter. A terminal strip is provided for Receiver and speaker connections and also for a 117 volt antenna relay. Unit is adjustable to all conditions by sensitivity and gain controls provided. Easy to build with complete instructions provided. Requires no transmitter or Receiver alterations to operate. Shpg. Wt. 5 lbs.

MODEL VX-1

$23.95



"Q" MULTIPLIER

HEATHKIT "Q" MULTIPLIER KIT

This fine Q Multiplier is a worthwhile addition to any communications, or Broadcast Receiver. It provides additional selectivity for separating signals, or will reject one signal and eliminate a hetrodyne. Functions with any AM Receiver having an IF frequency between 450 and 460 KC that is not AC-DC type. Operates from your Receiver power supply, and requires only 6.3 VAC at 300 ma (or 12.6 VAC at 150 ma), and 150 to 250 VDC at 2 ma. Simple to connect with cable and plugs supplied. Effective Q of approximately 4000 for sharp "peak" or "null". A tremendous help on crowded phone or CW bands. Shpg. Wt. 3 lbs.

MODEL QF-1

$9.95

more fine ham gear from the pioneer

GRID DIP METER

HEATHKIT GRID DIP METER KIT

A Grid Dip Meter is basically an RF Oscillator used to determine the frequency of other Oscillators, or tuned circuits. Numerous other applications such as pretuning, neutralization, locating parasitics, correcting TVI, adjusting antennas, designed procedures, etc. Features continuous frequency coverage from 2 MC to 250 MC, with a complete set of prewound coils, and a 500 ua panel meter. Has sensitivity control and a phone jack for listening to the "Zero-Beat". It will also double as an absorption-type wave meter. Shpg. Wt. 4 lbs.

MODEL GD-1B

Low frequency coil kit: two extra plug-in coils extend frequency coverage down to 350 KC. Shpg. Wt. 1 lb. No. 341-A **$3.00**

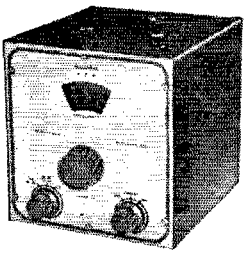
$21.95

HEATHKIT VARIABLE FREQUENCY OSCILLATOR KIT

Enjoy the convenience and flexibility of VFO operation by obtaining this fine variable frequency oscillator. It covers 160-80-40-20-15-11 and 10 meters with three basic oscillator frequencies. Better than 10 volt average RF output on fundamentals. Requires 250 volts DC at 15 to 20 ma, and 6.3 VAC at 0.45 a, available on most transmitters. It features voltage regulation for frequency stability, and has illuminated frequency dial. VFO operation allows you to move out from under interference and select the portion of the band you want to use without having to be tied down to only 2 or 3 frequencies through the use of crystals. "Zero in" on the other fellows signal and return his CQ on his own frequency! Shpg. Wt. 7 lbs.

MODEL VF-1

$19.50



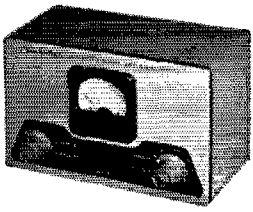
VARIABLE FREQUENCY OSCILLATOR

HEATHKIT REFLECTED POWER METER KIT

A necessity in every well equipped ham shack, the model AM-2 lets you check the match of the antenna transmission system, by measuring the forward and reflected power or standing wave ratio. Handles up to one kilowatt of energy on all bands from 160 to 2 meters, and may be left in the antenna system feed line at all times. Input and output impedances for 50 or 75 ohm lines. No external power required for operation. Meter indicates percentage forward and reflected power, and standing wave ratio from 1:1 to 6:1. Shpg. Wt. 3 lbs.

MODEL AM-2

$15.95



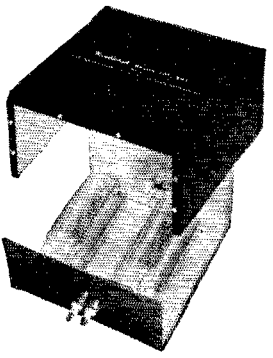
REFLECTED POWER METER

HEATHKIT BALUN COIL KIT

This convenient transmitter accessory has the capability of matching unbalanced coax lines, used on most modern transmitters, to balanced lines of either 75 or 300 ohms impedance. Design of the bifilar wound Balun Coils will enable transmitters with unbalanced output to operate into balanced transmission line, such as used with dipoles, folded dipoles or any balanced antenna system. Can be used with transmitters and Receivers without adjustment over the frequency range of 80 through 10 meters. Will handle power inputs up to 200 watts. Shpg. Wt. 4 lbs.

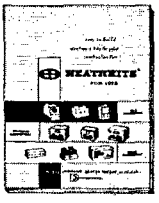
MODEL B-1

$8.95



BALUN COIL

...in do-it-yourself electronics!



FREE 1958 Catalog

Send for this Free informative catalog listing our entire line of kits, with complete schematics and specifications.

☐ Rush Free 1958 catalog.

HEATH COMPANY

BENTON HARBOR 9, MICH. a subsidiary of Daystrom, Inc.

name _____

address _____

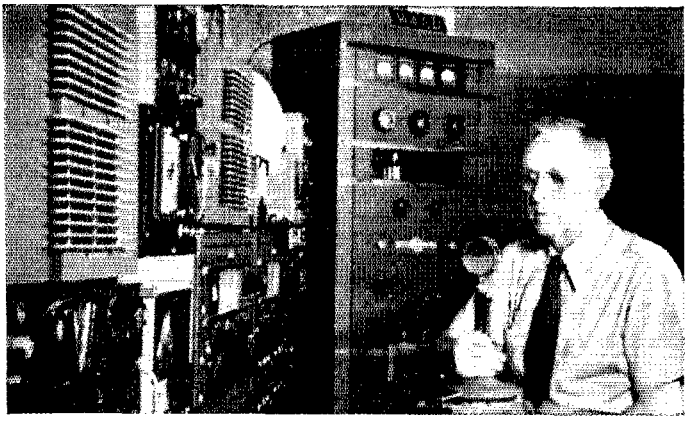
city & state _____

QUAN.	ITEM	MODEL NO.	PRICE

$_____ enclosed. Parcel post, include postage—express is shipped collect.

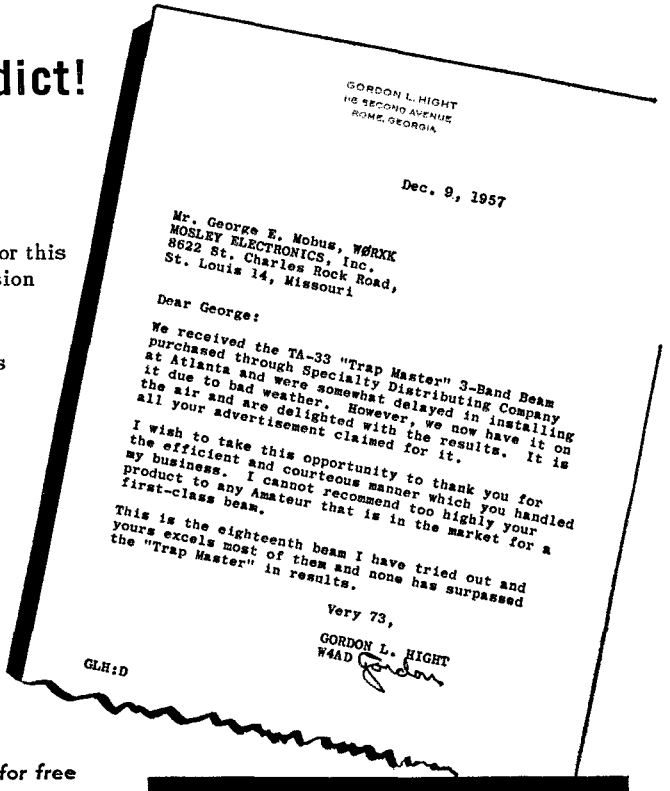
GORDON L. HIGHT, W4AD, of Rome, Georgia. First licensed in 1913—ex 4BQ, ex W4ISC. Attended International Radio Congress in Paris with Hiram Percy Maxim and K. B. Warner.

Mr. Hight has established a Community Emergency Station at his office where he recently installed a MOSLEY Model TA-33 "Trap Master" 3-Band Beam Antenna.



One of Hamdom's "Old Timers", W4AD - tries out his 18th Beam. . .

Read his verdict!



GORDON L. HIGHT
116 SECOND AVENUE
ROME, GEORGIA

Dec. 9, 1957

Mr. George E. Mobus, WØRXK
MOSLEY ELECTRONICS, Inc.
8622 St. Charles Rock Road,
St. Louis 14, Missouri

Dear George:

We received the TA-33 "Trap Master" 3-Band Beam purchased through Specialty Distributing Company at Atlanta and were somewhat delayed in installing it due to bad weather. However, we now have it on the air and are delighted with the results. It is all your advertisement claimed for it.

I wish to take this opportunity to thank you for the efficient and courteous manner which you handled my business. I cannot recommend too highly your product to any Amateur that is in the market for a first-class beam.

This is the eighteenth beam I have tried out and yours excels most of them and none has surpassed the "Trap Master" in results.

Very 73,

GORDON L. HIGHT
W4AD

GLH:D

Our sincere thanks to Mr. Hight for this unsolicited letter and for permission to publish his highly regarded opinion of our product.

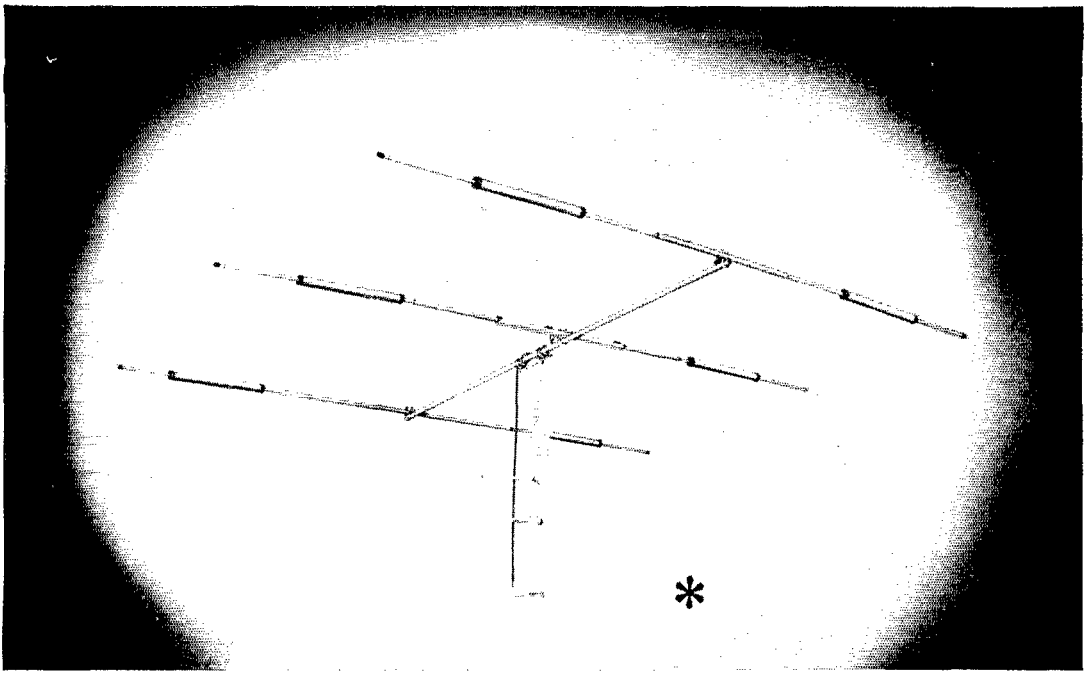
Hams, everywhere, can enjoy this same gratifying experience when they purchase a beam antenna. Simply tell your favorite Ham Dealer you want a MOSLEY "Trap Master" Beam. Available in 2-element and 3-element types. Model TA-32, $69.50; Model TA-33, $99.75.

Specify, "No substitutions, please!"

Write MOSLEY main office for free Catalog and other literature.

Mosley Electronics, Inc.

WEST COAST BRANCH	EXPORT DEPARTMENT	MAIN OFFICE AND PLANT
1406-08 South Grand Avenue	15 Moore Street	8622 St. Charles Rock Road
Los Angeles 15, California	New York 4, New York	St. Louis 14, Missouri



INCOMPARABLE
is the word for
TRAP MASTER

EXCLUSIVE TRAP DESIGN – LIFETIME WEATHERPROOFED!
ANTI-SAG CONSTRUCTION!
LOW SWR – REMARKABLY FLAT ACROSS BANDS!

by **Mosley**

Also: *World famous "Vest Pocket" and "Super" Amateur Beams, Commercial Arrays and other fine products.*

Write for free Catalog, H–58.

Model **TA-33**

Beautifully constructed 3 element beam for operation on 10, 15 or 20 meters. Forward gain is 8db, front-to-back is 25db, and SWR is 1.5/1. Maximum element length is 28 ft. and weighs only 47 lbs. Boom is just 14 ft.

$99.75

Model **TA-32**

Similar to Model TA-33, but has 2 elements operating on 10, 15 and 20 meters. Forward gain is 5.5db, front-to-back is 20db and SWR is 1.5/1. Featuring a short boom of just 7 ft. and max. element length of 28 ft. Weight is 34 lbs. Converts to Model TA-33.

$69.50

Model **V-4-6**

This low cost, high performance vertical antenna covers all bands from 10 thru 40 meters. Requires little space and may be mounted on ground or roof-top. Low SWR and band switching is automatic. Loading coil available for 80 M.

$27.95

Mosley Electronics, Inc.

WEST COAST BRANCH	EXPORT DEPARTMENT	MAIN OFFICE AND PLANT
1406-08 South Grand Avenue	15 Moore Street	8622 St. Charles Rock Road
Los Angeles 15, California	New York 4, New York	St. Louis 14, Missouri

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, Richard B. Mesirov, W3JNQ—SEC: DVB. RM: YAZ, PAM: TEJ. *The E. Pa. Net meets on 3610 kc. at* 1830 EST; PFN meets on 3850 kc. at 1800 EST. See announcement elsewhere in this issue of the First Pennsylvania QSO Party to be held Apr. 5 and 6. New appointment: UIU as OO. We mourn the passing of the Tamaqua ARC; the load was too much for ZRQ to carry alone. NOH reports 14 new countries with his new quad. FCI has returned to the air with a Harvey-Wells. New officers of the York Road RC are UZF, pres.; SOB, vice-pres.; ULC, treas.; ZYO and AWG, secy. *UXX earned the WPX Award with* 231. QOR is now using super modulation at his home QTH. ANS is now General Class. EPL made the BPL on deliveries without knowing it. CMN has a Viking II and worked 12 new countries. TSY passed his Extra Class exam. GYP and WHK visited CUL and were serenaded by Mae's organ music. AXA cured the bugs in his new big rig and is now QRO on all bands. PYF's jr. operator dropped the "N" and is now K3ANS. Clarence has a new *HQ-110*. YDX makes the BPL on deliveries again; this time as a single operator station. ZRQ also makes the BPL in the same way. AFF has a new Globe Chief 90 and is promoting a club at Haverford H. S. ALB prepared for the DX Contest by putting up phased ground planes for 40 meters. BUR sold all of his old gear and now sports a KWS-1 and a 75A-4. NF returned from Florida where he kept skeds on 3670-kc. mobile with brother George, INJM. New officers of the Carbon ARC are WJY, pres.; PVY, vice-pres.; AIW, secy.-treas.; BNR, act. mgr. PDJ, KZC, LOH and YAZ hiked in the Poconos. JDD won an SX-101 in a contest sponsored by the Lancaster RTS. IYF received a Technician Class license. FLW has a new jr. operator, KN3ASH plans to put a 40-meter vertical up for use on 40 and 15 meters. Section Net certificates were awarded to DTK, GYP, PDJ, TSY, WHK and YAZ. K3AQP has a new 10-meter Wonderbar. TEJ reports over 500 messages for the first time. JMY received the first Harrisburg ARC Keystone Award. GSB has a new windmill tower. Many thanks to all who sent Christmas and New Year greetings. CU all on Apr. 5 *and 6. Traffic:* W3CUL 4755, WHK 679, AFF 605, GYP 523, TEJ 523, YDX 242, ZRQ 237, YAZ 205, EPL 161, BFF 136, CMN 67, BBM 64, NF 51, ELI 48, BNR 42, AMC 32, DVB 27, AXA 24, CSP 23, FVT 20, PDJ 20, FAW 16, PYF 16, TTW 16, KN3ASH 9, W3BUR 8, ADE 6, NQB 6, K3AFW 3, W3CCP 3, PVY 3, QOR 2, K3ANS 1, W3KFI 1.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA—Louis T. Croneberger, W3UCR—Asst. SCM for Delaware: Ray de Courcelle, 3DQZ. SEC: PKC. Section nets: MDD, 3650 kc. M-S, 1915 EST; MEPN, 3820 kc. MWF 1800, SS 1300 EST. 3RN has dropped the 1845 session and now meets at 1945 and 2130. FNM has been appointed EC for Garret County to replace UNV, who is leaving the area. The WRC had SW as speaker at the Dec. 8 meeting. Bob spoke on "The History and Little Known Facts about Amateur S.S.B." YA, Atlantic Division Director, and his XYL also were guests at the meeting, and Gil had a few words for the group. Gil was down for the meeting with the Federation of Radio Amateur Clubs' executive committee with 1958 ARRL National Convention General Manager 4AHG/3QPL and Program Chairman RE. The WRC held its Annual Christmas Party Dec. 20. The RCARA had 4CXA, who spoke on "Ham Radio in Poland," at the Dec. 14 meeting. The CSRC had SPY who spoke on S.S.B., at its Dec. 6 meeting. The NCVHF Society's meeting of Dec. 27 was called to discuss plans for the V.H.F. SS Contest. The NRLARC visited the WMRC Dec. 18 with Traffic Manager K4HPD presiding. *Don't Forget The Delaware QSO Party,"* the week end of Mar. 16 and 17. The MEPN elected CZT director (first YL director) and HZT as NCM. The first general meeting *of the 1958 ARRL National Convention Committee was* held Jan. 3 with 4AHG/3QPL and RE giving the convention rundown to the convention committee chairman who were present. Many will be approached to work on committees. It behooves each of us to pitch in and help when called upon to make the 1958 convention a real success. Advanced registration will be available soon. Insure your place at the banquet table by registering early. AHQ is continuing ARRL and local club bulletins on 50.4 Mc. at 2030 and 145.3 Mc. at 2100 MW and F. ECP and OSX are converting ARC-4s for 2-meter operation. HEZ has a new linear (pair of 814s). JZY now has WAZ with TJ1AA and XW8AB. UJG and OII now are on 420-Mc. phone. The following have been issued MDD Net certificates for continued service on the MDD: EKO, HIZ, HLE, MCG, NNM, PQ, TN, UE, WV and WG. KN3CTO and KN3CTI are brothers, 12 and 23 years respectively, with a third brother in St. Louis, Mo., studying for his ticket. ZPO now is on RTTY on 11 and 2 meters with AFSK. MUK/VO1, form-

(Continued on page 94)

THIRD DELAWARE QSO PARTY
March 15 and 16

The Delaware Amateur Radio Club of Wilmington announces its 3rd Delaware QSO Party and invites all amateurs to participate. Delaware hams are urged to work as many out-of-state stations as possible, so that those interested can earn credit toward WAS and the W-DEL certificate. Here are the details:

(1) Time: 30-hour period from 6 P.M. EST Saturday March 15 to midnight EST Sunday, March 16.

(2) No time limit and no power restrictions.

(3) Scoring: *Delaware stations:* 1 point per contact and multiply total by the number of states, U. S. Possessions, Canadian provinces and foreign countries worked during the contest period. *Outside stations:* 5 points for each Delaware station worked and multiply total by the number of counties in Delaware worked during the contest period.

(4) Credit for contacts with the same station on another band will be given.

(5) A certificate will be awarded to the highest-scoring station in each state, U. S. Possession, Canadian Province and foreign country (with 3 or more contacts) and to the highest-scoring station in each Delaware county. In addition, a W-DEL certificate will be sent to any station working all 3 Delaware counties. Party logs showing required data will be accepted in lieu of QSLs.

(6) Watch 3530, 3905, 7030, 7275, 14,100, 14,250, 21,100, 21,400, 28,100, 29,520, 50,300 kc. and 144 Mc. for contest stations.

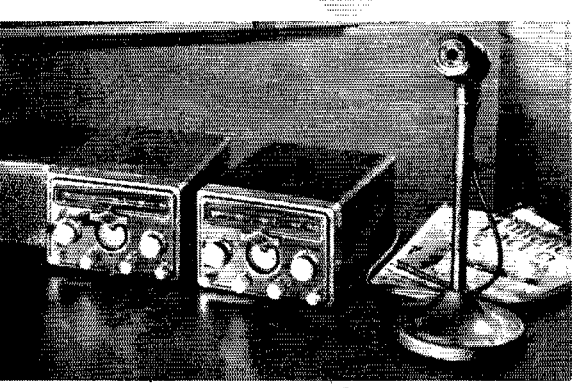
(7) General Call: "CQ DEL." Delaware c.w. stations should identify themselves by signing *de DEL (call) K.* Phones say, "Delaware calling."

(8) Contact information required: Delaware stations send number of QSO, RST or RS and county. All others send number of QSO, RST or RS report, and state, possession, province, or country.

(9) Logs and scores must be postmarked not later than April 1, 1958 and should be sent to the Delaware Amateur Radio Club, c/o C. D. Justis, W3EEB, 315 First Ave., Newport, Delaware.

TWIN "SPARKLERS"

G-66B RECEIVER . . . G-77A TRANSMITTER



Mobile-wise, don't be content with a slight lead . . . install this pair of sparklers and *go far out in front!*

G-66B . . . high sensitivity, stability, selectivity. Features include double conversion with crystal controlled first conversion oscillator, full-vision dial, complete band-spread, tuning meter. Squelch and noise limiter give big assist to mobile noise. Gives you superlative reception on standard broadcast and amateur 80, 40, 20, 15 and 10 meter bands. A *sparkler!*

G-77A . . . real power punch! 50-60 watts input fully modulated. Plenty of speech gain. Pi network output with 6146 amplifier. Excellent VFO with calibrated slide-rule dial. (Xtl optional.) Power supply and modulator in separate compact unit for convenient mounting. Unit covers amateur 80-40-20-15-10 meters. Now with universal power supply for 6-12V DC or 115V AC. *Another sparkler!*

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Universal "three-way" power supply/speaker unit. (6V-12V DC, 115V AC.) Factory wired 6V DC, 115V AC. With patch cable . . . . . #3098 . . . . . 49.50

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GONSET

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er chief operator at PQT, operates 29.005 Mc. and is looking for MDD Area contacts. The MEPN's Annual Picnic will be held at Braddocks Heights Park near Frederick, Md., on Sun., July 13. We would like to hear from traffic men and others who operate and/or have equipment for the v.h.f. bands. We are particularly interested in Delaware and the Eastern Shore. *CU at the 1958 ARRL National Convention to be held in Washington, D. C., Aug. 15, 16 and 17, 1958.* Traffic: (Dec.) W3CVE 1259, K3WBJ 679, W3UE 528, HIZ 110, TN 97, PQ 92, UCR 86, COK 66, BUD 65, AHQ 62, CN 61, PZW 60, WSE 49, ECP 30, PKC 30, EOV 12, OYX 8, EQK 6, JZY 4, KA 4, BWT 2. (Nov.) W3ZYW 2. (Oct.) W3ZYW 3.

SOUTHERN NEW JERSEY—SCM, Herbert C. Brooks, K2BG—SEC: YRW. PAM: ZI. Appointments this month: K2SOL, Sewell, as EC for Gloucester County and K2PPT, Burlington, as ORS. The Maple Shade Radio Club elected K2KPF, pres.; DEE, vice-pres.; DBP, secy.-treas. With regret I report the passing of K2AIN. K2DWT is breaking in a new beam. K2HHJ, Paulsboro, has been issued a Net certificate for his activities in the N. J. Phone Net. Two of our traffic-handlers, K2OOK and K2SOW, made BPL this month. The Tri-City Radio Club's officers are DFR, pres.; WHD, vice-pres.; AO, treas.; and K2JIY, secy. The club held its annual banquet-meeting at Vineland in early December. I am endebted to K2EFA for the Salem County information. The SJRA's Christmas Party was bigger and better then ever. K2KTS received the "Outstanding Amateur of the Year" award, issued annually by the SJRA. HAZ, Trenton, has received membership in the OTC. K2HPV, Penns Grove, lost his antenna in a recent wind storm. A net of RCA hams was initiated Dec. 29. QNI is each Sun. at 1100 on 3900 kc. and 1130 on 3695 kc. NKD and RG are the NCSs. BZJ, Pennington, one of the section's traffic-handlers did not receive due credit for his fine work. Credit was given to BZK on two occasions. Look for this new net—The Hudson Traffic Net, 1645 daily, on 7060 kc. UA and daughter, K2INQ, of Moorestown, have returned from a six-week vacation. They visited CT2, EA, KT1, I, F, DI, OE, ON4, PAØ, G and EI. Gloucester Co. mobiles are urged to contact their new EC, K2SOL, and assist him in coordinating the facilities of that county. Traffic: (Dec.) W2HDW 345, RG 252, K2SOW 200, JGU 153, OOK 148, SOL 86, W2ZI 86, BZJ 72. (Nov.) K2SOL 41.

WESTERN NEW YORK—SCM, Charles T. Hansen, K2HUK—RMs: RUF and ZRC. PAMs: LXE, NAI and TEP. NYS C.W. meets on 3615 kc. at 1800, ESS on 3590 kc. at 1800, NYS phone on 3925 kc. at 1800, TAR on 3570 kc. at 1700, NYS C.D. on 3509.5 kc. and 3993 kc. at 0900 Sun., TCPN 2nd Call Area on 3970 kc. at 1900, SRPN on 3980 kc. at 1000, LSN on 3970 kc. at 1600. BPL certificates were awarded this month to K2IYP, RUF and K2RYH. New officers of the New York State Phone Net are PVI, mgr.; IEP, asst. mgr.; K2DXE, secy. K2RYH has been appointed asst. mgr. of the NYS C.W. Net. New officers of the Elmira ARA are SHE, pres.; UZF, vice-pres.; K2CPB, treas.; K2TXM, secy. K2QPC is building a preamp. for 6 meters. K2RIT has made WAC and WAS. The Kenmore HS ARC is conducting code and theory classes for General and Novice Class licenses. BKC has a 4-250 rig on the air and is working on p.p. 807s for 10 meters. LXE has a new 2-meter antenna and a prop-pitch motor, and is building a 4-125A kw. final. EWO now has 150-meter coils for her HRO-60. K2QCI has a DX-35 and an SX-99 at the home QTH. The ARATs toured the G.E. transistor plant in Buffalo. K2SSX has a Globe Chief and an SX-101. His mother is WN2QHW. PYA is back on 80, 40 and 2 meters after several years of inactivity. TTW is in charge of the Jamestown RACES Net Mon. at 1930 on 145.41 Mc. PUN is hunting DX with a new kw. phone rig and a 70-ft. rotary. TEX now has 117 confirmed out of 123. K2MBJ has a homebrew sixteen-element 2-meter beam which works fine. K2HUK is now mobile with a KWM-1 on s.s.b. KN2DGU now has linear for his Gonset Communicator and rotary beam. He did very well in the January V.H.F. SS. Lynn lost both arms in a recent accident but he does very well with his feet. He's working hard and hopes to get his General Class ticket soon. The Air Force MARS Tech. Net continues to grow in audience and stature. Listen on 7540 kc. Sun. at 1400. It will keep you up to date on new developments in electronics as they happen. K2CUQ and K2JAE were renewed as OOs. K2GWN renewed as ORS. Traffic: (Dec.) K2RYH 568, W2RUF 519, K2IYP 508, SIL 362, W2ZRC 182, K2UZJ 141, JBX 120, GQU 103, W2FEB 70, OE 62, K2CUQ 44. W2COB 36, K2RTN 33, QPC 32, SRY 31, BBJ 29, W2BKC 19, K2HUK 11, W2RQF 10,

(Continued on page 96)

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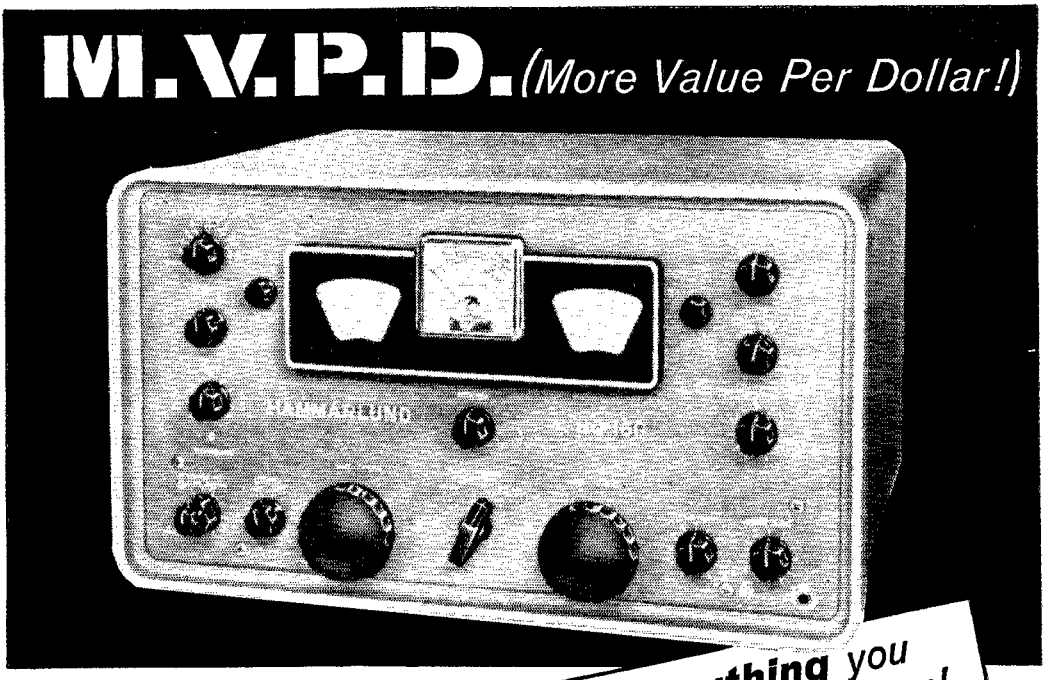

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K2UNZ 8, RIT 6, W2ZHU 6, K2QCI 5, W2DEX 4, EWO 2, MTA 2. (Nov.) K2GWN 129, W2OE 41.

WESTERN PENNSYLVANIA—SCM, John F. Wojtkiewicz, W3GJY—Asst. SCM: Anthony J. Mroczka, 3UHN. SEC: OMA. RMs: NUG and GEG. This is my last report as SCM. Because of a severe and recurring back ailment I must pass this job on to someone else, since my activities will have to be cut down to an absolute minimum for the next year or so. The section and I are fortunate in that UHN, 475 5th Street, Donora, will serve as Acting SCM effective at once. My sincerest thanks to all for your cooperation during my tenure in office. The WPA Traffic Net meets Mon. through Fri. at 7 P.M. on 3585 kc. EPM finally made WAC. The PM16MN held a contest with HFE, GXL, EGJ and RTV taking the prizes in that order. LXU sports a new DX-100. KUN is troubled with "ITV." BZR reports the Coke Center RC has a new NC-300. YDK and ABN are setting up a new gear for the Institute of the Blind Radio Club. Gil, at YA, reports his boys are taking part in traffic nets. RER, reporting for the AKARA, says the club transceiver project still is in the planning stage and the club civil defense nets have resumed operations from fixed locations for the winter. Net time is 2100 EST on 29,360 kc. each Tues. evening. RBF has DX-100 trouble. AGE completed WAS (phone) 7 Mc. with a QSL from Utah. TNU and TNY enjoyed Christmas at home. ZHQ says college cuts down his operating time. JWZ finally cleared up trouble in his 420-Mc. inhaler. KPI, ZAO, BSF, CXX and RTB look for elusive matter on 14 Mc. TOC proudly presented Jimmie Walker with a new SX-100 purchased by accumulated donations. New officers of the Etna Radio Club are NSQ, pres.; EDK, vice-pres.; Novice AMY, treas. Up Erie way: HLM is stationed at Washington, D. C., with the Air Force where he is attending communications school. Congratulations to WDK and his XYL on another harmonic. VNC has a brand-new ham shack. ALD, stationed in Iceland, hopes to be on the air by the time this gets in print. K4IWM is now K3CLC. Friends of OIH may reach him at 1876 Las Lunas Blvd., Pasadena, Calif. NNZ contacted

(Continued on page 98)

PENNSYLVANIA QSO PARTY
April 5 and 6

Amateurs everywhere are invited to take part in a QSO Party sponsored by John F. Wojtkiewicz, W3GJY, retiring SCM of W. Pa., and Richard Mesirov, W3JNQ, E. Pa. SCM. The purpose of the party is to assist amateurs outside Pennsylvania in obtaining new counties for WAPC (Worked All Pennsylvania Counties).

Rules: (1) The party will begin at 6:00 P.M. Saturday, April 5, and end at 6:00 P.M. Sunday, April 6.

(2) All types of emission and all bands may be used, but a station may be worked only once regardless of mode or band. C.w.-to-phone operation is permitted but cross-band work is not allowed. A station may compete on c.w. or phone or both. Amateurs are urged to use all-band operation from 2 through 160 meters to raise their scores. Contacts with foreign amateurs are encouraged since some of them are working for the WAPC Award.

(3) The general call will be "CQ PA."

(4) Information to be exchanged by Pennsylvania amateurs will consist of a Number (in sequence order), RS or RST, and the Pennsylvania County. Out-of-state amateurs will transmit the station call and RS or RST.

(5) Logs entered for prizes should show times, stations worked, signal reports sent and received, frequency, type emission, power input, QSO numbers and county.

(6) Scoring: Count 1 point for such information sent and 1 point for complete information received, for a maximum of 2 points per contact. Multiply the total number of contact points by 1.5 if over 150 watts power is used, 2.5 if 150 watts or less.

(7) Prizes of apparatus, *Log Books*, or *Call Books* to the top three Pennsylvania amateurs, to the leading out-of-state amateur, and to the two leading foreign amateurs.

Send all entries, postmarked not later than May 15, 1958 to John F. Wojtkiewicz, W3GJY, 434 Glenwood Drive, Ambridge, Penna.

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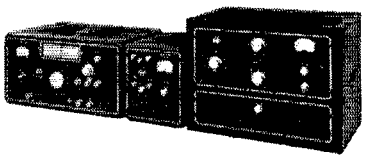

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KL7BYD with only 12 watts, while NXK, with 500 watts, maintains a daily sked with Eriete, KL7BXJ. Sincerest condolences to ABG on the loss of his mother. Radio communications were again used for the Christmas Parade with the following taking part: KLD, JTF, JOQ, POS, CSM and VNC. New Novices are KN3CNB and KN3CMW. Novice calls AER, AES and AFU all belong to the Callahan family, West Springfield. A fund raised by employees of the Bliley Electric Company in memory of the late Raymond R. Rosenberg, NCJ, will be used by the club to help needy amateurs in the Erie Area. Traffic: W3WIQ 3758, BZR 477, EPM 276, LXU 105, ACH 74, GJY 60, YA 58, KUN 27, TOC 19, YCG 17, KNQ 14, UHN 4.

CENTRAL DIVISION

ILLINOIS—SCM, Edmond A. Metzger, W9PRN—Asst. SCM: Grace V. Ryden, 9GME. SEC: HOA. RM: MAK. EC Cook County: HPG. Section nets: ILN, 3515 kc., Mon. through Sat. Many thanks for all the well wishes via cards and radiograms received by your new SCM on his new job. I will try to live up to the fine work of the predecessors of this section. If you have received an expiration card of your EC appointment, please send in your certificate for endorsement so that the files can be brought up to date. The Southern Illinois ECs, nets, radio clubs and all hams are to be commended for the very fine handling of the emergency following the disastrous tornado that struck the Mt. Vernon and Murphysboro Areas. Sympathies are extended to HPG on the loss of his father, to QWR on the death of his XYL and to the family of VGI. The CARCC's new officers are FUJ, PBM, IHR and FBP, while the Society Radio Operators' new brass is ZNY, ORM, HEP and PUP. Good luck, gang. The North Central Phone Net, as reported by CSW, handled 758 pieces of traffic while ILN handled 357. MAK, of ILN, wants c.w. operators in the Downstate Area. Please contact him and help his cause. It is urgent. New OOs are GVD and GFV. ØSAK and ØZOI have moved to W9-Land and already are busy with traffic. Welcome. New Novices heard were KSF and KIK. The Starved Rock Radio Club also went into action under the leadership of JID, SEV, PNY and VOK and the local authorities in search of a missing child in the Sycamore Area. TZN received his 35-w.p.m. certificate. The Belleville and Springfield C.D. RACES Plans have been approved and will be in action soon. Belleville will operate under BA. AMC has a new W3DZZ tri-bander. MPL, YZE, ØIGM and ØJED will guide the Egyptian Radio Club during the next year. N9JZX has a new home-brew rig and receiver. GOJ is sporting a new 6-meter mobile transmitter and HJY followed suit. Now if only the band opens up. ZKD has purchased a portable 3KW generator for emergency use and is now looking for a trailer to make it mobile. The Sangamon Valley Club had 49 students in the beginning session of its annual code class. Looks like a bunch of new call letters will result in this area. N9JLD has initiated a new Novice net which meets nightly on 7152 kc. at 1730 CST. This will be a good chance for the Novices to gain speed and learn traffic procedure. NN, HPG, FKC, CTZ, ADN, TZN and REC scored in the Frequency Measuring Tests. Winners of the Chicago Sweepstakes were IRH for c.w. and FVU for phone. The LARKS visited Fort Sheridan Jan. 8 and and after dinner held a joint meeting with the Fort Sheridan Radio Club at the Officers Club. 7JQQ/9 gave a demonstration of a radio-controlled lawn mower at the Hamfesters Annual Party. See you on the bands. PCQ, MAK, FAW, DO and TZN made BPL. Traffic: (Dec.) W9DO 1518, MAK 1045, IDA 480, PCQ 380, FAW 279, TZN 204, BUK 82, YYG 55, BA 16, WN9JLD 1. (Nov.) W9YYG 57.

INDIANA—SCM, Arthur G. Evans, W9TQC—Nets (all times CST): IFN, 3910 kc., 0800 Dy. and 1800 Mon. through Fri.; QIN, 3656 kc., 1900 DY.; RFN, 3656 kc. 0800 Sun.; CAEN, 1805 kc., 1900 Mon. through Fri.; NCIN, 50.55 Mc., Mon. through Fri. Club elections: Hoosier Lake RC—BYT, pres.; BDG, vice-pres.; ENU, secy.; K9CWD, treas. Seymour ARC—DES, pres.; KN9GBD, vice-pres.; K9GEN, secy.-treas. Clarke County RC—JBQ, pres.; K9DZR, vice-pres.; IRT, secy.; ANV, treas. New Castle ARA—PPD, pres.; K9CIZ, vice-pres.; SVL, secy.-treas. Indianapolis RC—JZV, pres.; SUN, vice-pres.; K9AOM, secy.; K9EUQ, treas.; MNA, chief op.; SWD and EJW, directors. A new radio club has been formed in Miami County with attendance of about 35. K9ELE is mobile on 6 meters with a 2E26 rig. DUD built a DX-100 and has it on the air. ZSK is building an s.s.b. rig. HXR got his WAC certificate. GUX reports that the Franklin Club is having a meeting with the Indiana State C.D. officials putting on the

(Continued on page 100)

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program. K9CFG is building a v.h.f. s.s.b. generator. VNV is off to Mexico again. 5VRO is now K9KHG at Peru and is active on DX. SYM completed a v.f.o. and a phone patch and says they work FB. K9AQP is building a v.h.f. preamp. with a pair of 6J4s and a 6AJ4. New Gen. Cl.: K9EOI and EOJ, Indianapolis; K9GHK, Culver. GHK reports 6 mobiles and one base station in the AREC at Bloomington. FJI is on with a Viking II. NTA has a 10A and is building an 811 final. KN9JRI is starting a Novice net in the Evansville Area on 3735 kc. KLR now has 37 states on 2 meters. New station appointments are WID as ORS, OZJ as OO. Net traffic reported for Dec.: SWD for IFN. Morning 408 and Evening 454; TT for RFN 195 and UTL 2789; JOZ for QIN 711; EHZ o/r CAEN 162. AB, K9AUI, EQO, KN9IXD, JOZ, JYO, NZZ, SVL, TT, VAY and ZYK made BPL. Traffic: (Dec.) W9NZZ 1843, JOZ 1318, TT 648, ZYK 643, JYO 641, VAY 622, EQO 577, SVL 575, EHZ 442, AB 399, K9AUI 375, W9TQC 334, ETM 225, K9BBO 212, W9BDG 150, BUQ 139, RTH 134, KN9IXD 132, W9FJR 106, SWD 88, K9HGF 63, W9UQP 63, CC 59, JBQ 54, WHL 51, HRW 47, IMU 43, EJW 40, ENU 40, QYQ 38, BDP 37, YYX 35, VNV 34, DGA 33, MHP 32, EGV 31, QR 30, NTA 29, GJS 24, HUF 24, WID 23, BXP 22, STC 21, CYZ 19, K9EDG 17, W9BRW 16, K9AYI 15, W9CDW 15, HGV 12, HXR 12, K9DWK 10, W9EZW 8, MMY 8, WAU 8, ZSW 8, MLF 7, DOK 6, LDG 5, IMT 3, UXK 3, GUX 1. (Nov.) W9UXK 12, DZC 9, K9DWK 6, W9EJC 6, ELE 4.

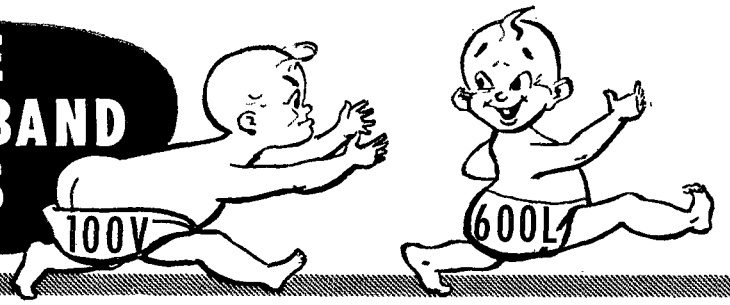
WISCONSIN—SCM, George Woida, W9KQB—SEC: YQH. PAMs: NRP and AJU. RMs: KJJ and K9AEQ. Nets: BEN, 3950 kc. daily; WIN, 3535 kc. daily. BPL was made by CXY, K9ELT, K9GDF and YT/9. SZR received S6S, OHA, DUF-1 and CAA certificates. YZG is DXing with a Valiant and a three-element beam. QNO worked XZ2TH for No. 142 and needs Zone 17 for WAZ. DXCC for UDK, PQA and K9CAN gives the MRAC ten members in the Century Club. NRP is busy with the RACES Area 1 Hq. station set-up, plus BEN paperwork. K9EVB is enjoying his new DX-40. CCO leaves for Australia returning Sept. 14. K9DJB is the call of the Fondy Club station which will be on 160 and 75 meters from its new club house. MWQ became a granddad in Oct. and a dad in Dec. He enjoys his new Ranger. GAB has 20 states on 144 Mc. K9GDF's indoor transmitting antenna is blowing his receiver tubes. UDX is back in Oshkosh. K9HCZ is a new General Class licensee in Milwaukee and has a new HRO. OES K9IQO has organized a 50-Mc. net which meets Mon. at 8 P.M. It has 31 active members. LAN is the new EC for Green County and has a DX-100 ready to go. HAC, the QRQ c.w. man, has gone to s.s.b. TZU is breaking in a new RME-4350 receiver. RUJ renewed her EC appointment and is very busy on the nets. LST and K9IKM are new OES appointees. Don't forget the big Wausau Hamfest scheduled for May 17. MRAC activity runs high during this, the club's 40th year. An enlarged bulletin has been put out and a membership drive is on. The stork paid a visit to FFB. K9AEQ has a new large clock to keep him on time for his net skeds. SIZ chased the birdie from his VFO, and RKP is cleaning the shack for more action. GFL is keeping busy with OO duties, 2-meter operation and working some UA boys. KQB has a temperamental bug. BEN certificates go to GYA, NOR and K9CEF. WIN certificates to IBF and ERW. Traffic: (Dec.) W9CXY 1196, K9ELT 424, GDF 382, W9KQB 335, K9AEQ 207, W9SAA 134, YT/9 111, DYG 102, K9GYG 42, W9NRP 41, QJW 34, FFC 32, SZR 32, SIZ 23, PJT 17, YZG 13, CBE 10, GFL 10, NHE 10, MWQ 5, K9CEF 4, W9KWJ 3, K9IQO 1. (Nov.) W9SDK 29.

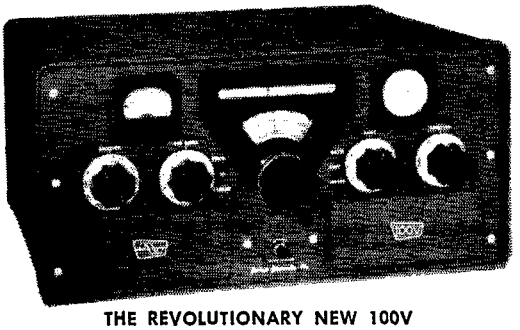
DAKOTA DIVISION

SOUTH DAKOTA—SCM, Les Price, WØFLP—Asst. SCM: Gerald F. Lee, ØYKY. SCM assistants: NEO and FKE. SECs: YOB and GDE. V.H.F. PAM: SCT. U.H.F. PAM: ORE. RM: GWS. The S. D. 75-Meter (eve) Phone Net had 37 sessions, SCT 14, KØCRD 3, CTZ 2, EXX 5, GQH 3, NEO 3, OOZ 5, ZLB 2; QNI 995, high 38, low 14, average 26.86; traffic 78 (triple), high 6, low 0, average 2.1; informals 123, high 17, next high 8, low 0, average 3.324. EXX had 3 formals and 17 informals in about 40 minutes for something of a record. The S.D. 40-Meter Phone Net had 25 sessions, EXX 8, NNX 5, KØDPD 8, 4 fills, QNI 407, high 25, low 12, average 16.28; traffic 85, high 9, low 0, average 3.4; informals 37, high 4, low 0, average 1.48. The WX Net had 25 sessions, QNI 463, high 22, low 14, average 18.5; QTC 474, high 21, low 14, average 18.9. The S.D. C.W. Net had QNI 51, high 10, low 1, average

(Continued on page 102)

THE BROADBAND TWINS





THE REVOLUTIONARY NEW 100V EXCITER-TRANSMITTER

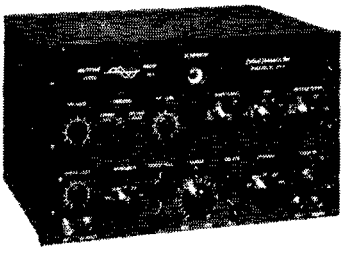
NO TUNING (except VFO), uses famous CE BROADBAND system. PRECISION LINEAR VFO—1KC Calibration. Single Knob Bandswitch 80 thru 10. SSB—DSB—AM—PM—CW and FSK. RF Output adjustable 10 to 100 Watts PEP. Meter reads Watts Input, Amps Output and Carrier Suppression. 2" RF Scope. Speech Level and Load Mismatch Indicators. Audio Filter — Inverse Feedback — 50 db Carrier and Sideband Suppression.

IN PRODUCTION SOON.....PRICE $595.00

FAMOUS MODEL 600L BROADBAND LINEAR

NO TUNING CONTROLS — CE BROADBAND Couplers in HIGH EFFECIENCY CLASS AB^2 using single 813. Easily driven to 600 Watts PEP Input 160 thru 10 by a 20A or 100V. Built-In HEAVY DUTY POWER SUPPLY — 45 MFD PAPER Capacitor. Meter reads WATTS INPUT, GRID DRIVE, RF AMPS, and SWR. Completely shielded — TVI suppressed — parasitic free. REMEMBER there is LESS than ONE S UNIT difference between the 600L and a 2 KW PEP job. .....PRICE $495.00

MODEL 20A



THESE MULTIPHASE EXCITERS PIONEERED AMATEUR SSB

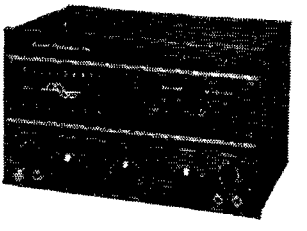
MODEL 10B — 10 watts PEP. Plug-in coils 160 thru 10 meters. Perfect voice control on SSB—DSB—AM and PM — CW breakin; Carrier and calibrate level controls. 40 DB suppression.

Wired.....$179.50 Kit.....$139.50

MODEL 20A — 20 watts PEP. Bandswitched 160 thru 10 meters. SSB—DSB—AM—PM and CW. Magic eye monitors carrier null and peak modulation. Ideal for driving AB_1, AB^2, and most Class B linears.

Wired.....$279.50 Kit.....$219.50

MODEL 10B

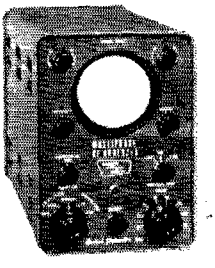


MODEL GC-1. Gated Compression Amplifier. Connects between receiver and speaker. Automatically brings all received signals to same level—no blasting. Compensates for receiver AVC deficiencies. Compresses a 40 db increase in level to less than 3 db. Magic Eye continuously monitors compression value. Keep peace with your family and neighbors — buy a GC-1.

KIT....$49.50 Wired....$59.50

MODEL MM-2. 3" RF analyzer scope for use on SSB—DSB—AM—PM and CW. MONITORS RECEIVED AND TRANSMITTED SIGNALS thru new electronic switching circuits. NO TUNING — BROADBAND response 1MC to 55MC at power levels of 5 watts to 5 KW. SIMPLE CONNECTIONS. Built-in 1KC oscillator for exciter alignment. Plug-in IF adapters available for 450-500 KC, 80 KC and 50 KC.

IF adapter RM-455 or RM-80 or RM-50 .....$9.95
MM-2 (less adapter) wired.$129.50
Kit $99.50



WRITE FOR INFORMATION ON THE COMPLETE MULTIPHASE LINE.

MULTIPHASE EQUIPMENT

Central Electronics, Inc.

1247 W. Belmont Ave. Chicago 13, Illinois

MULTIPHASE THE OVERWHELMING CHOICE OF HAMS EVERYWHERE

4.25; QTC 18, high 18, low 0, average 1.5. A new licensee is KØGRP, who operates mostly on 2 and 6 meters. CJS has moved from Bryant to Watertown. KØMOF is attending college. QEK is off the air because of TVI. DIY has gone back to work at the theater as a projectionist. The Prairie Dog ARC is designing 2-meter hand-carry transmitter/receiver units and will have 2 fixed tuned frequencies and battery, vibrapack, and a.c. power supplies for emergency and fixed station use. The Sioux Falls ARC has obtained a van-type truck and will outfit it for emergency use. The S.D. SS C.W. Net closed Dec. 13 because of lack of participation. KØEWJ built a "Wonderbar" beam for 10 meters and was called by a Virginia station following the initial test transmission. On Nov. 26 EXX completed a schedule between his station at Freeman and OA4CU, Lima, Peru, operated by Bob Schneider, to enable Missionary Joe Walter to talk to his parents in Freeman, S. Dak. Recently Diz talked to a nephew at a military base in Texas via 5HEW. Congratulations to FFP upon his recent marriage. Another new licensee is KØITK, of Chamberlain. His interest is strictly u.h.f. operation. A new licensee at Rushmore AFB is KØKFW. LXF has dropped the "N" from his call. BQS has resigned as Emergency Coordinator for Minnehaha County and KØDYR, of Sioux Falls, has accepted the appointment. Traffic: WØZWL 668, SCT 627, KØBMQ 176, WØDMQ 176, DVB 84, KØAIE 36, WØOII 36, KØWBW 32, WØFLP 27, GWS 17, KØIEH 14, WØNNX 14, OOZ 10, ZLB 10, KØINZ 8, WØFJZ 5, HOJ 4, RWX 3, TKU 3, KØAIE 2, APZ 2, BQR 2, IAW 2, WØOFP 2, NIK 1.

MINNESOTA—SCM, Robert M. Nelson, WØKLG—Asst. SCM: Bob Schoening, ØTKX. SEC: WVO. RMs: RQJ and KØDIA. PAMS: QVR and TCK. V.H.F. PAM: HXY. HXY has been appointed V.H.F. PAM. PAM appointments also were given to QVR and TCK and the two will keep the 75-meter phone nets rolling. They replace JIE and LUX, who have resigned after many hours of work and perseverance. Other appointments this month were KØDIA as RM, EMZ and PET as OPSs. OJG and TCK renewed their EC and OPS appointments. Both sections of the phone net held elections. Noon NCSs will be AWL, LUX, PET, QVQ, TCK and UMX. The evening section elected EMZ, MBD, QDZ, QVR, WVO, KØEPT and HKK. UCV, a former PAM, was hospitalized following a coronary attack but is back home with activity limited. KØGCN made BPL for the first time. KJZ and KLG also made it, with KJZ doing it both ways. GVX put push-to-talk in his Ranger. OGG has installed a new voice-control switching circuit. KØIDV has a Heathkit voice-control unit. KØIOE has a new Mon-Key and has installed a T-R Switch. TOF has a 10-meter Gonset beam up. OET gave a ham demonstration in the Sherburn High School. KØEWC is attending Mankato State College. KØCVD and his YL friend visited KJZ during his Christmas vacation from college at Grinnell, Iowa. K6EA and WØMFW will not operate in Minnesota this winter because of illness in the family. ANI and KØANI are both engineering students at the U. of Minn., and both live in University Village! New officers of the Rochester Amateur Radio Club are KØCPW, pres.; VYI, vice-pres.; and KØKBI, secy. The club's third annual code class started in January. KØGKI's dad has his Novice Class ticket with the call KN0MJS. Newly-licensed KNØMGT operated /0 at his home in Dassel during the holidays. He is attending radio school in Kansas City, Mo. The Mankato Area Radio Club sponsored a Home Brew Contest—radio gear that is! The MJN has changed frequency to 3690 kc. to avoid conflict with the S. Dak. Slow Speed Net. Traffic: (Dec.) WØKJZ 532, KLG 397, KØGCN 376, WØRQJ 116, KØIDV 88, WØUMX 74, QDL 68, QDZ 68, OJG 52, QXF 45, WMA 44, KFN 37, KØGVS 34, WØLUX 34, KØGVX 31, WØBUO 28, QVR 25, MBD 24, KØDIA 20, EPT 19, WØPET 18, TCK 17, KØCVD 16, KEJ 15, WØEMZ 14, RVO 11, SZJ 11, VYI 11, KØBDD 10, WØOJK 10, KØAEE 8, GUJ 7, WØYHR 7, FGP 5, KØGKI 5, WØLST 5, OPX 4, HEN 1. (Nov.) WØQXF 37, QDZ 26.

DELTA DIVISION

ARKANSAS—SCM, Ulmon M. Goings, W5ZZY—SEC: K5CIR. PAM: DYL. RM: CAF. K5EZI is very happy with the continued interest in the Wonder State 6-Meter Net. He has worked 22 states on 6 meters with 65 watts. KN5OES is a new ham in Russellville. The club at Pine Bluff announces NGH and WVO as new hams in that area. The club's Christmas Party was a great success with about 50 present. K5KGH has been appointed EC to replace K5CIR, who is now SEC. RDY has been appointed c.d. director of the Pine Bluff Area. A new club has been formed in McGhee with

(Continued on page 104)

YOU COULD WORK WONDERS IF YOU HAD A GOTHAM BEAM!

You could work KC4USA in the Antarctica with only 90 watts on 15 meters, as W4SK did.

You could work over 100 countries with a three element 10 meter beam, and be a top man on the frequency, like WØDEI.

You could work terrific skip and DX with reports of 20 over 9, with as little as 36 watts input on 20 meters, as W. E. Woods did.

You could work 29 states in three months on six meters, with low power, as K2LHP did.

NO TRAPS, COILS, BALUNS, STUBS OR INSULATORS USED!

TYPE OF BEAM. All Gotham beams are of the full half-wave plumber's delight type; i.e., all metal and grounded at the center. No wood, tuning stubs, baluns, coils, or any other devices are used.

MORE DX CONTACTS

GAIN. Gotham beams give the maximum gain obtainable. Our 2-element beams give a power gain of four (equivalent to 6 db.); our 3-element beams give a power gain of seven (8.1 db.); and our 4-element beams give a power gain of nine (9.6 db.)

THOUSANDS IN DAILY USE

MATCHING. Matching of the transmission line to the beam is extremely simple and quick. No electronic equipment or measuring devices are required.

ALCOA QUALITY ALUMINUM

ASSEMBLY AND INSTALLATION. No special tools are required for assembly and installation. Entire job can be done by one man in less than an hour. Full instructions are included with each beam.

CONSISTENT PERFORMANCE

MAST. Any Gotham beam can be mounted on a simple pipe mast. Diameter of the pipe should be between ¾" and 1⅝".

YOU WILL WORK THE WORLD

STANDARD AND DELUXE BEAMS. Standard beams in the 6, 10 and 15 meter bands use ⅝" and ¾" tubing elements; the deluxe models for these bands use ⅞" and 1". In 20 meter beams, the standard has a single boom, while the deluxe uses twin booms.

TRIBANDER BEAMS

6–10–15 TRIBANDER.....$39.95
10–15–20 TRIBANDER..... 49.95

Do not confuse these full-size tribander beams with so-called midgets. The Tribander has individually fed (52 or 72 ohm coax) elements and is not frequency sensitive, nor does it have baluns, coils, traps, or other devices intended to take the place of aluminum tubing. The way to work multi-band and get gain is to use a Gotham Tribander Beam.

TWO BANDER BEAMS

6–10 TWO BANDER.....$29.95
10–15 TWO BANDER..... 34.95
10–20 TWO BANDER..... 36.95
15–20 TWO BANDER..... 38.95

Each Two Bander has twin 12' booms, and full-size half-wave elements. ⅞" and 1" aluminum alloy tubing, all castings and fittings are supplied. Assembly is easy.

FREE! FREE! FREE! Details, Specifications and Characteristics of 50 antennas!

Airmail Order Today — We Ship Tomorrow

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1805 PURDY AVE., MIAMI BEACH, FLA.

Enclosed find check or money-order for:

TWO BANDER BEAMS
- ☐ 6–10 TWO BANDER..... $29.95
- ☐ 10–15 TWO BANDER..... 34.95
- ☐ 10–20 TWO BANDER..... 36.95
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TRIBANDER
- ☐ 6-10-15 $39.95
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2 METER BEAMS
- ☐ Deluxe 6-Element 9.95
- ☐ 12-El 16.95

6 METER BEAMS
- ☐ Std. 3-El Gamma match 12.95
- ☐ T match 14.95
- ☐ Deluxe 3-El Gamma match 21.95
- ☐ T match 24.95
- ☐ Std. 4-El Gamma match 16.95
- ☐ T match 19.95
- ☐ Deluxe 4-El Gamma match 25.95
- ☐ T match 28.95

10 METER BEAMS
- ☐ Std. 2-El Gamma match 11.95
- ☐ T match 14.95
- ☐ Deluxe 2-El Gamma match 18.95
- ☐ T match 21.95
- ☐ Std. 3-El Gamma match 16.95
- ☐ T match 18.95
- ☐ Deluxe 3-El Gamma match 22.95
- ☐ T match 25.95
- ☐ Std. 4-El Gamma match 21.95
- ☐ T match 24.95
- ☐ Deluxe 4-El Gamma match 27.95
- ☐ T match 30.95

15 METER BEAMS
- ☐ Std. 2-El Gamma match 19.95
- ☐ T match 22.95
- ☐ Deluxe 2-El Gamma match 29.95
- ☐ T match 32.95
- ☐ Std. 3-El Gamma match 26.95
- ☐ T match 29.95
- ☐ Deluxe 3-El Gamma match 36.95
- ☐ T match 39.95

20 METER BEAMS
- ☐ Std. 2-El Gamma match 21.95
- ☐ T match 24.95
- ☐ Deluxe 2-El Gamma match 31.95
- ☐ T match 34.95
- ☐ Std. 3-El Gamma match 34.95
- ☐ T match 37.95
- ☐ Deluxe 3-El Gamma match 46.95
- ☐ T match 49.95

(Note: Gamma-match beams use 52 or 72 ohm coax. T-match beams use 300 ohm line.)

NEW! RUGGEDIZED HI-GAIN 6, 10, 15 METER BEAMS

Each has a TWIN boom, extra heavy beam mount castings, extra hardware and everything needed. Guaranteed high gain, simple installation and all-weather resistant. For 52, 72 or 300 ohm transmission line. Specify which transmission line you will use.

- ☐ Beam #R6 (6 Meters, 4-El).....$38.95
- ☐ Beam #R10 (10 Meters, 4-El)..... 40.95
- ☐ Beam #R15 (15 Meters, 3-El)..... 49.95

Name.....
Address.....
City.....Zone....State.....

K5HYC as president. KN5OJB also is a new ham in the Russellville Club. WSM has finished his WAC and has a new vertical antenna for 40, 20 and 15 meters. The Logan County Emergency Net continues to operate each Sun. and is proving very successful. ØJHY/5 has received his 30-w.p.m. CP sticker. Interest is growing in the Osceola Club. DAG and GUE were welcome visitors to Arkansas recently. ZZY has a new 150-watt s.s.b. exciter. The OZK C.W. Net still is operating on 3790 kc. daily at 1900. We would like to see more stations participating in this net. Traffic: W5BYJ 282, K5HSJ 62. W5KRO 39, CEU 30. WSM 22. SZJ 21, YHC 15, PX 13.

LOUISIANA—SCM, Thomas J. Morgavi, W5FMO—A Louisiana c.w. net is being organized for the purpose of accepting traffic from NTS through RN5. All interested are asked to contact the SCM, the RM, EA, K5AGJ or MXQ. The net will operate on 80 or 40 meters. K5KLA has received his General Class ticket. He is active on 40 and 15 meters, the Gulf Coast Net and the N. O. Emergency Net. UXE is attending the U. of Virginia taking a pre-med course. He is the only BPL Medallion winner in Louisiana in the last five years. EA complains that activity is low! CEZ says his traffic total came down because more stations reported into RN-5 to effect better distribution. NDV received his 35-w.p.m. sticker. K5AGJ has been reappointed ORS. TVW and K5CVK are planning a "safari" in the wild woods north of Lake Ponchatrain. They will carry portable radio gear. TVW, who is active on 2 meters, recently finished a ten-element beam and is working on an s.s.b. layout after getting a 10B for Christmas. As it is too cold at 6:30 in the morning, K5GAB has changed his Official Bulletin schedule to 1800 CST on 14,250 kc. daily. Your SCM is asking for applicants for the Section Emergency Coordinator post. This job should take all the spare time a fellow can put into it so it is not good practice to have a combination SEC-C.D. Radio Officer. Please do not apply if you are officially connected with c.d. Radio clubs are asked to submit their selections. Address Louisiana SCM, page 6 *QST*. Thanks for the get-well messages sent while I had the flu. Traffic: W5CEZ 367, K5AGJ 143, W5MXQ 135, NDV 44, TVW 27, K5DMA 22, W5EA 8.

MISSISSIPPI—John Adrian Houston, sr., W5EHH—FPI would like to organize a c.w. net. Please contact Bill and support him in same. He can be found on the Gulf Coast Hurricane Net each evening at 6:15 P.M. CST. The Cleveland Amateur Radio Club at its last meeting began making plans for its future hamfest. 1EO says there was nothing much new in December on v.h.f. Active on 6 meters in Jackson are K5s DOZ, HDB, KCH and ALH and W5s UTC and 1EO, K5BMT, Sebastopol, and VPX, Union, are worked frequently. We are sorry to hear that CBW has been ill in the hospital. Thanks to EYY, editor of *JARC News*, for a very fine club paper from our Capitol City. The JARC recently elected TAK, pres.; K5DOZ, vice-pres.; OFE, fin. secy. K5AYP is now mobile on 3885 kc. BAF is stand-by operator at AYP. BAE is ET-3 in the U. S. Navy aboard the USS *Hancock*. We are sorry that K5AUR lost his beam but glad he didn't lose it before Christmas as he patched Santa through to a number of kids. Traffic: W5JHS 95, RIM 64, TIR 14, K5AYP 10, MFV 7, EXG 4.

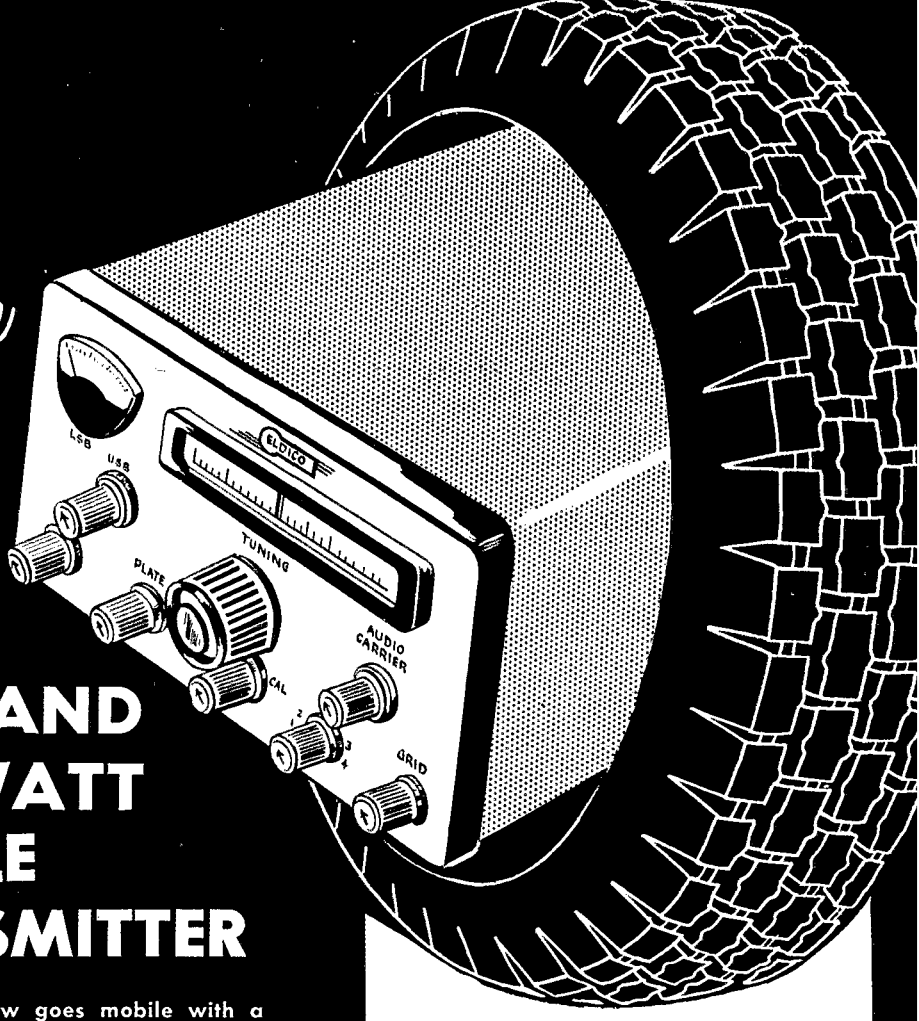
TENNESSEE—SCM, Harry C. Simpson, W4SCF—SEC: RRV, PAM; PQP, RM; IV. Your SCM sincerely thanks all members for their splendid cooperation during the past four years. Members should send a report of their traffic, activities, etc., to the SCM before the *7th* of each month for inclusion in this column. Bulletins were received from the Oak Ridge, Knoxville, Chattanooga, Nashville and Memphis Clubs. The Knoxville Club has embarked on an extensive improvement program, under the direction of TZJ. The Oak Ridge Club, under RRV's direction, continues as one of our most active groups and has printed a fine new roster of its 82 members. In Memphis, FRB is the new president and announces that CTA, DJO, AFB, ADM, BMC, FEB, POU, GII, DBQ, IQX, WSP and CME will receive Red Cross Certificates of Merit for their communications work. K4DJO, with 46 states on 6 meters, continues his overseas traffic schedules on 10 meters. John West, popular W4USA operator, is now in Germany. ZJY now has French call F7CV and Air Force MARS call AJ2XC and is looking for Tennessee friends on 20 and 15 meters. Ex-W4PTI, Sgt. Walter Morris, now DL4DZ, would appreciate Tennessee contacts on 10 meters. SCF, ARR and JTN, under the mistaken impression that it took only a printer to get on the air with RTT, are still collecting. In 11 weeks with a DX-35 RNQ has worked 28 states, 27 countries and 17 zones! PQP was

(Continued on page 106)

ELDICO Goes Mobile

with the new

SSB-100M ALL-BAND 100-WATT MOBILE TRANSMITTER



ELDICO quality now goes mobile with a complete 100-watt mobile transmitter with 200 kc VFO coverage on all bands — 80 through 10 meters — with no compromise of performance! Efficient, effortless operation was designed into every detail of the SSB-100M, with such features as: push-to-talk and receiver muting, variable frequency oscillator, front panel controls permitting variance of the calibrate signal level and selection of upper or lower sideband. Zero beating the desired signal is simplified considerably. When the QRM becomes rugged, merely switch to the other sideband and slide out from under it. A crystal lattice filter provides constant attenuation of the unwanted sideband without adjustment. Pi-network output permits matching into a wide range of impedances. Approximately $400.00 net, less power supply, buys it all. So don't settle for less — wait for the best.

Delivery: Early Spring

ELDICO SSB-100M

Type of Emission: C.W.—A.M.—SSB

Power Ratings: DC average input A.M. input (two tone test) —60 watts, SSB-100 watts. Peak envelope input SSB 144 watts. Peak envelope power output SSB 100 watts.

Keying: Grid Blocking.

Harmonic Attenuation: 40 db

Sideband Suppression: 38 db—3 kcs

Frequency Stability: Control Oscillator—(1000 to 1200 kc) ±100 cycles after two minutes warm-up period. Output frequency—within 300 cycles after five minute warm-up period. Dial Accuracy ±500 cycles after calibration.

Frequency Range: 80m—3800 to 4000 kc
40m—7100 to 7300 kc
20m—14,150 to 14,350 kc
15m—21,250 to 21,450 kc
10m—28,500 to 28,700 kc

Selectable crystal controlled on MARS, CAP and CD frequencies.

Tube Lineup: 10 tubes, including 5894 power amplifier.

ELDICO ELECTRONICS

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A Division of Radio Engineering Laboratories, Inc.

voted outstanding ham of the Nashville Club. GFL reports on a fine Nashville MARS meeting, was visited by EWI and says IPO and family are visiting in Nassau. SGI had an outstanding 21.6-cycle record in the last F.M.T. RM IV reports on TN activities. Congratulations to PIL, RCF and TYU on making the BPL. UVP, with a new SX-100, now has 24 states on 6 meters. WQT was visited by GKE, GKD, AYF, CXA, CZE, CVM, AJC, MYD, HJO and BMI. KN4RJN, licensed only 3 months, has 41 states and 15 countries! OGG visited 8s CHE, CUZ, BVL, CPI, KIK and FQZ. Traffic: W4PL 2068, W5RCF 1936, W4OGG 376, TYU 311, VJ 159, PQP 149, NHT 140, IV 83, UVL 72, SCF 40, BQG 39, DJO 39, TDZ 30, BTR 28, EWC 24, IGW 24, PAH 19, UVP 18, DIZ 17, JPP 16, UIO 12, WBF 11, GEN 8, CLM 7, RXQ 7, HHF 5, GFL 4, HUT 4, HSX 3, YRM 2, FQB 1, PVD 1, RJN 1, RTA 1, RWT 1, WQT 1, ZJY 1.

GREAT LAKES DIVISION

KENTUCKY—SCM, Albert M. Barnes, W4KKW—SEC: JSH. RM: K4AIS. PAMs: SUD and K4ECJ. Ky Phone Net (KPN) meets daily on 3960 kc. at 1930 CST. PAM SUD reports KPN cleared 310 messages in 31 sessions. NCSs are K4JGN, BBD, K4QKQ, ZWE, NIZ, K4MMW, K4WBG, OGY, K4KHE and NUQ. Ky. C.W. Net (KYN) meets daily on 3600 kc. at 1700 and 1900 CST. RM AIS reports YN cleared 562 messages in 57 sessions. NCSs are NGN, ZDA, K4OAH, K4CSH, ZDB, K4KIO, JSH, HOJ, CDA and QCD. Ky. Sideband Net (KSN) is perking along with 28 sessions held and 25 messages cleared. NCSs are NGN, K4HBF, KRY, NOW, K4DPP, K4HKB and K4ECJ. K4OAH has a 180-watt final, made BPL for the first time and needs Wyoming for WAS. K4GAG sent an FB OO report MKJ is NCSing the 2-Meter Louisville Net daily on 145.8 Mc. at 1900 CST. KPN certificates were sent to K4JTE, K4QPB, RRN, K4WBG and HNI. MGT now is a Class I OO. TQD's son John, 13 years old, is the newest Novice. RM K4AIS made BPL again. CDA, editor and publisher of the *KYN-KPN Bulletin*, now is working spare time on a Paratone monitor and keying filters. K4KIN/K4KIO are settled in Louisville. KKG keeps regular skeds with 6SEU, K6UKO and 6CGP on 29.4 Mc. K4KIS, Danville, has a VOX and a Wonderbar antenna on 10 meters. RYL is DX happy. YYL has a new trap antenna. KN4PNA has a new VFO. KN4SBZ has a new SX-101 and a Johnson Valiant with a 10-15-20-meter beam. EC K4AXE has signed up 7 AREC members in Pulaski County. KZF is active on 6 meters. K4DLI has 68 countries on phone now. Appointments renewed: KZF and TQD as OPSs, TQD and NGN as ECs, JUI and K4HTO as OESs, PHJ as OBS. SEC JSH reports Ky. AREC membership is full 231, supporting 20, total 251, Official Mobile Units 67, Emergency Radio Units 23, local nets 10 with eight drills held in December. Traffic: (Dec.) K4OAH 631, AIS 510, W4ZDB 476, SUD 253, HSI 205, KKW 188, K4CSH 178, W4BAZ 168, K4JGN 164, W4RPF 160, QCD 143, K4KIN 83, W4OGY 63, CDA 59, MWX 46, K4KIO 45, W4KKG 44, NIZ 41, K4KIS 40, MMW 39, W4NGN 39, HOJ 38, K4BPX 28, W4HEA 28, JSH 23, K4AXE 16, W4JCN 13, HJI 8, SZB 5, HNI 4, KZF 3, JUI 1.

MICHIGAN—SCM, Thomas G. Mitchell, W8RAE—SEC: YAN. BPL certificates were issued to the following stations for December traffic totals: DJN, OCU, NAW, WGU and WXO. Congrats to all. QQO reports much activity by the TVI Committee in the Benton Harbor Area. News of the Michigan Convention in Saginaw on Mar. 1 did not reach me in time for the last report so I hope that the details reached you by other means. The Grand Rapids ARA is planning its hamfest for Apr. 26 at the same place. The Mason County Radio Club will have station K8DXF on the air soon. TBP made out his Form 1 report this month while tuned to 3663 kc. listening to a K9 call CQ ten meters. QMINers must have appreciated that. The Central Michigan Amateur Radio Club (Lansing, etc.) has established the Cosmo G. Calkins Memorial Award that will be presented yearly to an outstanding *Michigan* amateur. This is a fine tribute to the late HSG/MEX who did so much for all of us. Questions regarding the rules and regulations for this award should be addressed to FSZ, who is the committee chairman. New officers of the Central Michigan ARC are CVP, pres.; PXA, vice-pres.; KWO, treas.; VVR, secy.; GJK and QQL, directors. Eighty-eight stations in the East and West Detroit Areas were presented public service certificates and letters of commendation by the U. S. Weather Bureau in Detroit for their severe-weather observations reported to the Bureau via FWC and IKK on 160 meters. Their reports supplement the normal observation system and the Weather Radar

(Continued on page 108)

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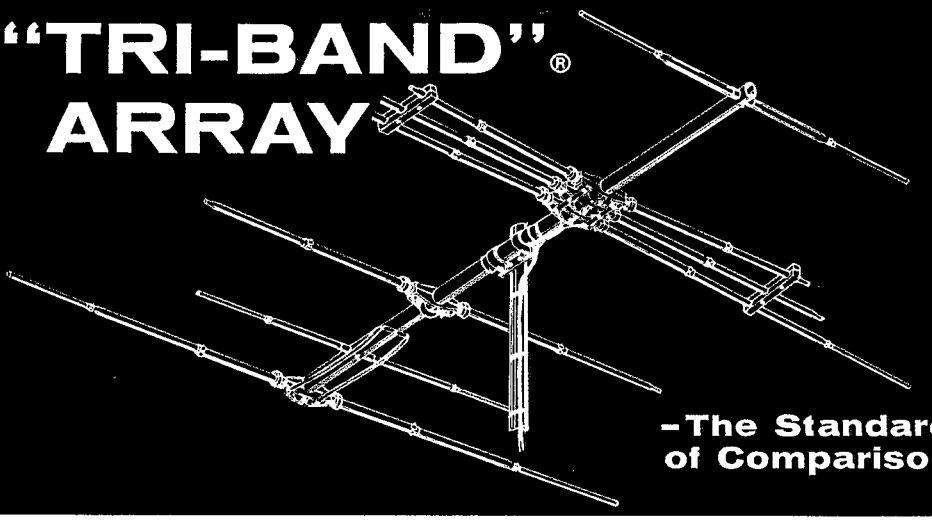

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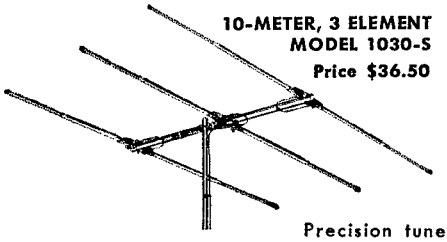

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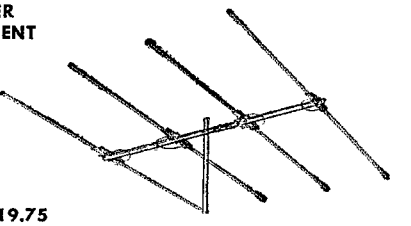

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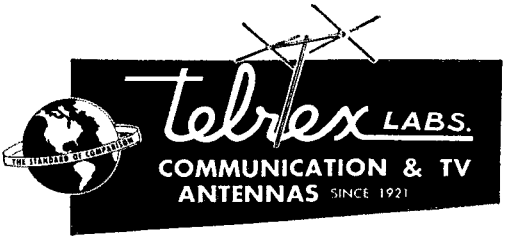

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System. LIM recommends the surplus T-23/ARC-5 units as something easily modified. FX and HKT have survived another Christmas season at their respective post offices. This one was the last for Tate since he is up for retirement this year. Traffic: (Dec.) W8DJN 1734, OCU 392, NAW 336, NUL 328, WGU 266, ILP 227, WXO 172, GKT 141, NOH 129, RTN 123, OCC 102, YAN 73, DAP 61, QQO 55, FDO 50, SCW 45, FWQ 44, SWN 44, DSE 36, RAE 36, K8CKD 26, W8QIX 17, AUD 16, FX 16, IZS 11, OGY 10, TBP 10, FSZ 9, HKT 8, K8AXL 2, W8FGB 1. (Nov.) W8GKT 82, QQO 61, OCC 47, TBP 20, SWN 4.

OHIO—SCM, Wilson E. Weckel, W8AL—Asst. SCM: J. C. Erickson, 8DAE. SEC: UPB. RMs: DAE and FYO. PAMs: HPP, HUX and HZJ. K8BIZ is a cadet in the Civil Air Patrol. New appointments: WYS as EC, SLR as OPS, K8BYQ as OES. BJU has a new Valiant. BYV has a new DX-100. CYZ has a 100-watt final. BGP is on 2 meters with a 5-over-5 beam and has a new Zepp. HPP's husband is KN8IJW. The stork brought jr. operators to YHU and KN8BRO. YHU's other two sons are KN8EJR and KN8EKG. Springfield ARC's *Q-5* tells us that a representative of the gas company told them at a meeting how gas is stored and how to meet the peaks in the winter months. WXG was in the hospital for an operation. KN8CTY mans the Painesville observation post of the Ground Observers Corps. Dayton ARA's *R-F Carrier* informs us that K8BOX worked KS6AF on 20 meters, K8EXJ worked a SM6, SM7 and a ZE2 on 6 meters with 40 watts and KQZ has a new jr. operator. KN8HTI is on 15 meters. South East ARC's *Ham-fax* states that the club held a movie night. K8CDA won a Gonset Communicator, GTO built a 6-meter rig, IJZ has a new Mosely beam and MDL won an SX-101 in a contest sponsored by Hallicrafters. The Indian Hills RC meets the 1st and 3rd Thurs. of each month. Westpark Radiops 1958 officers are ZJQ, pres.; LHX, vice-pres.; YPT, secy.; BUQ and ZEU, trustees. K8DDG's tower broke during a windstorm. *Attention All Ohio amateurs.* The Ohio QSO Party, sponsored by the Ohio Council of Amateur Radio Clubs, will be held Apr. 12 and 13. It would be nice if stations in all of the 88 counties participated, especially in such hard-to-get counties as Adams, Belmont, Brown, Carroll, Defiance, Gallia, Hardin, Henry, Hocking, Meigs, Mercer, Monroe, Paulding, Perry, Putnam, Shelby, Vinton and Williams. The following have WAOC in the order of receiving it: EQN, HUX, AJW, CTZ, VZ and HZJ. KN8HZN and KN8IDH have new Globe Scouts. BML has returned to work after an auto accident. JDN is now mobile. YGR's XYL underwent an operation. Parma RC's 1958 officers are K8CCW, pres.; K8DJC, vice-pres.; K8DHT, secy. K8DTR has a 600-watt rig. HCV has a new Globe Scout. KN8DEG has a new NC-183D. K8ABM is recovering from a back operation. Columbia ARA's *Carascope* tells us the club had a large Christmas Party and at its joint meeting of v.h.f. and regular members Dr. Howe, Professor of Physics at Denison U., demonstrated how an antenna works. QZH has a new 10-meter beam and an RME-4300. KN8IAS has a new DX-40 and has worked 15 states. UST is on 420 Mc. K8EUC worked California on 160 meters and has worked 21 states. GDB is now on s.s.b. GQD has a new HQ-110. K8AEC is net manager of the Interstate Single Side Band Net. JDN/8 is now mobile. A radio club is being organized in the Ohio State stadium dormitory. It was the St. Edward High ARC that elected K8CCW, pres.; HCV, vice-pres.; and K8BWE, secy. as 1958 officers and *not* the Parma RC, as stated in Jan. *QST*. Those making BPL are DAE, GFE, UPH, and K8AEC. IBX worked 96 countries with 72 confirmed. OEQ, the son of HXB, won first place in the 1957 Field Day Class B one-transmitter contest with the highest score in W8-Land. Toledo's *Shack Gossip* tells us its "Ham of the Month" is K8DOF, the Toledo Mobile RA's hidden transmitter hunt was a huge success with NBD, MQQ and SVB winning prizes. K8ABQ has a new Viking Valiant. INR is now on 29.2 Mc. with a Valiant and a ground-plane. VSB built a new rig, the Wood County ARC's 1958 officers are PSK, pres.; SDW, vice-pres.; K8DGY, secy.-treas. CSK has a two-element tri-band beam and 68 countries. PMJ was in the hospital for surgery. AOX has a new B&W transmitter. K8EHY received his General Class ticket. HZJ's final blew up. The Cuyahoga County AREC helped to form and direct the flow of the Cleveland Christmas Parade with AES, BNR, NZI, PZR, TFW and K8BKF taking part. The Canton ARC held its Annual Christmas Party. Traffic: (Dec.) W8UPH 1888. K8AEC 553. W8GFE 290. DAE 247, QLJ 236, IBX 190, HXB 169, SZU 144, VTP 135, ARO 111, AL 86, VDA 79, CSK 72, UPB 54, CTZ 38, BGP 37, HZJ 36. VWX 30, STR 28, QIE 24, JRE 22, K8CCZ 20, W8GQD 20, DSQ 19, LMB 19, WE 19, LGR 15,

(Continued on page 110)

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BEW 12, WYU 12, ZAU 11, LLY 10, DG 8, K8CCW 6, W8UHW 6, W9VBV/8 6, W8MXO 5, FFK 4, SLR 4, STF 4, SYD 4, WTO 4, UYD 2, DDW 1, EEQ 1. (Nov.) K8BIZ 51, W8BGP 44, K8DDG 40.

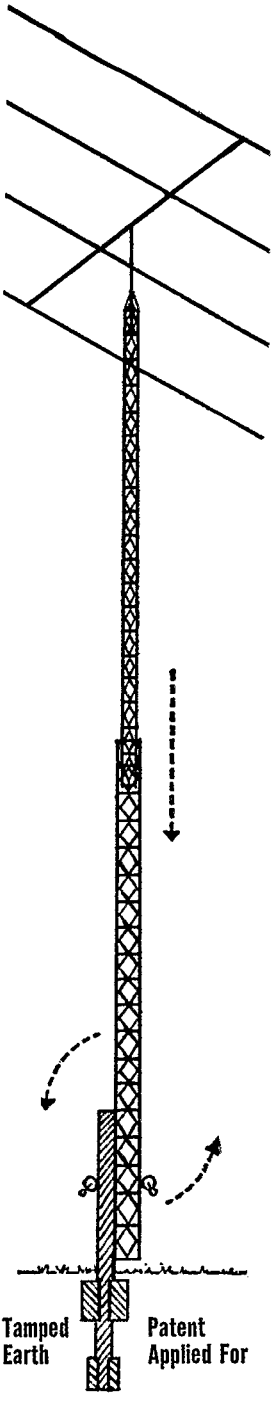
HUDSON DIVISION

EASTERN NEW YORK—SCM, George W. Tracy, W2EFU—SEC: KGC, RM: PHX, PAMs: IJG and NOC. Section nets: NYS, on 3615 kc. at 1900; NYSP-TEN, on 3925 kc. at 1800; TCPN, (2nd call area), on 3970 kc. at 1900; SRPN, on 3980 kc. at 1130; ENY (Emerg.) on 145.35 Mc. Fri. at 2100; MHT (Novice), on 3716 kc. Sat. at 1300. December resulted in some nice traffic totals including that of K2YTD, who made BPL. K2YFA received his General Class license in December. The Ulster County Mike and Key Club held its annual dinner on Dec. 8. Regular meetings are held the 1st and 3rd Thurs. of each month at City Hall in Kingston. The Ellenville Amateur Radio Club is being organized under the direction of K2QPB. A speaker from Collins Co. featured the Dec. 13 meetmg of the Albany Association. More han 50 members and friends attended the club's Christmas Party and enjoyed movies shown by APF. SZ, at R.P.I., reports they lost their 20-meter beam in bad WX. A new tri-bander will be up soon. Several 50-Mc. openings to Europe and Eastern U. S. were reported by LWI. Amateur radio expedited an emergency leave for a serviceman in Korea to visit his critically ill mother in Albany. December was a bad month for K2PRB, who lost the oscillator in his Sonar 2-meter rig, and spoiled the printed circuit board for his new 6-meter rig. Novices interested in learning traffic-handling before receiving General Class licenses are reminded to call into the MHT Net listed at the beginning of this column. Traffic (Dec.) W2EFU 280, PHX 270, K2YTD 220, W2ATA 189, K2VTW 123, UYK 94, YJL 84, W2APF 62, K2LKI 60, QJL 46, HJX 30, SQV 29, PXM/2 26, HNW 24, W2SZ 14, K2CKG 5, PRB 3.

NEW YORK CITY AND LONG ISLAND—SCM, Harry J. Dannals, W2TUK—SEC: ADO. PAM: OBW. RM: WFL. Section nets: NLI, 3630 kc, nightly at 1930 EST and Sat. at 1915 EST. NYC-LIPN, Mon. through Sat. from 1730 to 1830 EST. NYC-LI AREC, 3908 kc. Sun. at 1400 EST. KEB, VDT, AEE, and K2PHF made the BPL. KEB established a new personal record with her fine total. VDT's BPL earns a BPL Medallion. K2QBW announces the formation of the Hudson Traffic Net (HTN) which meets on 7060 kc. at 1645 EST daily. The net will serve the NLI, NNJ, ENY and SNJ sections. VDT upped his countries total to 94 with 81 confirmed. OME and his new DX-100 just missed BPL. K2AMP expects the West Islip HSRC to appear on the air soon. HQN, RHK and RLM dropped the "N." The boys at AEE returned to the BPL ranks for the first time since Jan. '56. A new 6N2 will soon round out their v.h.f. equipment. IVU and K2EWB have returned to civilian life. A new antenna at K2HVY helped to boost Lance's traffic total. RHK is putting the finishing touches on his half-gallon rig. K2RKL has been appointed manager of 420-Mc. activities for the U.H.F. Club of Jamaica. He now has 32 elements on that band. Congrats to K2DEM, who passed the Extra Class exam. New officers of the Tu-Boro RC are GIP, pres.; LG, vice pres.; LGK, secy.; and IAG, treas. The Radio Club of Brooklyn and the Brooklyn Civic Center RC have merged. IVA, PF's son, was home from M.I.T. for the holidays. IAG has been appointed Asst. RO for 10-meter RACES in Queens. K2DDK won three certificates in the recent Section QSO Party—highest Queens score, second highest section score and worked all 7 counties. New officers of the Lake Success RC are K2AED, pres.; WUQ, vice pres.; and YSI, secy.-treas. K2SQU has a Communicator on 50 Mc. AOD completed a 432-Mc. crystal-controlled converter. GG/4, JSW and KR enjoyed a Florida-to-the-Bahamas cruise on JSW's KWM-1-equipped "Bar-L-Rick." CMM's 20A-600L big signal from the Bronx phone-patched the boys home. CSO/3HQE writes from D. C., where he is active with a BW5100B/51SB, a 51J-3 and a 3DZZ beam. HQL received KL7 certificate No. 39 and DXCC-200 sticker. Joe added a G66-B to his mobile station. Another station on 435 Mc. is LCF. K2BSA has a new rig on 6 meters. The Amateur U.H.F. Club, DYM, tried a New Hyde Park Field Day setting for the V.H.F. Sweepstakes. K2SGR's Ranger is now driving a 6N2 into a 6-meter beam. K2CTK has appointed K2s HSY and OVN as Asst. ECs in Kings County. The Kings County RACES organization finds RO K2CTK, ARO-10 meters K2BDD, ARO-6 meters K2GKY and ARO-2 meters JCI. A new daughter has arrived at K2HSY's.

(Continued on page 112)

HAM DREAMS COME TRUE!



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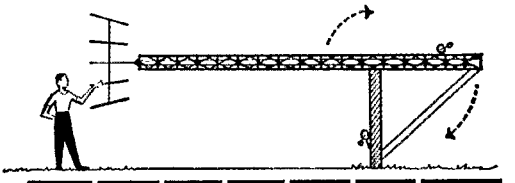

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K2PZH sports a new SX-101 and a DX-100. K2DNL operates on 433.08 Mc. on Tues. and Thurs. at 2200 EST. K2EEK has a 30-ft. tower for his 50- and 420-Mc. beams. K2HEA/MGE now drive their 600L with a new HT-32 exciter. K2MGE has 71 countries worked on s.s.b. K2QFV added 2 new states on 50 Mc. on Christmas Eve. K2OKR has a new DX-100. K2YJC is enjoying 15 meters with his Viking II. Another all-band mobile is K2KNB. The Levittown ARC, GLO, added a Ranger to its station. PRU's XYL is now KN2IHQ. K2DEB is now a Freshman at M.I.T. K2PFH has returned from KA-Land and is stationed at Ft. Myer, Va. He will be active on 2 and 6 meters. New officers of the Northern Nassau ARC are K2MWR, pres.; K2MWQ, vice-pres.; UAL, treas.; K2RUS, rec. secy.; and NEK, corr. secy. K2PTS has a 20A/600L combination, an SRT-120P and a 75A-4 receiver which have helped him to work 45 states and 45 countries. K2GGC, aboard a destroyer in the Pacific, reports that he will resume activity with a DX-100 and 75A-1 upon discharge in March. K2VPX sends in an impressive list of countries worked on 14-Mc. c.w. with his DX-20, S-86 and doublet. K2BAH has been working 40 meters with 3 watts to a 5763. K2EC is putting the finishing touches on his kw. K2EWB's new pair of 4-400As puts a big signal on 14-Mc. s.s.b. Your SCM enjoyed the Christmas holidays in Florida with OM GG/4, brother 5ZRA, and the whole family. The NLI Net sounded fine from Bradenton. Traffic: W2KEB 5428, K2PHF 1444, W2VDT 476, OME 454, K2AMP 300, W2AEE 269, BO 250, K2QBW 142, BH 123, W2IVS 121, K2HVY 115, SSE 101, ECY 64, WN2RHK 64, W2GP 54, JOA 53, K2RJO 48, W2JGV 39, K2DDC 36, W2DUS 34, LPJ 30, K2RKL 30, DEM 26, W2JBQ 24, LGK 24, EC 23, PF 18, DRD 14, K2TSE 12, W2IAG 11, K2MEM 10, AAW 6, DDK 2, VPX 2, ITZ 1, W2TUK 1.

NORTHERN NEW JERSEY—SCM, Lloyd H. Manamon, W2VQR—SEC: IIN. PAM: VDE. RMs: BRC, NKD and CGG. The New Jersey 6-Meter Traffic and Emergency Net's Dec. report shows an average of 15 regular net members checking in on each net session. WN2TKZ is installing a new beam antenna. K2GPB spent his leave building a new mobile rig. NIY has his transmitter trouble cleared up and is back on the air. K2SYB has made WAC on 10 meters running 15 watts to a vertical antenna. K2PRR needs Africa for his WAC. WN2FJC has a new DX-40. Amateurs are invited to visit K2YNT, the Metuchen YMCA Radio Club, any Sat. afternoon at 1400. K2UXX is on 6 meters with a three-element quad and Gonset. K2PIM is having transmitter trouble. The Dec. traffic report for NCNJ shows 22 sessions held with attendance 55 and traffic 81. The GSARA is planning a trip to ARRL Hq. in April. EBG has received WAC certificate. KFR has been appointed ORS. K2UQY received a mill for Christmas. K2MFF took the Extra Class exam. CFB still is pushing the DX-100. The NJN report for Dec. shows attendance 405, traffic 502 and sessions 26. Net Mgr. BRC reports monthly totals aggregate 327 sessions, 4476 attendance and 3713 messages handled. This shows an average attendance of 13.7 per session and 11.4 mesages handled per session. Your SCM congratulates all of the NJN members for this fine showing and special thanks goes to BRC, the net mgr. RXL is doing a fine job as NCS on NJN and also has taken over as 2RN liaison. DME is giving his new HT-32 a good workout on 20 meters. K2GYQ tells us that there is quite a group on 20-meter s.s.b. known as the KWM-1 boys. ANG is a new member of TCRA. WOJ is off the air while rebuilding. IUC has a new Ranger. The Raritan Valley Radio Club station, QW, has made WAC. Prospective RVRC members are invited to contact K2PSX for membership information. CVW has 75 countries worked. The Ridgewood High School Club made BPL during December. The club call is YNU. WN2MRV is working out fine on 15 meters. EWZ received VA-JF certificate No. 402. K2SPT is on 10-meter phone. K2OQA and VZJ have moved to Hazlet. FZY now is located at his new QTH in Rumson. BOK has over 150 countries confirmed. K2GTX was elected treasurer of the Ft. Monmouth RC. K2CTJ, SKO, YWI, ALO and W2NBP are building a new 75-meter transmitter for FD. PSU is on the air with a Viking II. The Bloomfield RACES group held "Open House" at the CD-1 headquarters recently. K2JGS, W2FNM and WN2GIT assisted in the demonstration of RACES equipment to city officials. K2CAW was set up at Council Chambers in City Hall to complete the communications link. Any ham living in the vicinity of Lyndhurst who can lend a helping hand to a young fellow who needs guidance in becoming a ham should drop a line to Dave Luberto, 620 Tenth St. K2QYI has been awarded a net certificate for participation in NJN. A new net is the Hudson Traffic Net, which

(Continued on page 114)

International's

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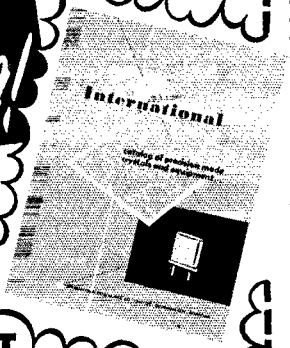

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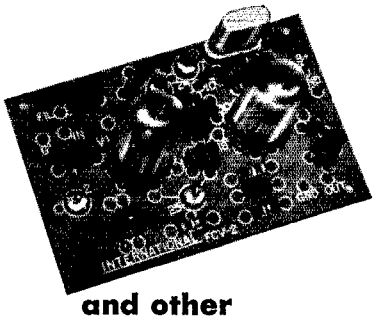

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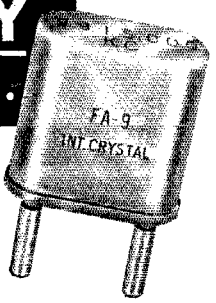

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meets on 7060 kc. daily at 1645. The boys would appreciate liaison with other nets operating in the eastern states. PWX is real hot on 144-Mc. DX with a new converter. Traffic: (Dec.) K2BHQ 277, W2MLW 238, K2OAM 171, W2RXL 139, K2OIY 125, QYI 119, W2YNU 108, EBG 75, BRC 73, OXL 71, EWZ 60, K2MMM 47, ZHK 33, WN2TOD 29, K2UQY 19, MFX 16, KVR 15, MFF 13, W2QYW 10, CVW 8, VMX 7, CFB 6, KFR 6, NIY 5, K2ULF 5, QFG 4, W2IUC 2. (Nov.) W2VMX 20, DRV 14.

MIDWEST DIVISION

IOWA—SCM, Russell B. Marquis, WØBDR—New officers of the Mississippi Valley Radio Club of Keokuk are YJN, pres.; YWP, vice-pres.; KØHBM, secy.-treas.; and YIV, program dir. Officers of the Iowa-Illinois Club of Burlington are QVA, pres.; KØAAH, vice-pres.; AFN, secy.-treas. The Waterloo Club's Christmas Party for the wives of members was the biggest ever held. YDV has a new Globe King 500C. ZPM has a Viking II and a 75A-3. KØGBD has a new Ranger. SCA's report is the all-time high for Iowa. LJW, KØCLS and EJZ made BPL on originations and deliveries. KØINR is a new ham at Jessup and KNØMKD is a new Novice at Independence. Sioux City reports KNØMRU, MTL and MTM as new Novices and also KØGTF, IPI, LEZ and LFA as new Generals. The Story County Radio Assn. has bought 5 mobile rigs and a fixed station for 6-meter work. These rigs are to be loaned out to its members. Traffic: (Dec.) WØSCA 3469, PZO 2490, BDR 2350, LCX 2074, LGG 2014, BJP 997, CZ 914, GXQ 831, KØCLS 434, WØLJW 288, YAL 246, KØEJZ 168, CYF 135, WØUTD 101, BLH 92, KØWAD 83, WØQVA 72, NGS 69, SLC 51, KØAHZ 44, WØNYX 44, BTX 38, REM 33, KØEXN 31, WØFMZ 29, SWD 27, YWF 20, KØHBD 17, APL 16, WØUTX 15, PTL 13, EEG 11, GQ 11, COD 10, KØBRE 9, CVD/Ø 9, IUY 9, WØMEL 9, EEJ 8, KØIGU 8, WØUHO 8, ZPM 8, ADB 7, KØGHZ 7, WØFDM 6, KØBPE 5, GOQ 5, WØJPJ 5, HNE 4, JDV 4, NTB 3, CYL 2, III 2, KØAIC 1. (Nov.) WØBTX 25, GQ 18, MEL 10.

KANSAS—SCM, Earl N. Johnston, WØICV—SEC: PAH, PAM: LEW, V.H.F, PAM: ZJB, RM: QGG. The McPherson Radio Club has elected KØJWT, pres.; and KØAYS, secy.-treas. for the next year. The Kaw Valley Radio Club of Topeka held its annual banquet at the Elks' Club Jan. 3 and elected KØBXJ, pres.; ANV, vice-pres. and treas.; KØBJF, secy.; and KOL, TRG and AAZ, directors. CHJ, of Junction City, has moved to a new QTH and is back on 40-meter c.w. MXG and KOL took first and second place in the WAL (Worked All Local) Contest in Topeka. UOL was top scorer for Kansas in the Oct. CD Party and the only entry on phone. You fellows are missing a lot of fun. TOL is the new Regional Net Manager for TEN. KØIRL, OF Pittsburg, reports activity on QKN. Dick has a Globe Scout 680 and an NC-300 receiver and is active on QKN. Most of you know of the passing of Merton T. Meade, KXL/NIY. His outstanding contributions to amateur radio will long be remembered. His passing is indeed a great loss to all who knew him. Traffic: (Dec.) WØBLI 996, OHJ 794, TOL 626, FNS 588, KØBXF 464, WØORB 272, QGG 232, MXG 148, ABJ 113, UOL 88, SYZ 55, KØHVG 52, WØSKW 49 KNØKDV 48, KØHSF 46, WØIFR 36, MEF 30, KØBXI 29, WØFDJ 27, QQQ 27, DEL 23, KØHVD 19, IRL 13, WØUTO 13, SZF 9, HL 8, LOW 7, LQX 6, ASY 4, LEW 2. (Nov.) WØMXG 1. (Oct.) WØMXG 8.

MISSOURI—SCM, James W. Hoover, WØGEP—SEC: BUL. PAM: BVL. RMs: OUD and QXO. State nets: Missouri Emergency Net, 3900 kc., 1800 CST, Mon., Wed., and Fri.; Missouri Net, 3580 kc., 0700 and 1900 CST, Mon. through Sat. Any stations wishing to participate in a state-wide 6-meter net should contact the SCM or KLQ. JHY has received a 30-w.p.m. Code Proficiency certificate. YOR is back in Columbia. RDI has received the AREC Emergency Coordinator appointment for Kansas City. New equipment reported: EST—75A-3 receiver; QHL—10-, 15-, and 20-meter vertical antenna; KØABK—HQ-110 receiver; CDA—antenna impedance bridge; GEP—6-meter beam and rotator. LNK and KØAUC won SX-101 receivers in a contest sponsored by Hallicrafters. AUB made WAC in one day on 10-meter c.w. CKQ and LLU worked Sweden on 6 meters. New officers of the Egyptian Radio Club are WØPML, pres.; IGM, vice-pres.; KØJEC, secy.; WØYZE, treas. Traffic: (Dec.) WØCPI 2338, GAR 1308, BVL 283, VPQ 196, OUD 178, OMM 128, EBE 115, KØDEX 113, WØKIK 113, WFF 90, VJD 85, OVV 83, BUL 78, IIR 57, WYJ 57, RTW 42, HUI 40. KØIHY 30, WØYVM 17,

(Continued on page 116)

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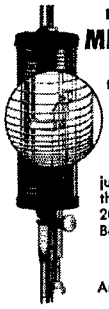
Leaders in the Design and Manufacturing of
Mobile Communication Equipment & Antennas

NEW! . . SILVER-PLATED ROLLER WITH POSITIVE ACTION, STAY-PUT CONTACT



No. "333" MASTER
MIGHTY-MIDGET

. . engineered to provide the highest "Q" consistent with good design. Compact, extremely rugged, yet lightweight, its operation assures precision tuning with the new adjustable silver-plated roller that stays put! Perfect for 40-20-15-11-10 meters. "Get 5 Bands Plus on 1 Coil."

Amateur net **$9.95**

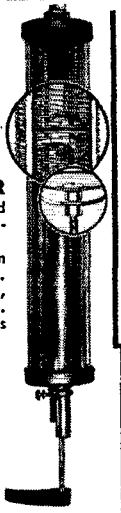
HY "Q" construction with wider spacing of turns for high frequency bands. Use as center or base loaded antenna with 60" whip.

No. 750

MASTER ALL-BANDER

- Covers 10 thru 75 and all intermediate frequencies.
- Silverplated single turn contact, positive spring.
- Eccentric cam contact, easy selection of turn.
- Automatic lock prevents damage to coil.

Size—2⅜" Dia x 13¾" Long



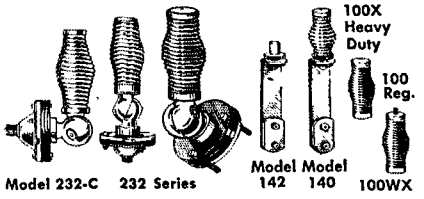
AMATEUR NET **$14.95**

- Ruggedized construction
- Greater efficiency
- Precision made
- 2¾" Diameter

Master
Ultra-High "Q" COILS

For 80-40-20 & 15 Meters

After many years of experimentation, here is the coil with the highest "Q" ever obtained. Tested and found to have a "Q" of well over 515. Use with 36" base section, 60" whip. **$5.25 ea.**



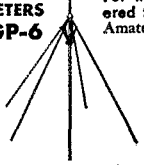
Model 232-C 232 Series

100X Heavy Duty

100 Reg.

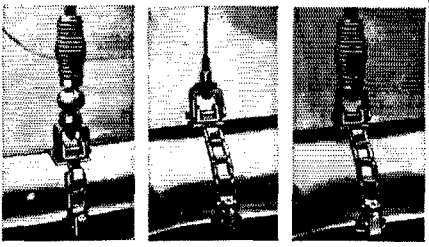
Model 142 Model 140 100WX

GROUND PLANE
(Drooping Type)
FOR 6 METERS
No. MGP-6



Aluminum alloy tubing, coax cable connector. For medium or low powered trans.
Amateur Net **$14.95**

BUMPER MOUNTS
WITH NEW X-HEAVY DUTY CHAINS



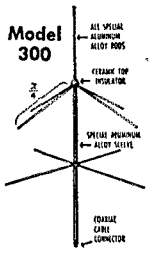
No.444 $17.80 **No.445 $7.95** **No.446 $13.45**

Adjustable to any bumper. No holes to drill, easy to attach. High-polished Chrome Plated ⅜"-24 thread, to fit all antennas. Precision engineered.

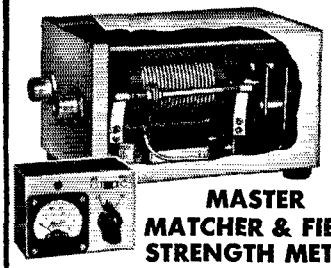
GROUND PLANE ANTENNA

Outperforms any type mobile vertical dipole, "Drooping" type. Gives a low angle of radiation for general coverage. Ideal for CD, defense nets, Amateur, Broad Band. Matches 52 ohm coax cable. Adjustable radials. For medium or low-powered trans.

Model 300



***Net* $12.95**



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Automatically tunes the entire band from the drivers seat!

6 or 12 volt models **$24.95**

NEW NOISE-FREE
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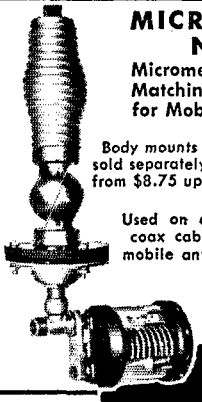
ANTENNA CONNECTOR

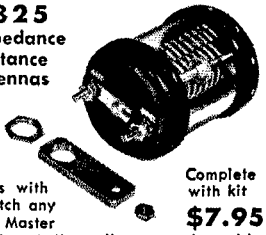
Connect or remove your loading coils, whips or mounts in a jiffy. No wrenches, pliers or screwdrivers needed. High-grade stainless steel throughout.

- **Precision made**
- **Maximum efficiency**
- **Positive lock—will not corrode**

AMATEUR NET **$2.95**



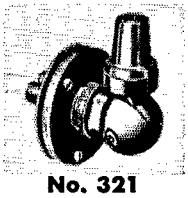
MICRO-Z-MATCH
No. 825
Micrometer Impedance Matching Inductance for Mobile Antennas



Body mounts sold separately from $8.75 up.

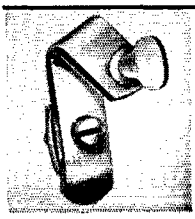
Complete with kit **$7.95**

Used on all bands with coax cable to match any mobile antenna or Master Matcher. Roller coil construction with rear cap rotating the inductance in case. 4 microhenries max. ind. Infinite adjustment, positive setting.



No. 321 BODY MOUNT

Swivel base body mount, less spring. Specially *constructed diagonal ball* joint for maximum strength.
Amateur Net **$7.95**



No. 10H TENAHOLD

Protects antenna, prevents whipping. Easily attaches to car.

$1.00

Emergency • Commercial • Amateurs

AT LEADING RADIO JOBBERS EVERYWHERE

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1306 BOND STREET • LOS ANGELES 15, CALIF.

K0HBC 15, W0CKQ 13, K0DEQ 10, W0GBJ 9, KN0JPJ 9, W0EPI 7, GEP 5, K0IFL 3, KN0LRG 2, K0KOB 1. (Nov.) W0VPQ 68, BUL 10, K0LQH 8.

NEBRASKA—SCM, Charles E. McNeel, W0EXP—New officers of the Homesteader Amateur Radio Club at Beatrice are K0KKJ, pres.; MOL, vice-pres.; AQQ, secy.; and K0CBV, treas. RDN has a new 813 rig on the air. The Western Nebraska Net has NIK reporting. QNI 539, QTC 98 for December. DDT, our RM, sends in a very good report for the Nebraska C.W. Net, QNI 343, QTC 246 with 26 stations on roll call. The Nebraska Emergency Phone Net, on 3983 kc. daily, has MAO reporting 36 on roll call with QNI 622, QTC 140. PNY has moved to Pennsylvania and will be on 10, 15 and 20 meters. The Nebraska Slow-Speed Net reports QNI 214, QTC 141, with 12 stations on roll call. The highest traffic reports from Nebraska nets were made in December. Traffic: K0DGW 375, W0ZWG 260, ZOU 94, RDN 87, ZJF 82, EGQ 70, KDW 61, K0BDF 58, W0BDF 58, NIK 58, OCU 44, K0BRQ 39, HKI 38, KUA 38, W0SPK 36, VGH 35, KON 30, SAI 30, DQN 24, K0LXS 20, W0VZJ 19, PDJ 17, LJO 15, KN0LEF 13, W0BOQ 12, K0BRS 12, EPI 12, W0KLB 6, VEA 6, K0ELQ 5, ELU 5, W0BTG 4, LEF 4, NHT 4, OOX 4, ZWF 4, NHS 3, AFG 2, K0GVE 2, W0QKR 2.

NEW ENGLAND DIVISION

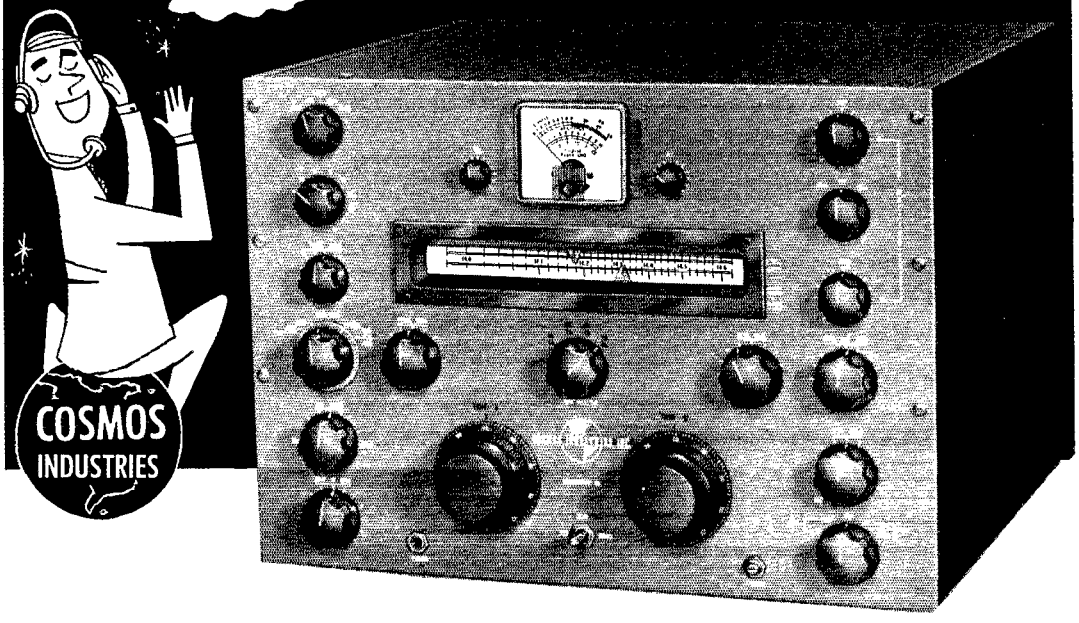
CONNECTICUT—SCM, Victor L. Crawford, W1TYQ—SEC: EOR. RM: KYQ. PAMs: YBH and FHP. Traffic Nets: MCN, Mon.-Fri. 0645 on 3640 kc.; CPN, Mon.-Sat. 1800, Sun. 1000 on 3880 kc.; CN, Mon.-Sat. 1845 and 2130 on 3640 kc.; Conn. V.H.F. Net, Mon., Wed. and Fri. 2030 on 145.980 Mc.; CTN, Sun. 0900 on 3640 kc. Please note the V.H.F. Net has changed frequency to 145.980 Mc. Congratulations to EFW, FYF, TYQ and YBH on making BPL. HAI, Washington EC, made the front page of the *Washington-New Preston News* by providing several students of Kent School with contacts to their parents over the Holidays. RWS added three new countries for a total of 161. QVF is ready on 108 Mc. with a twin 6 Yagi and a 417A converter. He is now busy on some cavity resonators for the 1215- and 2400-Mc. bands. KYQ reports CN met 26 times during December and handled 510 messages, 112 of which were on the second session. Average attendance was 12. High QNI goes to GVK and KAM. YNP hooked MP4BE and ZC5AB, bringing his total to 156. KN1BJU and KN1CEC are enjoying DX on the 21-Mc. Novice band. FHP reports the V.H.F. Net handled 39 messages in 13 sessions. Average attendance was 8 stations per session. ODW now has a 193/174 total with 39 zones. The December windstorm blew down RAN's 14-Mc. beam and snapped FEA's tower which supported his 14- and 21-Mc. beams. OPB and K1ADD are new hams in Rockville. CUT has been listening to moon bounce on his 108-Mc. converter. RFC is building a new mobile rig. AOS and BM keep a daily schedule at 5 P.M. on 3530 kc. YBH reports CPN handled 388 messages in 31 sessions. Average daily attendance was 28. High QNI goes to DHP, 31; K1BEN and VQH, 30; K1AQB, FYF and TVU 28; FHP and YBH 26. A net certificate was issued to DAV. JIK is a new station on CPN. BVB is active again on MCN. KAM has a 522 on 2 meters. The CQ Radio Club held 5 meetings on 145.67 Mc. with a total of 61 stations QNI. MDB is active on Dragnet. MQT and FEG would like comments on starting a teen-age net. K1AGI and AGJ are new amateurs in Windsor Locks. K1AQB, DHP, FYF, HID, TVU, ULY, VIY, VQH and VOV from CPN attended an NCS meeting at the home of YBH Dec. 1. OQA is a new ham in Enfield. New appointments: SRG, EC for Thompsonville; JWD, EC for Poquonock Bridge; FPF, EC for Litchfield, AMJ as OO; YNP as OBS; QJM as ORS. Appointments renewed: BDI, HUM, JTD, KUO, RFJ, and RRE as ORSs; HID as OPS; BDI, FOR, QVF and RFJ as OESs; DEK, EJH, ODW and IYI as ECs; DHP as OO. Reports received: SEC from EOR, OES from FVV, OO from EFW and BVB. Traffic: (Dec.) W1TYQ 832, FYF 616, YBH 539, EFW 501, AW 311, HID 278, GVK 245, KYQ 244, K1BEN 188, W1LV 107, AMY 91, FHP 89, NJM 88, RFJ 88, DHP 70, MWB 63, MQT 54, CUH 52, VIY 37, KAM 36, BVB 28, LXV 24, ZHM 23, BDI 21, GVJ 19, KUO 19, OBR 13, KN1DDY 9, DZI 9, W1QJM 7, K1BFJ 5, W1GEA 4, MDB 4, AOS 2, ECH 1. (Nov.) W1MQT 83, LXV 15.

MAINE—SCM, John Fearon, W1LKP—PAM: VYA. RM: EFR. Traffic nets: The Sea Gull Net meets on 3940 kc. Mon.-Sat. at 1700; the Pine Tree Net on 3596 kc. Mon.-Fri. at 1900; the Barnyard Net on 3960 kc. Mon.-Sat. at 0800. LXY has been appointed Radio Officer for York County. NIA dropped the "N" and is on 75-meter phone. New appointments: UOT as OPS, EFR as OO. Endorsements: OLQ and UOT as ECs, NXX and OLQ as OPSs, NXX as ORS. Bangor holds its EC drill each Wed. at 7 P.M. on 29.52 Mc. LUK

(Continued on page 118)

I Dreamed I Went DX-ing with My

COSMOPHONE "35"



Amateur Net Price **$799.50** f.o.b. N. Y.

SPECIFICATIONS:

- Dual channel tuning control permits selection of any two receiver operating frequencies with X'mittr. frequencies automatically slaved to exactly track with receiver frequencies.
- X'mittr. and receiver frequencies can be interchanged at the flip of a switch.
- Operates on 10, 11, 15, 20, 40 and 80 meter bands with one-knob band switching.
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- Peak-Null "Q" Multiplier.
- Receiver Sensitivity: 1 Microvolt @ 6 db S/N ratio.
- Single 6146 output.
- Built-in VOX and QT.
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- Meter Indication for R.F. output, final Grid or Plate current and receiver signal strength.
- Dimensions 17" wide x 12" high x 15" deep.

THE FIRST DUAL CHANNEL BILATERAL TRANSCEIVER

See the COSMOPHONE 35 at your dealer.
For additional information and dealer nearest you, write Dept. Q3.

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31-28 QUEENS BOULEVARD
Long Island City, N. Y.

has a new DX-40. PAJ is a new ham in Stockton Springs. DTK will have a BC-610 on the air soon. The radio club at Boothbay Harbor has a new 2-meter beam, thanks to LHA. TDI is looking for some 6-meter contacts in Southern and Central Maine. OLQ has a new DX-100 working FB. DVJ has joined the Coast Guard Aux. Net. CPS and XYL VYT have returned from tropical Mud Lake to spend the winter in Presque Isle. GYJ has a new 10-meter beam. The Berwick hams are nearly 100 per cent on 6 meters. EWM is now a MARS station. WM/1 is working 20-meter DX from Holden Mt., the site of TWO-TV. K1AET has received his WAS certificate. ITH has a new Ranger. RSB has moved to Greenville, S. C., and is now K4SMP. KN1DIK has received his 15-w.p.m. sticker. FNB has joined the AREC. The Barnyard Net held its 5th anniversary Dec. 9 with 51 stations reporting. Recent additions to the Pine Tree Net are NXX, K1BAZ, and K1BXI. Traffic: W1LKP 364, CEV 147, EFR 74, UDD 70, FVE 69, K1AKO 57, W1QJA 52, 1HN 50, HYD 44, NXX 42, K1ADO 32, W1LXA 26, GPY 24, FV 20, IZK 19, RJE 17, EPN 16, AHM 15, K1BXI/1 14, W1UOT 13, K1BAZ 12, W1GYJ 12, OTQ 10, KICYJ 8, W1ZNL 8, K1CXW 7, BAY 6, W1LWD/1 6, FD 5, K1DVN 4, W1FNI 2.

EASTERN MASSACHUSETTS—SMC, Frank L. Baker, jr., W1ALP—New appointments: RM Newton, ZOC Avon as ECs. Appointments endorsed: AWO Wenham, LOS Sharon, HSN Stoughton, OLP Walpole, IBE Rockport, TQP (R. O. for 1-A), WK Quincy, PST Brookline as ECs; GDY, BHD and VMD as OBSs; ZFS as OPS; BHD as OES. Thanks for the many Christmas cards received here. K4BQ is ex-ICPD, in Florida. AHE reports a Central Mass. Net on 146.52 Mc. KTG is in Texas. K1AKT, Quincy, is on 10 meters. ITG, KZJ, OUM and K1CLL are on 75 meters. Heard on 2 meters: WLZ, DW, QPU, KN1s, DQP, DOU, CJM, EBO, CZV, BIH and K1CPF. Heard on 10 meters: OQP, KRS, IKG, OHB, OZ, BRP, LOV, QLC, VMU, RYY, K1ABT and AKX. GOU has 171 countries confirmed, all on 10 meters, and has a new SX-101 receiver. Heard on 6 meters: VDE, JGR and GCE. IMQ has a Gonset, as has FJE. DMR now is in Lynn. KEL is working in Cohasset. K1BPJ, Quincy, is active in the CAP and on its 2-meter net. AYG, SAD and SMO took part in the Nov. F.M.T. The T-9 Radio Club held its Christmas Party at MVQ's QTH. GDY had the flu. EMG made BPL again. K1BTF, Natick, has his General and Tech. Class licenses. ZFS is back after a long trip. The Framingham Radio Club elected AJH, pres.; TVZ, vice-pres.; ZWJ, treas.; EOA, secy.; FRR, act. mgr. The club has three nets on Wed. nights on 145.35, 51 and 28.7 Mc. The Winthrop Net still is holding drills. The Sector 1-B Net held a meeting in Stoughton with HTR, MOJ, AXG, SH, UXN, YYZ, NLJ, TBX, GNK, TQQ, ADM, WK, REP, WUW, BCU, MME, DXQ, WFQ, ISU, FWS, LOS, HSN and ALP present. At this writing the All-Mass. QSO Contest has started with license numbers being swapped. Area 1 Radio Comm. held a meeting in Cambridge with TQP, chairman; ALP, secy.; LLY, ZYX, JZQ and Mr. Zizza, Area 1 Director; Mr. Lovering, Director Sector 1-D, attending. WGM gave a talk at the Framingham Radio Club on "Common Sense in Purchasing Amateur equipment." KCR says the Milton High School Radio Club has a class starting. The Braintree Radio Club held a meeting. K1BYV has a Glove Scout 680. NF received 52 foreign QSLS at once and has 90 countries. K1AIO is on 20 c.w. and 2 meters. FJJ went to Florida. ETH has a folded dipole for 15 meters. AVY/6 sends his best wishes. SMO and IPA put up a new 10-meter coax antenna at the Boston Red Cross Hq. KN1CZK claims he has the world's largest QSL, 5'-6" by 7'-6". WU is chasing DX at his new QTH. BGW is on RTTY most of the time. VE2ATC visited him. DPO is busy training RACES operators and is on 10 and 15 meters. K5HZG, ex-1YAL, is on from Tyler, Tex., on about 29 to 29.4 Mc. with a Globe Champ 300-A and is looking for W1s. AWA reports with a new 6-meter net known as the Cross Band Net on 50.7 Mc. Mon. through Fri. at 1930 and 1000 on Sun. TZ renewed his OO and OBS appointments. KN1DIO is new in Winchester and has a Gonset on 2 meters. EAE and LMZ are moving traffic from other nets on 2 meters. Are any others interested? We would like to get a traffic net going on 2 meters. FLP is getting busy and going after his General Class license. Traffic: (Dec.) W1EMG 787, DIY 335, UKO 292, FJJ 274, AWA 266, CZW 200, ETH 124, NJL 114, EAE 94, ZFS 76, AUQ 46, ZEN 45, BY 30, TY 27, SMO 18, TZ 10, AKN 9, KN1CZK 9, W1WU 9, K1AIO 8, W1RGW 7, DPO 4. (Nov.) W1MME 134, CUW 41, K1BUF 10, AIO 2.

WESTERN MASSACHUSETTS—SCM, Osborne R.

(Continued on page 120)

GREATER ELECTRONIC KNOW-HOW THE EASY, LOW-COST RIDER BOOK WAY

CAREER ADVANCEMENT—MORE SUCCESSFUL HAM OPERATION

READ THESE NEW RIDER BOOKS

CONDUCTANCE CURVE DESIGN MANUAL, *by Keats A. Pullen, Jr., Ph.D.*—An original technique for designing electronic circuits based on conductance curves. G_m, r_p and μ are replotted as necessary so as to enable design using small signal parameters to predict large signal performance. Shortens design time and minimizes problems arising from approximation.

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W2RID

McKeraghan, W1HRV—SEC: RRX. RM: BVR. PAM: MNG. The West. Mass. C.W. Net meets Mon. through Sat. on 3560 at 1900 EST. The West. Mass. Phone Net meets Mon., Wed. and Fri. on 3870 kc. at 1800 EST. TVJ has been appointed OO. Endorsements of ORS, OPS and OO appointments go to JYH. UEQ is really going after the traffic; he reports a total of 2121 for December. EKO reports of receiving RACES approval for East Brookfield. There are 3 Gonset 6-meter Communicators in use during the weekly drills. Preparations for the January V.H.F. Contest were in high gear throughout the Hampden County Area with the West. Mass. boys going all out in an effort to top the Hartford County Club in the fifth year of their interclub contest. From the sound of the 6- and 2-meter bands during the contest all-time high scores will result with the best participation ever. The reports are that the move to have call letter license plates issued in Massachusetts is well under way and needs the support of all. BKG is keeping regular skeds with KC4USA and W4FIV/MM, an ice breaker in the South Pole Area, and arranges phone patches for several Pittsfield Area men stationed there. The Hoosac Valley Radio Club members are busy building an all-band rig for club use. The Pioneer Valley Club has a new meeting place in the Holyoke War Memorial Building and has built its membership total up to 32. The Montachusetts Club in Fitchburg held a banquet and installation of new officers in January. We heard that DGA worked Sweden on 6-meter phone recently. AZW has 113 countries confirmed. EKO reports 103 countries worked and 75 confirmed, mainly on 10-meter phone. Traffic: (Dec.) W1UEQ 2121, BVR 162, KGJ 107, DGL 70, ZEO 51, TAY 43, AGM 10, EKO 2. (Nov.) W1PZY 22.

NEW HAMPSHIRE—SCM, John A. Knapp, W1AIJ—SEC: BXU. RM's: CRW and COC. PAM: CDX. GSPN meeting time is at 1900 Mon. through Fri. on 3842 kc. and at 0900 Sun. NHN, traffic net, meets Mon. through Fri. at 1900 on 3685 kc. The N. H. RACES Net now meets on 3993 kc. Sun. at 1300. The Annual New Hampshire QSO Party will be held from 1800 Mar. 29 to 1800 Mar. 30. The newly-elected officers of the Concord Brasspounders are AIJ, pres.; RMH, vice-pres.; HUR, secy.-treas. In the new gear department is YMJ with a 5100B and s.s.b. generator. At its January meeting, the Concord Brasspounders welcomed as guest IKE, *QST* Managing Editor, who gave the gang a "Quist-Quiz" with the first two prizes being new *Handbooks*. Only one member, VBX, qualified. MOI's OM is now KN1EGC. WBM moved his entire

(Continued on page 132)

NINTH NEW HAMPSHIRE QSO PARTY

The Concord (N. H.) Brasspounders, W1OC, announce their sponsorship of the Ninth New Hampshire QSO Party, and cordially invite all interested radio amateurs to participate. Here are the details:

(1) Contest period: Saturday, March 29, 6 P.M. EST to Sunday, March 30, 6 P.M. EST.

(2) No time limit and no power restrictions.

(3) Scoring: N. H. stations count 1 point for each N. H. contact, plus 2 points per outside contact; stations outside the state count 2 points per N. H. contact; both multiply by the number of counties worked (10 maximum).

(4) Engraved certificates will be issued to all participants reporting, with special endorsements for the highest-scoring stations, both in N. H. and outside, in the following categories: phone only, c.w. only, combined phone and c.w.

(5) The same station may be worked for additional credit on more than one band, phone or c.w. Suggested frequencies to congregate near are as follows: 1810, 3550, 3842, 7050, 7200, 14,100, 14,250, 21,075, 21,350, 27,000, 28,100, 28,800 kc.; 51.145 and 221 Mc.

(6) General call: "CQ NH" on c.w.; "CQ NH QSO Party" on phone.

(7) Contact information required: Report and QTH (including county of N. H. stations) and number of QSO. Logs and scores must be postmarked not later than April 25, 1958, and should be mailed to the Concord Brasspounders, P.O. Box 339, Concord, N. H.

(8) The WNH (Worked New Hampshire) certificate will be awarded to stations working all ten counties during this QSO Party, participating logs confirming.

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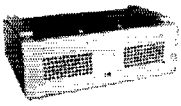

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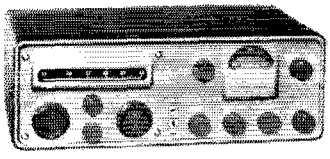

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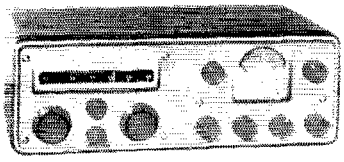

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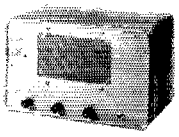

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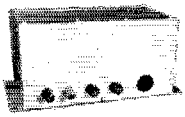

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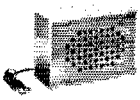

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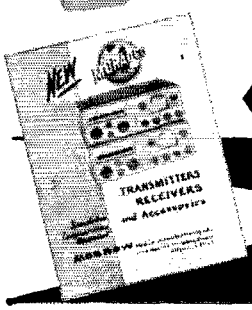

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station to a Dover Rotary Club meeting on Dec. 4 for a demonstration of ham radio. A very enjoyable evening was had by the Concord Brasspounders members, their XYLs and YLs, at Ladies Night on Dec. 7 held at Angelo's Pine Grove in Concord. QVZ advises that SM5AHK is looking for New Hampshire hams, c.w. only, on 14, 21, and 28 Mc. Traffic: W1ARR 1383, K1BCS 824, W1ENM 131, YMJ 77, HQ 42, HKA 40, PFU 35, AIJ 31, GMH 30, K1BHD 16, W1MOI 15, CDX 13, MKA 7, BYS 6, TDI 6, FZ 3.

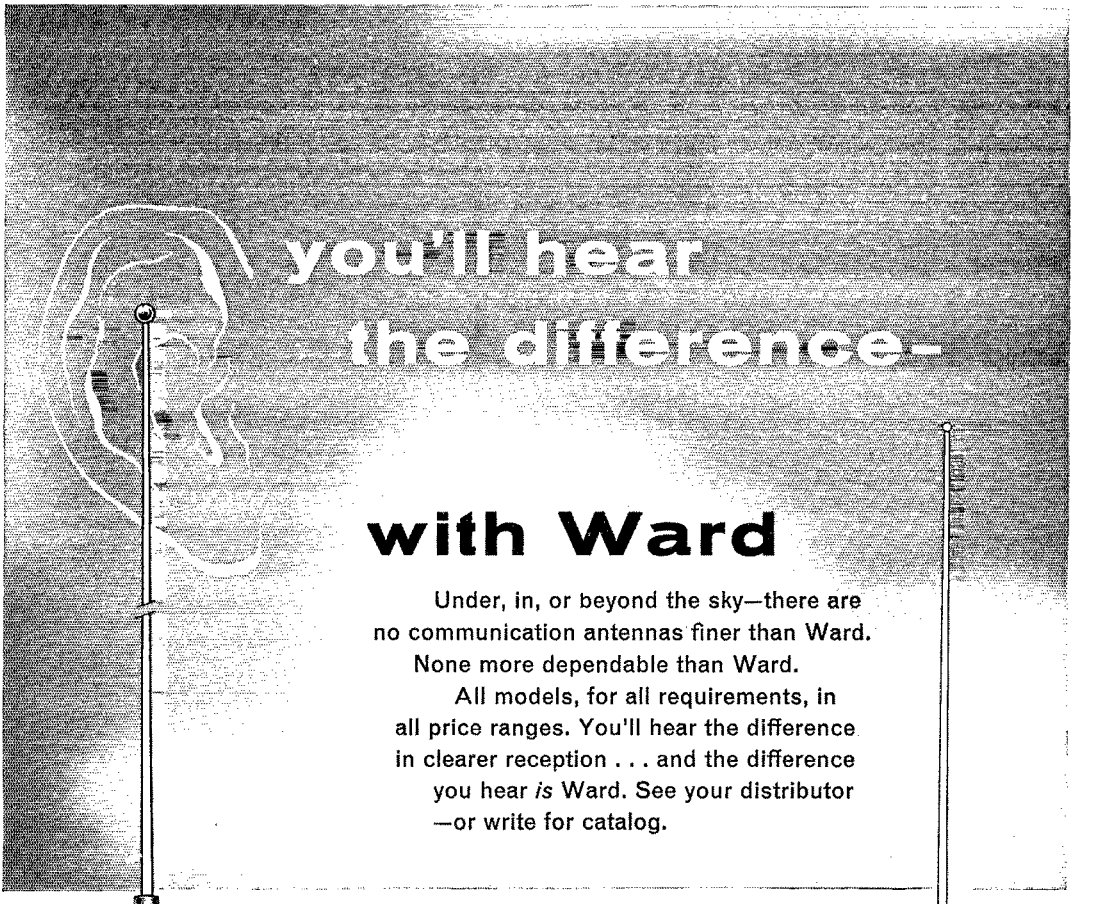
RHODE ISLAND—SCM, Mrs. June R. Burkett, W1VXC—SEC: PAZ. PAMs: KCS and YNE. RMs: BBN and BTV. New appointments: K1AOS as OPS, OGT as Class I OO. Endorsements: YNE as PAM, FIG as OES, LU as EC, YRC as OPS. Approximately 15 members of the PRA entered the Jan. V.H.F. Sweepstakes at the club's station, OP, under the direction of FIG as chairman. The BVARC station, DDD, has received WAS. TXL keeps busy on the bands with a B&W 5100 and a 75A-3. YNE has a new phone patch. Welcome to TQW's XYL, who is now K1DIW. FIG reports good results with his new 50-watt rig on 6 meters. WED is giving 10 meters a try with a vertical folded dipole. The traffic reports shown below indicated that many Rhode Islanders were made happier during the holiday season via our hobby. The CRA now has a DX-100 and an NC-300 at the club station, VXL. K1AOS has received No. 48 for his WAS. YKQ reports that six members of his code class have passed the Novice Class exam and several more will be licensed soon. BBN transmits Official Bulletins at 1845 EST on 3540 kc. prior to the RIN. GSD is NCS of the new RIYL Net on Tue. at 2000 EST on 6 meters. FVZ and MUZ are each constructing linear amplifiers using 4-65As. JFF gave a talk on trouble-shooting at a recent BCRA meeting. Traffic: W1YRC 199, TXL 153, YNE 89 K1ABR 70, W1BBN 54, YKQ 40, TGD 39, K1AOS 27, W1HFC 16, WED 13, DD 1, MUZ 1.

VERMONT—SCM, Mrs. Ann L. Chandler, W1OAK—SEC: SIO. RM: BNV. PAM: KKM. Traffic nets: VTN, Mon.-Fri. at 1830 on 3520 kc.; VTPN, Sun. at 0900 on 3860 kc.; GMN, Mon.-Sat. at 1700 on 3855 kc. VTN handled 83 messages during 26 net sessions. BXT, GMN net manager, reports 150 messages handled with good net participation. K1AUE has been appointed OPS. CUN is checking into VTN with a good signal running five watts! A new Globe Champ is making fine contacts for EIB on 3.8 Mc. K1APA is a new AREC member. K1BSU has a new Vibroplex. FTF contacted EI2W on 50-Mc. phone in Dublin, Ireland. KRV handled three pieces of APO California traffic via 6BAZ on 50 Mc.! MMN added Kentucky to his 144-Mc. listing. MH participated in the Nov. F.M.T. with a Class I Observer report. New in Northfield is KN1DKN, in Winooski KN1BND, in Milton KN1CVL, in Grafton K1CYP, in White River Junction K1CXS. Newly-elected officers of the RARC (Rutland) are Wayne Flagg, pres.; Bryan Pease, 1st vice-pres.; John Angelio, 2nd vice-pres.; Henry Flagg, secy.-treas. AVP is off the air because of illness. KN1AQU is now K4QPX. KWC is now KL7KWC. KJG has a Viking Valiant transmitter and has completely transistorized the receiving communication unit for emergency purposes. ZJL is enjoying 10-meter mobile. GAE christened his new 813 amplifier. AZN is employed at KDEC in Decorah, Iowa. WPY is editor and artist of the fine BARC newsletter. CZR is working in Washington, D. C. HIN has moved to Winooski. VEB is now 7HEW in Tucson, Ariz. K1AEY, the XYL of LYD, dropped the "N." WPJ now lives in South Burlington. YBM is working in Worcester, Mass. UFZ is attending school in Colorado. WOL has TVI trouble at his QTH at U.V.M. on Latham Court. K1AUE has antenna problems at Chittenden Hall, U.V.M. HOA is off to Japan. DMZ/1 is operating from North Clarenden with 150 watts on 3.8 Mc. WOD and EIC are sporting their own call letter license plates. UHI and his XYL attended the New England Weather Net get-together and the Granite State Phone Net Picnic. EIB has received her Heathkit reflected power meter. BARC is now an official corporation. At the Dec. meeting of the Mike and Key Club DQB and VSA, of the BARC, demonstrated 144 Mc. in the Middlebury Area and established solid contact with Ferrisburg and Burlington. NLO is the new RACES RO in the Burlington Area. OAK is enjoying her new Telex earphones on 3.5 Mc. FN and SP were visitors at MMN and OAK. Traffic: (Dec.) W1BXT 1037, OAK 294, KRV 140, ELJ 49, KJG 28, UHI 19, K1BGC 14, W1ZJL 12, K1AUE 10, W1GAE 8, (Nov.) W1KRV 135.

NORTHWESTERN DIVISION

IDAHO—SCM, Rev. Francis A. Peterson, W7RKI—The Twin Falls Club still is trying to get out the first

(Continued on page 124)



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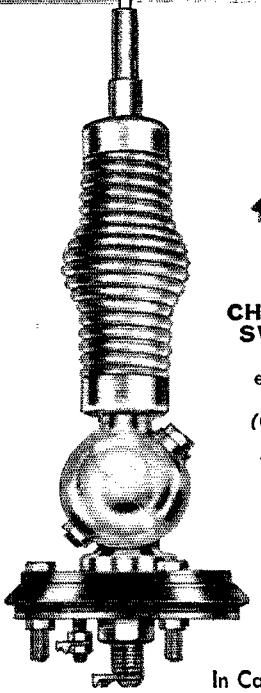

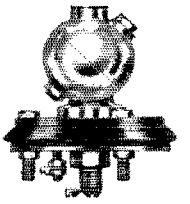

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Hambone paper. IY is having trouble with the audio on his DX-35. EEQ, Helen, is handling lots of traffic. VQC is handling traffic on the Washington Net as well as the FARM Net. The Pocatello Club is now incorporated and is trying to get a station together for its new club rooms. K7ARJ and K7ALA have dropped the "N" from their calls. RKI finally got an antenna up at his new QTH in St. Anthony. ZRC is recovering at home from a siege in the hospital. The Pocatello Club's new officers are GCO, pres.; K7ALA, vice-pres.; and GGV, secy.-treas. DUP is having TVI trouble on 10 meters. GGV got a new SX-101 for Christmas. GCO enjoys a new DX-100. Did YOU send in your news? Traffic: W7VQC 46, EEQ 21, IY 12.

MONTANA—SCM, Vernon L. Phillips, W7NPV/WXI—SEC: KUH. PAM: EOI. RM: KGJ. The Montana Phone Net meets Mon.-Wed.-Fri. at 1800 MST on 3910 kc. The Northwest Sideband Net meets Tue.-Thurs.-Sat. at 2130 MST on 3910 kc. The Montana High School Net meets Tue.-Thurs. at 1800 MST on 3885 kc. OOG has a jr. operator, born Dec. 22. BJV has a jr. operator, born Dec. 25. VMI got married. FHC moved from Luther to Billings. CLB moved from Wisdom to Missoula. PXR moved from Billings to Bismarck, No. Dak. UZN vacationed in Arizona. SFK received DXCC Certificate No. 1071. New officers of the Great Falls Radio Club are KUH, pres.; ZKA, vice-pres.; JGG, secy.-treas.; G. P. Weimer, act. and pub. rel. mgr. Directors are WIF, YIO and ZOL. Call letter license plates became available with the 1958 registration. Recent appointments: YUP as EC for Miles City and ZUK as EC for Roundup. Traffic: W7SFK 126, MM 88, DXM 68, UWY 37, YUB 32, TNJ 30, OOG 29, YPN 29, TVX 25, IVD 19, DWJ 16, FTD 11, NPV 10, IDK 8, BKB 6, HLI 6, TSG 6, OIP 5, HXC 4, JFR 4, TGM 4, CQC 2, YUP 2, MQI 1.

OREGON—SCM, Hubert R. McNally, W7JDX—UIU, RHX and CUW are new OPSs. KEN is a new OBS. AJN was reelected manager of OSN even while busy experimenting with new antenna-tuners and filters. WNV won an SX-101 in the recent Hallicrafters Contest. K7WAI is a new station. WLL has resigned as OO because of lack of equipment. QWE sure is busy with OARS, OEN and MARS. JCJ was reelected OARS president. FTA is busy with a new shack and writing a policy booklet for OEN. SBS is back on the air at Salem. BDR is a new ham in Albany. PQJ and WNV both made a good showing in the November ARRL Frequency Measuring Contest. QPA, QFY, JDX, DIC and WOX furnished communications for CAP on Dec. 19 during the search for a missing private plane in Northern California. YKI made one of the top scores in the C.W. SS Contest while busy on OSN, RN7 and PAN. OSN will have an attendance contest for 8 weeks, which should pep things up a lot. OMO now is eligible for GMTHC, which is a lot of check-ins. YKT has a new Viking Navigator. The Salem Radio Club's plans for the May Convention are well advanced and all should mark May 3 and 4 on their calendars and be in Salem. RHX is counting the days for everyone on OEN. Traffic: (Dec.) W7APF 670, CUW 261, ENU 193, JDX 122, OMO 87, QWE 74, GUR 55, AJN 41, ZFH 38, LT 24, DEM 13, RXO 5, YUY 5, JCJ 2. (Nov.) W7ENU 31, WLL 5, K7WAI 4.

WASHINGTON—SCM, Victor S. Gish, W7FIX—The North Seattle ARC's 1958 officers are OEX, pres.; EWW, vice-pres.; KN7ALZ, secy.; YQS, treas.; HLP, sgt. at arms; CJQ and PGY, trustees. The Radio Club of Tacoma elected AZI, pres.; COP, vice-pres.; WLX secy.; CZK, treas.; OS and RXS, Board members. KN7AEJ reports from Vancouver that the Clark County ARC is trying to get a 2-meter project going. ZDU passed ten Novices of his code and theory class at Clark College. KN7AEJ took the Tech. Class exam. SFN was home from KL7-Land for the Holidays. The Northwest S.S.B. Net meets on 3910 kc. at 2030 PST Tue.-Thurs.-Sat. K7ASY is a new OO. PGY's tower and 10-meter beam are up. JXR has a net tower with four elements on 10 meters and is waiting for a tribeam. TMO was heard trying out s.s.b. BA made DXCC. PGY made his 2080 total from Dec. 15 to 31. FZQ made his first BPL and thanks to PGY for his help. AIB is putting the pressure on all ARRL ORS appointees to get in their renewals; also for WSN members to get ORS appointments. EHH wishes that WARTS would stay on 3970 and keep 3975 kc. so that he could work ALN. LVB is building a 6L6-813 rig and is busy with his WSN Album. BXH says he is trying out an old side-swiper and will master it or die (or drive others nuts with it. Hi). WAH is QRL school but trying to get up an antenna there to work skeds. AMC says he is thinking of going c.w. YFO played Santa at the Richland Club Party. WXW is building a modulator for

(Continued on page 126)

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his kw. AVM reports the Grays Harbor ARC purchased an a.c. generator. YS passed away Jan. 4. He was one of the old-old timers in radio work. Traffic: (Dec.) W7BA 5121, PGY 2080, VAZ 688, FZQ 607, UWT 519, KZ 266, APS 162, AIB 77, DZX 70, EHH 55, LVB 53, BXH 49, JC 47, WAH 41, WVU 39, AMC 27, GVV 16, YFO 13, ER 6. (Nov.) K7FAE 526, W7FRU 118, USO 41.

PACIFIC DIVISION

HAWAII—SCM, Samuel H. Lewbel, KH6AED—KA2NY reminds all those who visit KA-Land that the Mike and Key Club meets the 1st and 3rd Thurs. of each month at 1900 in Building H-60. KH6ZD acquired a new RTTY receiver converter and will be on 40 meters any day now. KH6IJ is visiting Island clubs giving a demonstration and lecture on beam antennas. Your club should make arrangements with him for a meeting featuring this talk. During the last few contests KH6CBP has been missing; he is away at school on the Mainland. KH6AJF is now on with two operators. Traffic: (Dec.) KH6AJF 945. (Nov.) KH6AJF 301.

NEVADA—SCM, Albert R. Chin, W7JLV—SEC: JU, JDI has left for Scott AFB and will work into Reno on sked reporting to the OM ANK. Hi. TQE has his hands full with a code practice class in one room and algebra classes in another. VIU is sporting a new SX-101, is active on RN6 and still is looking for skeds to Reno and Las Vegas. He reports that UPS is finishing his new power supply for his kw. final and soon will be on; also that PEW will return to the air. OLF and VIU are working DX, with VIU getting a choice one in UI8KAE. YNO was on the Island of Rhodes at Christmas time. Rain, sleet or snow the hidden transmitter hunts still go on in Reno each Fri. at 8 P.M. on 28.072 Mc. Meetings are held at the "Y" on North Virginia and Sierra Sts. VIU made BPL in October and December. WAN No. 55 went to FUF for 25 Nevada contacts and No. 7 endorsement for 50 Nevada contacts to No. 46 FJN. Traffic: W7VIU 645.

SANTA CLARA VALLEY—SCM, G. Donald Eberlein, W6YHM—SEC: NVO. RMs: ZRJ and QMO. PAM: OFJ. New appointments: ZXS, BPT and K6EWY as ORSs. Endorsements: GJZ as EC. Section Net certificates were issued to ZXS, QMO, MMG and K6PQH. New officers of the San Mateo Radio Club are K6PJU, pres.; TFZ, vice-pres.; Tom Lott, VE2/W6 secy.; K6IXL, corr. secy. K6QJE is bedridden and would enjoy hearing from friends. His address is Tom Grissell, Millbrae. New officers of the PAARA are TTB, pres.; NMV, vice-pres.; K6FD, secy.; RLP, treas.; K6CQG, VSV, JKJ, K6DCO, RSJ and YQY, Board members. K6CQK volunteered to act as TVI chairman in the Palo Alto Area. RLP reports having worked 177 countries. K6EWY is on traffic nets from Redwood City. On Dec. 1 the following had an enjoyable time at the NCN Dinner held in San Bruno: QMO, NCN Mgr., PHS, HC, OJW, OPL, YHM, CMA, AIT, BMP, GGC, MMG, OSO, PLG, ZRJ, ZXS, K6DYX, DNW, GZ, GES, GID, HYW, QCL and EWY. ZXS reports using full break-in now on the NTS nets. K6LSG has a 10- and 15-meter quad antenna up at forty feet. KN6IHP is a new Novice in South San Francisco. QMO has an antenna up for 40 meters and is working GYH on a traffic sked and also is active again in MARS. YHM is running a 522 converted for 144 Mc. into an eight-element beam. Don also says Santa left a Johnson Navigator and a Heath reflected power meter in his sock. The Monterey Bay Radio Club Emergency Net on 144 Mc. operates on Mon. night at 2000 PST with 16 to 29 stations checking in. IAZ acts as NCS. VMY is moving to Saratoga. Traffic: (Dec.) W6BPT 532, K6GZ 526, DYX 525, W6QMO 512, PLG 311, K6EWY 232, W6YHM 184, ZXS 145, AIT 143, YBV 138, HC 90, FON 58, K6BBD 47, W6VMY 44, OH 42, MMG 41, ZLO 36. K6LSG 5. (Nov.) W6AIT 94.

EAST BAY—SCM, B. W. Southwell, W6OJW—Asst. SCM: Harry T. Cameron, 6RVC. SEC: CAN. PAM: LL. RMs: EFD, JOH and IPW. ECs: LGW, ZZF, IUZ, K6BYQ, EDN, GXU and JNW. RFZ has a Globe King, a BC-348J and an end-fed antenna on 7-Mc. c.w. New licensees: K6TPO and K6YXU, Technicians and K6YXT, General Class. WLI is a new OO. QPY is back on in Napa with an all-band rig and mobile whip in a house trailer. New Viking 500 rigs are in the shacks of K6CCY and W6ANK. K6ZWA is now in San Lorenzo. K6QLS has one-eyed monster trouble. A new OPS for Alameda is AKB. The Skyriders Club had a fine Christmas Dinner and Party at ELP's home. TLM is QRO with a 4-250 final. ZLC has a new Mosley tri-band and Heath SWR meter. KSP is QRL phone patches. New SARO officers for 1958 are WLI, pres.; NQJ, vice-pres.; LOG, secy.; FZC, treas.; and RCE, comm.

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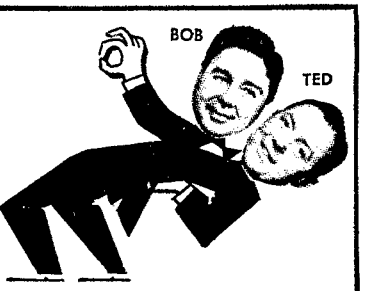

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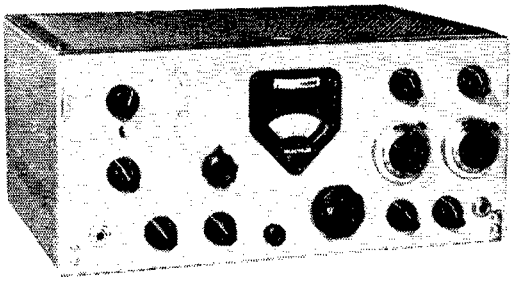

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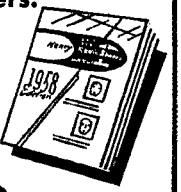

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mgr. K6OSO received the BRAT Award and is the new president of the Berkeley High Radio Club. New MDARC officers are OHR, pres.; EFI, vice-pres.; BEP, secy.; K6IMV, treas.; and K6LVH, new member of the Board. The MDARC *Carrier* is one of the best club papers we've seen. BEP was laid up with a sprained ankle. K6ZNH has a 522 rig on and is experimenting with antennas. The NCN Net, on 3635 kc. at 7 and 10 P.M., is looking for new members. Contact QMO if interested. IUZ and K6BYQ are new ECs for Lake and Napa Counties. Please send a monthly report to the SCM on the last day of each month. EFI and K6IMV won the MDARC hidden transmitter hunt. LKE and GHV are working on a twelve-element 2-meter rotary. LGW has a new Gonset transmitter and receiver in his car. The East Bay Radio Club held its December meeting at Cornell School. The Richmond ARC elected new officers. CBF lost his skyhook in a recent windstorm. KEK worked JT1AA for his 40th zone. DJD finished building a new receiver. Asst. SCM RVC is forming a section traffic net with ties to NCN, RN6 and PAN. Drop him a note if interested. PIR, VNI, LGW, K7KYT, RPY, JAY, JAV and KRF participated in the C.D. Warning Test. K6JNW is the new EC for the Hayward/San Lorenzo/Fremont Area and is looking for new AREC members. AKB hopes to get his new 20-meter beam up soon. K6OSO reports the Teen-Age Net has been organized and meets on 3975 kc. Sat. at 0900 PST. K6GK made BPL. Traffic: K6GK 800, OSO 80, W6VPC 45, K6DMI 8, W6LGW 5.

SAN FRANCISCO—SCM, Fred H. Laubscher, W6OPL—Asst. SCM: E. L. Olmstead, K6LCF. SEC: GXH. Reports were received from less than .5 per cent of the section: 4 reports from 700-plus members. It is impossible for us to visit each of you personally each month, so we would appreciate a post card from each of you to keep us posted on your station activities. YC still is in there collecting rare exotic DX; the latest goody being FB8ZZ. Gene has added OHCC, ADXC, Hilo 5, and a new ORS certificate to his wallpaper collection. GQY has made BPL two months running. GGC is home from the hospital recuperating from an eye injury. His convalescence should give Wally time to snag Delaware for his WAS. Sorry to hear that K6HIW had an automobile accident. K6JFY is working 40-meter c.w. with a homebrew 90-watter. New officers of the Tamalpais RC are LQW, pres.; SP, vice-pres.; END, secy.-treas.; K6BMW and DIX, directors. The officers were installed at the club's annual dinner. K6LCF presented a demonstration of ham TV to the Marin RC and received nationwide newspaper publicity with the Marin RC "On the Air" code and theory classes utilizing ham TV. NZV, who has long deserted the "d.c." bands, spent a long sleepless night perched on Mount Tamalpais scanning the world above 50 Mc. for rare ones during the ARRL V.H.F. Sweepstakes. One of the finest and most modern police and safety communications systems in the nation will include amateur radio. The new multi-million dollar San Francisco City Communications Center high atop Twin Peaks will have provisions for amateur facilities. Your SCM is working in close harmony with city officials to develop plans and formulate the necessary operating policies required. Let's all pay a tribute to ATO and his committees on their outstanding job in the field of TVI. TSQ is forsaking his San Francisco apartment for an antenna farm in marvelous Marin. Traffic: (Dec.) W6GQY 691, K6AIR 226, LCF 45, W6BIP 21, GGC 19, GXH 18, YC 7, GCV 5, PCN 5, OPL 4. (Nov.) W6GQY 778.

SACRAMENTO VALLEY—SCM, LeVaughn Shipley, K6CFF—Thanks to the holidays (relief from school) K6SXA is up to his old tricks again with a traffic count of 1552! Congratulations, Jim, this is a fine record for a one-operator station. A special token of thanks goes to IOM and the Dunsmuir Club for their FB report this month. We understand they are conducting excellent code and theory classes. Also, they recently organized the Siskiyou County Net which meets each Sun. at 1300 on 3920 kc. The net has contact with the Cresent City Emergency Net which is on 3820 kc. At present the following cities are represented in the net: Dunsmuir, McCloud, Mt. Shasta, Weed, Etna, Fort Jones, Tule Lake and Yreka. Other communities are urged to join them. Listen for DDC and ASM on 6 meters—they are active! IOM recently was heard on 75 meters for the first time. K6YZU is keeping the chrome polished on his new Valiant and NC-300. K6IVD is writing TV manuscripts. Hearty congratulations to the Aerojet Club which has just been affiliated with the League. The Tehama County Club says all clubs should have

(Continued on page 130)

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SAN JOAQUIN VALLEY—SCM, Ralph Saroyan, W6JPU—Note to the various radio clubs in the San Joaquin Valley: If you will send me the names of your new officers and the club meeting dates, I'll put it in this column. UBK says that he has his pick of the DX with his new rhombic antenna on his 5 acres. K6ZCD passed the exam for his General Class license. PSQ got a reflected power meter for Christmas. QFR got a W3DZZ beam for Christmas. PXP has his W3DZZ beam up 70 feet. JPU is in his new QTH, 6204 E. Townesnd, with a new ham shack too! JSJ is working on 75 meters with 14 watts. K6AZL is now located in Turlock and running a pair of 4X150s in the final on 75-meter s.s.b. K6RJP is leaving for Washington, D. C. Ex-W6GEG/W3LNT now is in Hawaii with W. E. Co. K6EJT got a new Valiant and a 10-meter Telrex Beam. K6SWW is on 2 meters. K6SNA has an RTTY on 2 meters. WPV is on s.s.b. K6BDL is in his new QTH on River Road. K6GOX has his kw. on 6 meters. Who sent me his station activities report for December with a total of 250 and qualified for BPL? WYB got a new SX-101. LOS has a Panadaptor and is back on 75-meters s.s.b. Don't forget, your local nets deserve your attention. Traffic: W6ADB 180, K6EJT 100, W6EBL 8, ARE 3.

ROANOKE DIVISION

NORTH CAROLINA—SCM, B. Riley Fowler, W4RRH—SEC: ZG. PAM: DRC, V.H.F. PAM: ACY. I note that the V.H.F. PAM is to have an SS on 2 and 6 meters. Delighted, Phil. Let me know how it comes out. Davidson County came through with an excellent AREC report, thanks to K4IZM. Those boys have 14 AREC members and have a RACES Plan approved. PAR is NCS. A very pleasant evening was spent with the Catawba County Amateur Radio Club Dec. 13. It was the occasion of the club's Christmas Party. This group has AREC and RACES all set up and has had 11 Communicators delivered to form a nucleus for its civil defense. FUS and fellows are to be congratulated. Other counties have started proceedings to get equipment. Please let me know when you get delivery on equipment. TJA sent an excellent report on the handling of the emergency in Rocky Mount. Congratulations to these boys. The Morganton Amateur Radio Club is located in its new quarters. Code and theory classes are held each Tue., Thurs. and Sat. Mecklenburg County (ZQB and fellow amateurs) has submitted a RACES plan and it has cleared the State Office. Congratulations. Much leadership is expected from this group. New NCS for County RACES are PKY, Durham; PCN, Dare Co.; INR, Chowan-Perquimans; UJR, Cleveland County; VZW, Halifax County. RACES and c.d. will grow whether we like it or not. HUW is Acting Radio Officer for the State. Traffic: W4GXR 235.

SOUTH CAROLINA—SCM, Bryson L. McGraw, W4HMG—K4AXV now is s.s.b. via 20A. VJI has fine s.s.b. signals with a full gallon. K4DOA is on with a nice new kw. via s.s.b. IW answers all mail on how to load up the G4ZU beam. YQC is well again after a serious operation. K4IIE is proud of his new HQ-110 and also his new voice-controlled gadget. Congrats to QDY on his fine 4RN bulletin. K4GAT is the proud possessor of ORS and 25-w.p.m. certificates. K4CIY has a new 80-10-meter antenna. K4ECU has a new HQ-150 and is active on the Early Birds' roundup. K4ANI, Bob, and K4ALMI, Lucy, are new members of the Palmetto Radio Club. Welcome to Columbia, ERS. Thanks to K4HDX, who reports much activity in Spartanburg. Activity is extremely good on the 6-meter net with more than 30 stations checking in. The Spartanburg Club handled the Betsy Rawls Golf Tourney and also the Southeastern Airplane Model Meet. Columbia and Rock Hill Clubs were visited by 1BDI and Charleston was visited by 1BUD. K4EFP is back with nice signals from a DX-100 and a new *QST* all-band trap doublet. K4HHL is working the 15- and 20-meter bands with good results via a new custom 813 de luxe job. Congrats to VUU on the new HQ-150. K4ETB is doing a nice job as NCS. HDR is in hibernation but not without a de luxe push-to-talk complete with electric blanket. Join ARRL today. Support amateur radio. Traffic: K4GAT 339, W4LJD 65, K4AVU 30, EFP 8.

VIRGINIA—SCM, John Carl Morgan, W4KX—SEC PAK urges all ECs to return the information he requested. He reports an encouraging increase in AREC activity, but some major areas still are without ECs. Any volunteers? Six made BPL in December, including K4AET on phone. IA says it probably will

(Continued on page 132)

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be his last for a while. We regret Ev's resignation as VN Mgr. because of business. He sparked it to an all-time high. APM succeeds. QDY is publishing the fine 4RN bulletin. SVG, GFD and 5IUU/4 originated a fistful of Christmas traffic from Tidewater servicemen. ZPE and K4EUS are promoting a new statewide 2-meter net which meets on 145.35 Mc. at 2000 EST Mon. and Wed. The Shenandoah Valley ARC pitched in to help the Salvation Army collect Christmas food, etc. PVA says there are good turnouts on the Prince William Emergency Net Sun. at 0930 on 3760 kc. (c.w. maximum speed 12 w.p.m.). YVG reports TMRC and PARC are building some forty 2-meter "club-saver" portables. K4SCW's XYL, ex-KH6AWL, is now K4TGI. New in the Bedford Area are KN4SNU, KN4SNW and W3DUN/4. K4HPD was visited by CX2BC and CX5BP. BZE assures that all VA-JF applications will continue to be processed indefinitely. QSOs *must* have been made during 1957, however. K4EZL, with a new multiband rig, is chasing DXCC as well as handling traffic. K4LPR is now on s.s.b. with a G4ZU beam. K4KWW's new rhombic turned out fine, but now is resting while he grinds his nose at V.P.I. K4ECD fattened up his signal with a new "Trap" antenna system. K4QES is working all over Europe with 75 watts on 80 meters. We acknowledge nice pictures and newspaper publicity tear sheets. Keep 'em coming, but be sure to identify the paper and date of issue. For the record Virginia stations reported to the SCM a 1957 total of 34,642 messages. Traffic: K4KNP 932, W4SHJ 856, K4AET 717, W4THM 606, QDY 525, IA 524, APM 434, K4JKK 377, JLO 227, EZL 171, W4PVA 152, SVG 108, K4MEV 86, W4OGX 83, AAD 50, KX 40, BZE 32, K4GWO 32, HPD 32, W4LW 32, FLX 30, K4QIX 30, W4RHA 28, YVG 27, K4PEJ 26, EAS 18, W4GFD 16, WC 16, ZM 16, K4ELG 15, QES 14, W4CVO 10, OOL 9, K4BUI 7, JRE 7, W5IUU/4 6, K4EAQ 5, W4LK 5, K4KWW 2.

WEST VIRGINIA—SCM, Albert H. Hix, W8PQQ—Asst. SCM: Festus R. Greathouse, PZT. SEC: KXD. PAM: FGL. RMs: GBF, HZA, PBO and VYR. V.H.F. PAM: K8OAN. SET moved to a new QTH. HZA is on 10-meter phone. VMK is back on with a beam, a KWS-1 and a 75A-4 combo. FNI and PBO made BPL. PBO renewed his ORS appointment. DDB renewed as OPS. GLA is a new Technician Class licensee in Saint Albans. DL4FQ/DL4GLM, from West Virginia, now is back home. He visited GCN. New officers of the Kanawha Radio Club are BIT, pres.; WHQ, vice-pres.: KN8HEX, secy.-treas.; DJT, act. mgr. PRM is on 14 Mc. working DX. GMD is on 15-meter phone working DX. K8AON, the V.H.F. PAM, is doing a fine job with high-frequency activities. There are 32 members in the West Virginia V.H.F. Net, which meets on 50.760 Mc. each Sun. and Tue. at 2000 EST. C.w. operation also is planned. NYH is a new EC. GLB worked SM7ZN on 6 meters. SSA received a QSL from KC4USN. PQQ worked VS5AT, VS4JT and HS1A on s.s.b. with 100 watts. GCN is working much DX on s.s.b. IRN QSOed HS1C on 20-meter c.w. CSG has received several certificates lately. TGL will be off for two months. He will be in a hospital in Virginia. We wish you the best of luck, Wayne. Traffic: (Dec.) W8VYR 132, HID 104, NYH 71, BWK 58, GBF 42, PZT 14, CSG 12, TGL 8, AON 5, PQQ 3. (Nov.) W8NYH 25.

ROCKY MOUNTAIN DIVISION

COLORADO—SCM, B. Eugene Spoonemore, WØDML—SEC: NIT. OBS: KØBTU. OOs: WØOTR and RRV. OES: KØCLJ. PAM: CXW. V.H.F. PAM: IJR. RM: KQD. OPSs: CXW, KØDXF, KØBCQ, NVX and IA. Please note a number of newly-appointed certificate holders. The Colorado State 2-Meter Net meets daily at 7:30 P.M. on 146.25 Mc. AZT and KØEBV were winners of the Denver Radio Club ARRL SS Contest. Other locals entering were KØEPK, BON, KNØKVT, BWJ, CYT, GQY, KØIFW, KØBCQ, TYB, KØITX, KØKVP, KØZFU and KØDCW. According to KØEVG in the LCL-YL column, the YL supper club met to honor KØEPE with her OM escort, JYW, also KØADZ and her OM, YHI has a new Globe King. KØILX was a recent visitor in Colorado Springs with HHR. According to the Western Slope News *R-F Carrier* there are eleven mobile stations in the club. During a recent c.d. drill the following stations checked in: VCB UVY, IQV, EBW, RX, GDC, DGA, INT, QWW, ZJO, VCB, FKY/m and QEL/m. New officers of the WSRC are QEL, pres.; Jesse Phenix, vice-pres.; DGA, secy.-treas. New officers of the Pueblo Amateur Radio Assn. are KØIQZ, pres.; KØAPA, vice-pres.; VLS, secy.; KØDNA, treas.; KØGMK, act. chairman. According to the *Splatter Chatter* the Inkspiller and Penscratchers and all to the north are doing OK.

(Continued on page 134)

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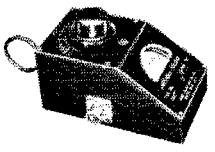

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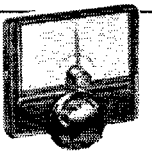

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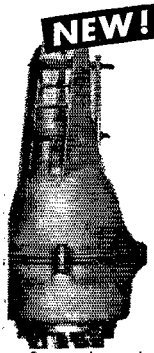

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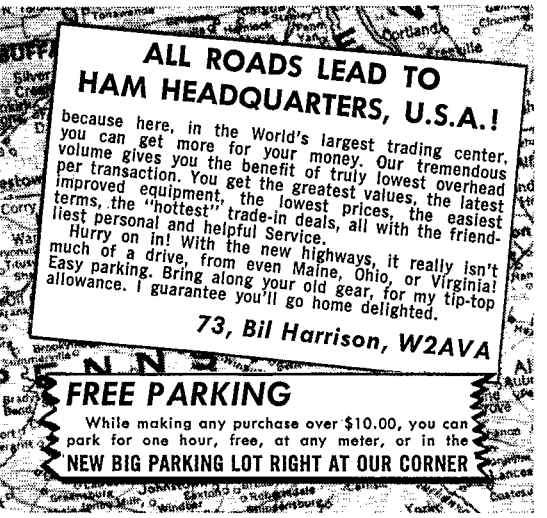

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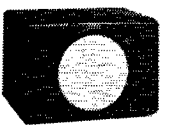

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Traffic: (Dec.) KØBCQ 858, WØKQD 786, IA 767, WMK 640, KØDXF 161, DCC 45, WØQOT/Ø 42, NIT 34, KØDCW 24, WØENA 24, RRV 17, KØWDZ 14, DWZ 12. (Nov.) WØYQ 89.

UTAH—SCM, Thomas H. Miller, W7QWH—Asst. SCM: Col. John H. Sampson, jr., 7OCX. SEC: FSC. RM: UTM. PAM: BBN, V.H.F. PAM: SP. The Utah Phone Net meets each Sun. at 1230 MST on 7272 kc. The net thus far has been very successful. The new officers in the Ogden Club are OCX, pres.; BBN, vice-pres.; SAZ, secy.; DBR and NHQ, directors. The officers for 1958 of the Salt Lake Club are FSC, pres.; BOD, vice-pres.; CTI, executive vice-pres.; RRM, secy.; ZSB and SSZ, chairmen; ZKL, editor. The Utah Amateur Radio Club (Salt Lake) has incorporated. ZSW is now mobile on 75 meters. Former SCM LQE is now in Oklahoma attending CAA Technical School. GDD is trying to keep the DX boys happy with KAØ, OA1, KX6 and KA7 to his credit. Traffic: (Dec.) W7FND 13, HIX 12, OCX 4, QWH 4, CCP 2, FSC 2, GDD 2, SZW 2. (Nov.) W7UTM 2.

NEW MEXICO—Acting SCM, Allan S. Hargett, K5DAA—SEC: K5DAA. PAM: ZU. OO: LEF. ORSs: DWB, WNU and K5IPK. NMEPN meets on 3838 kc. Tue. and Thurs. at 1800 MST and Sun. at 0730. The NM Breakfast Club meets on 3838 kc. Mon. through Sat. at 0700 MST. NMN meets on 3570 kc. Mon. through Fri. at 1900 MST. All New Mexico stations are being asked to try to check in on these nets as often as possible although out-of-state stations are welcome. The New Mexico Colorado C.W. Net has been operating regularly and would welcome more check-ins. on 3570 kc. The boys in Los Alamos have worked very hard to make this net a success. A great hand to all of them. CIN is the proud owner of a new ham shack. Traffic: K5IPK 78, W5VC 9, NQG 8, K5GYZ 5, LDS 3, GDU 2, LFF 1.

WYOMING—SCM, James A. Masterson, W7PSO—SEC: MNW. RM: BHH. The Pony Express Net meets Sun. at 0830 on 3920, AMU and MWS alternating as NCS. The YO Net meets Mon., Wed. and Fri. at 1830 on 3610 kc., BHH, DXV and NMW alternating as NCS. KN7BZC is a new call in Laramie. Bob has a DX-20 and is working hard to get the "N" out of his call. BHH has a new Johnson Ranger. NMW reports that quite a bit of holiday traffic was handled by the YO Net. KPZ has a new Collins 75A-3 receiver. PSO has now worked 25 states on radioteletype. All stations holding ARRL appointments are reminded to have their certificates endorsed annually. If any group of individuals or any club is interested in sponsoring a hamfest this summer, please get in touch with me. The last Wyoming hamfest was held in Casper during July, 1956. Traffic: W7BHH 68, NMW 27, YWW 17, ORM 9.

SOUTHEASTERN DIVISION

ALABAMA—SCM, Clarke A. Simms, jr., W4HKK—SEC: TKL. RM: KIX. PAM: AOZ. RLG had the second highest c.w. score in the YLRL Anniversary Party. WJE is off the air because of a fire in the shack. C.w. net certificates were issued to RUG and K4HAL. K4BTO is ready for any emergency now with a new generator and a portable rig. Welcome to new Novices KN4TVA and KN4TAB. HON has a new rig, a new wife and a new apartment. K4HJM and K4MMO are doing fine jobs as OBSs. K4KJD sports a new DX-100 and is firing a fine signal on all bands. WAZ continues to send out fine section bulletins and is trying to increase power. K4IPF sure is looking forward to the new DX-100 which is on the way. TKL is trying to get back on the air in a new house trailer. Welcome to the new son of K4OCV and his XYL K4SSP and the new daughter to K4AJZ and his XYL. Let's support our new PAMs, DGH and K4BTO. Support your section nets and be sure to send in your monthly reports with a vote for the best NCS and news of happenings in your city. AREC activity in Dothan is growing with applications from GNG and KN4PYX. AZC is having good luck on 6 meters with DX and more states, a new beam and the final almost complete. Traffic: (Dec.) W4WOG 425, RLG 349, KIX 124, K4AOZ 105, ANB 63, BTO, 54, W4YRO 49, K4JDA 46, JWB 34, KJZ 32, W4MI 32, HON 28, WHW 27, K4AJG 24, W4CRY 22, K4CXC 18, HJM 17, W4RTQ 16, K4KQN 15, W4ZSQ 15, K4BWR 11, MMO 10, KJD 8, W4WAZ 8, K4IPF 6, W4ZSH 6, K4MQH 5, W4SXS 2, TKL 2. (Nov.) K4AJG 10.

EASTERN FLORIDA—SCM, John F. Porter, W4KGJ—SEC: IYT. RM: LAP. PAMs: TAS and JQ. Section nets: FPTN, 3945 kc., 0700 Mon. through Sat.; FMTN, 7230 kc., 12 noon Mon. through Sat., TPTN, 3945 kc., 1730 daily; FN, 3675 kc., 1900 Mon. through Sat.; FEPN 3910 kc., 1900 Tue. only. K4SJH,

(Continued on page 136)

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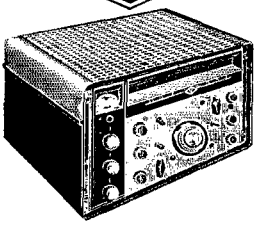

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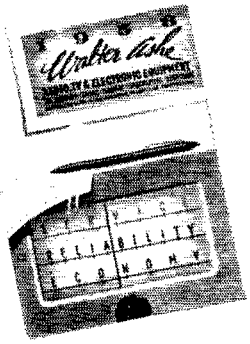

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the new net mgr. of the Gator Net, is looking for Asst. NCSs. BMY is in Trinidad, B.W.I., working for the U.S. K4RLL has a new Hy-Gain vertical for 10-40 meters. BWR has a new HT-32 and is having a go at s.s.b. DX. K4ILB is now equipped with a 2.5-kva. emergency generator and 75-watt mobile rig. ZCD received from Santa a new operating desk and typewriter. K4MPC has a new SX-101, HT-32 and Tri-Band beam. K4JUX is now mobile with Gonset Twins. K4DSN makes BPL again. New hams in Ocala are KN4SLM, SMZ and RZQ. BIL extends to every Florida YL a sincere invitation to join their State-wide organization. What about it, gals, wouldn't you like to be a member of the Floridoras? For information drop BAV a card. CQZ, Lee County EC, is president of the newly-formed Ft. Myers Amateur Radio Club. Miami: New officers of the Dade Radio Club are HOB, pres.; KN4ONY, vice-pres.; WYR, secy.; and ZPO, treas. Newly-elected officers of the South Miami Radio club are RNV, pres.; ZCD, vice-pres.; UWP, secy.-treas.; EYT, station engineer. Two meters still is growing in Dade County. What about some of you v.h.f.ers applying for OES appointment. Keep your Form 1 cards coming in and if you run out drop me a card or radiogram for a fresh supply. Have you read *Florida Skip*? If not, you are really missing something. Traffic: (Dec.) W4LDM 739, K4DSN 712, W4PJU 601, K4DAS 231, GPI 227, W4PZT 216, IYT 204, WS 201, TAS 173, K4BNE 163, KDN 161, AHW 149, W4DVR 148, K4EXN 130, FDH 128, AKQ 124, W4EHW 98, BNM 92, LMT 90, KZT 83, ZCD 77, K4BLM 59, CO2UG 50, K4HNC 48, AEE 37, IFZ 37, MTP 34, DII 24, DWG 23, W4FSS 23, K4PAE 20, W4ZIR 19, BJI 18, SJZ 15, K4BR 14, ILB 11, JJZ 6, W4BWR 5, IWM 5, KLP 1. (Nov.) W4LMT 62, CO2UG 14.

WESTERN FLORIDA—SCM, Frank M. Butler, jr., W4RKH—SEC: PQW, GKH has a new NC-300, 5FWD uses a G-66 and a G-77 in an Edsel; OFP the same in a new Caddie. The Pensacola Club officers are RDC, pres.; GRO, vice-pres.; KBQ, secy.; KOS, treas. Eglin AFB Club's officers are MTZ, pres.; KL7BSZ, vice-pres.; RKH, secy.-treas.; UXW, act. mgr.; GEV, editor. BPJ was reelected Ft. Walton Club president. CUC and QFP attended the Gulfport s.s.b. meeting at Ft. Walton LRC uses a 20A; OFP a Pacemaker. OFP has a Hy-Gain all-band vertical. IBUD, of Hq., spoke at Panama City in Dec. GTL and 5BJZ have DX QTHs in the Far East. CEW heads for DL4-Land in March. SZH reports he, PHV RIH, RZE, AIA and CDU are active in the Mariannas. ACB will be on 6 and 2 meters soon. Tallahassee has an FB c.d. net on 80, 40 and 2 meters. DKT is on all bands. UEU and BSR, next door, use Vikings. GAA is active in traffic. EQR (now 46 states) and KIF made separate trips to Louisiana with portable rigs to give themselves MS, AGM and IVD, a new state on 6 meters. UUF, IVD, KIF and PIQ worked Sweden on 6 meters. QVY and RSE are 6-meter mobile. JFL is active on 10 meters from Crestview. CEF got in the DX and SS Tests with a Valiant. Bart handles traffic on 80-meter c.w. The PARC has a new directory of 70 hams in the Pensacola Area. The EARS lists 125 hams in the Eglin AFB Area. Directories are a good club project! A Ladies Auxiliary is going well in Pensacola. The SCM hopes to have an EC in every county. Other appointments are available, based on your activity. Let me hear from you. Mail monthly reports by the first!

GEORGIA—SCM, William F. Kennedy, W4CFJ—SEC: K4AUM. PAMs: LXE and ACH. RM: PIM. The GCEN meets on 3995 kc. at 1830 EST Tue. and Thurs., 0800 on Sun.; the ATLCW on 7150 kc. 2100 EST Sun.; the GSN, Mon. through Sat. at 1900 EST on 3595 kc. with PIM as NC; the 75-Meter Mobile Phone Net each Sun. at 1330 EST on 3995 kc. with UUH as NC; the Atlanta Ten Meter Phone Net each Sun. at 2200 EST on 29.6 Mc. with VHW as NC; the GTAN each Thurs. at 4:30 P.M. on 3810 kc. with HVK and K4IOV as NCs; the GPYL Net each Thurs. on 7260 kc. at 0900 EST. YEK received a new s.s.b. exciter from old Santa Claus. K4KKR is looking for a 15-meter beam, which hasn't arrived from the factory. K4LVE had a wonderful traffic count of 515 this month. GSN is looking for hams in Albany and Savannah to check in on 3595 kc. at 7 P.M. Mon.-Sat. ETD is putting in an MM12 and recorder. ZWT had good luck with DX on 20 meters this month. K4HOU received his WAS certificate. Many hams in Georgia are trying for WAC (Worked All Counties) before May 1. A big prize will be given to the highest scorer. LNG is moving equipment from the old to the new QTH. The SOWEGA Amateur Radio Club of Albany is starting a class in code and theory. New hams in Cedartown are KN4TBX and KN4SVX. RS is back in Cedartown.

(Continued on page 138)

VKK has a new Johnson Valiant. ZDD is recovering from an automobile accident. The Atlanta Radio Club elected EDD, pres.; LNG, vice-pres.; NWK, treas.; LDD, secy.; K4DNH, act. mgr. and K4KRR, editor of the bulletin. It was a great pleasure to have Mr. F. E. Handy speak before the Atlanta Radio Club in December. ZD introduced Mr. Handy. Brunswick is building up a fine club and has a 10-meter net, the Golden Isles Emergency Phone Net, which meets each Tue. and Thurs. at 2030 EST on 29.2 Mc. Check your AREC cards for renewal with your EC. Traffic: K4FCI 950, MCL 786, LVE 515, W4PIM 327, ETD 277, DDY 271, K4BAI 216, W4BXV 82, K4LEM 80, HBR 43, W4ZWT 30, K4HOU 24, MOF 19, DWF 7.

CANAL ZONE—SCM, P. A. White, KZ5WA—The CZARA elected BG, pres.; JJ, vice-pres.; CC, treas.; HO, secy.; and QA, act. mgr. After the meeting the outgoing officers invited all present to the Diablo Service Center for refreshments. W6IKI is in these parts with the film company that is shooting scenes for the movie "Naked and the Dead." The AUs are the proud parents of a son, their first harmonic. We hear that Pat, ex-KZ5PL, is studying for the FCC exam. This report was prepared by RM at the request of the SCM, on leave in the U.S. SCM WA is enjoying a well-earned vacation Stateside and when last heard from was in Little Rock, Ark. Lois, ex-KZ5LM, was contacted in Houston, Tex. Traffic: KZ5JS 141, UJ 92, AD 65, CJ 60, PE 46, KA 45, VR 25, RM 21, WZ 18, WF 12, CC 10, JP 6, EL 3, OG 3.

SOUTHWESTERN DIVISION

LOS ANGELES—SCM, Albert F. Hill, jr., W6JQB—SEC: LIP. RMs: BHG and JP. PAMs: K6BWD and ORS. BPL was earned this month by K6MICA, GYH, K6OZJ, K6HOV, BHG, K6ICS and K6JQB. Congrats, fellows! GYH was named "Operator of the Month" by MARS. Congrats, Cavi! K6HXX is operating portable 7 in Spokane. CMN is busy rebuilding the exciter. K6EA is taking a relief run as "sparks" on the S.S. *Hawaiian Rancher* for the Matson Lines. NTE is QRL breaking in a new hydro-power plant and checking openings on v.h.f. K6IYJ is working over the rig and antennas. K6COP is working a lot of DX with 75 watts and a trap vertical, and made a nice showing in the recent F.M.T. SRE reports the San Gabriel satellite-tracking station is all set on 108 Mc. K6QMK, K6GTL and ZFR are building a tracking station on an 8-mile baseline. VSH is organizing an RTTY Net on 2 meters. AM is chairman and JQB vice-chairman of the Historical Committee for WESCON to be held in August. CIS worked FB8CB for No. 205! New officers of the Radio 50 Club are MLZ, pres.; FEX, secy.; GYH, treas. The S. Calif. V.H.F. Club elected K6JDN, pres.; NIT, vice-pres.; K6JQB, secy.; K6QQU, treas. A net for teen-agers is being formed. For information, contact K6KYJ, in Claremont. RW made over one million points in the fall DX Contest as a multi-operator station. Congrats, Roger! Support your section net, the Southern California Net, 3600 kc. at 1930 PST daily. Traffic: (Dec.) K6MICA 1903, W6GYH 1594, K6OZJ 782, HOV 590, W6BHG 429, K6ICS 337, JQB 335, W6HJY 185, K6COP 86, W6VSH 86, K6EA 68, GCC 67, GGS 65, QMK 58, KYJ 39, W6BUK 34, K6DQA 34, W6ORS 32, K6EPY 28, W6SRE 28, USY 28, NTN 16, K6BWD 6, W6CIS 6, K6KZY 4, IYJ 3, W6AM 2, K6BEQ 2, W6NTE 2. (Nov.) K6DQA 23, W6CMN 10.

ARIZONA—SCM, Cameron A. Allen, W7OIF—SEC: YWF. PAM AEN: DWT. PAM GCN: LUJ. The six-meter net in the Phoenix Area has over 30 members now. The AARC had a very large turnout at its annual Christmas party. DJH won the transistor radio. The Arizona Emergency Net on 3865 kc. was discontinued as of Jan. 17, 1958. The Arizona Phone Net on this same frequency will continue as in the past. The Copper State Net started operating Jan. 20 on 3895 kc. at 1930 MST daily. This net will be primarily to handle traffic. AREC activities, etc. Anyone with traffic for Arizona is welcome to check in on this net. AREC members and traffic stations put a display of amateur radio at the Bayless Country Store in Phoenix. More than 200 messages were handled. FKK had a count of over 500 this month. Traffic: W7FKK 531, K7FCV 63, W7CAF 45, OIF 21.

SAN DIEGO—SCM, Don Stansifer, W6LRU—The last month in '57 saw 5 San Diego section stations earn their BPL, the largest number for a month in over five years. The 144-Mc. AREC group recently aided the Sheriff's Office and furnished communications during a hunt for a 9-year-old girl in the desert area. Activating the net were 144-Mc. EC MUJ and ex-EC KBT. Those operating were K6s BPI, SZM and KN6AQE. TSQD, in Vista, is now dean of students at

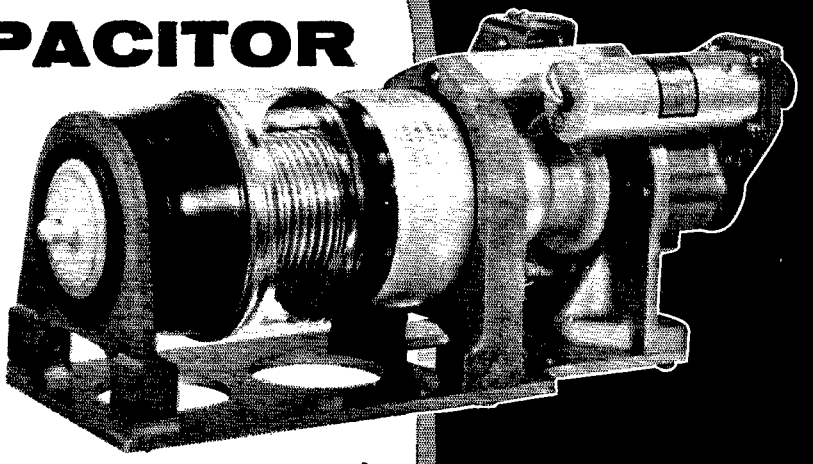
(Continued on page 140)

NEVER BEFORE OFFERED!

A Terrific "Buy" from **HARVEY RADIO!**

JENNINGS

VARIABLE VACUUM CAPACITOR



—Just what you've been looking for!

BRAND NEW! INDIVIDUALLY PACKED!

Ideal for remote or push-button control of your new 1 kilowatt DC input linear amplifier. The Jennings Model (UCSX) Variable Vacuum Capacitor with 24 volt motor drive is yours for a fraction of the original cost!

Look at these features—capacity range from 20 to 675 mmfd.; operation up to 10,000 volts, D.C. maximum current carrying capacity 45 amperes. The motor operates on 24-volt DC and is reversible. Mounted on it is an engage/disengage clutch and limit switches. A potentiometer is provided for remote indication of percentage of rotation with additional circuitry.

The entire unit is completely insulated to operate at its rated voltage on its own mountings, as shown in the illustration. For manual operation, simply remove the motor drive.

Only an exclusive buy makes this low, low price possible. Original catalog price of capacitor alone $200.20. Yours, at Harvey's, for only

$39.50 Net F.O.B. N.Y.City

Recommended Accessories:

Barker & Williamson #850 A
All band variable inductor **$35.00**

Barker & Williamson #3902
Counter Dial **$14.55**

Johnson #116 -208 -4 Dial **$9.80**
With lock **$11.10**

These are just a few of the recommended accessories for use with above.

hrc

OUR 31st YEAR

NOTE: Prices Net, F.O.B., N.Y.C. Subject to change without notice.

Established 1927

HARVEY RADIO CO., INC.

103 West 43rd Street, New York 36, N.Y. • JUdson 2-1500

Palomar Junior College. K6BPI put out Official Bulletins 32 times during December, checked into three traffic nets when in session, and earned BPL. 9CCO/6 will be active from this area until the spring, when his ship goes overseas. K6UJL has now worked 31 states on 50 Mc. and heard CTICO, EI9J and PA0FM on that band during December. GTZ contacted Oxnard, 175 miles away, on two occasions in December on 432 Mc. LWT has constructed a 108-Mc. converter with a measured noise figure of less than 3 db. The San Diego DX Club adopted its constitution and by-laws at the December meeting and elected BZE, pres.; K6EC, vice-pres.; and LRU, secy.-treas. for '58. The January meeting featured a visit by 1WPO, from League Headquarters. JVA has gone QRO. CAE is in Europe on business. The first city RACES drill on 3991 kc. was held in January. K6CTQ is now mobile on 75-meter phone. GGX, president of the San Diego YLRL, is in charge of communications for the annual Powder Puff Derby which originates in San Diego. Traffic: K6SLB 2110, W6EOT 1015, W6YDK 913, K6UOD 909, BPI 493, W6UQF 184, SK 62, LYF 35, ISQ 19, K6UJL 2.

WEST GULF DIVISION

NORTHERN TEXAS—SCM, Ray A. Thacker, W5TFP—Asst. SCM: Bruce Craig, 5JQD. SEC: BNG, PAMs: K5AEX and IWQ. RM: ACK. First, may I remind all of you folks who send in reports so faithfully to PLEASE move your date of mailing up. This report is supposed to be mailed no later than the 7th of the month. If you would have these reports to me no later than the 5th of the month then I would be able to make the deadline on time. Thanks!! Sure glad to hear AYX's baby is recovering satisfactorily after being badly scalded. VYY and LGY handled hospital phone-patch traffic during December. Santa left a new three-element beam and rotor at HTH's QTH. ACK has a new 20A on the way. MBB is limbering up a Model 12 for RTTY activity. LIU is completing a new 100-watter for 50 Mc. DFO reports the First Annual Christmas Party held by the San Angelo ARC was an overwhelming success. K5HZG, formerly K4ABL and W1YAL, now is in Tyler running a 300-A on 10 meters. K5HQQ and K5IGD hosted a teenage hamfest at their home for several teenagers of the Panhandle Area. GY is very busy these days on 40/80-meter c.w. traffic nets. Please remember to get your reports in before the 5th of the month or we will simply have to hold them until the following month. Sure appreciate all of the OO and OES reports that came. Traffic: W5ACK 479, BKH 208, DAG/5 204, K5AEX 170, W5AHC 135, CF 101, GY 94, K5EMR 61, IGD 49, W5AYX 33, K5HTH 26, W5TFP 24, LGY 16, OCV 6, K5DNQ 3.

OKLAHOMA—SCM, Richard L. Hawkins, W5FEC—Asst. SCM: James R. Booker, 5ADC. SEC: LXH. PAMs: EJK and MFX. RM: JXM. The Enid ARC had a nice turnout at its hamfest. PWN and FEC won prizes. K5DVE was elected vice-pres. of the Texas YL Round-Up Net. K5LAP received a WAC certificate. K5CAY handled lots of phone patches for overseas service personnel. K5BNQ is busy with PTA, NCS and her column in *Monitor*. VLW lost his emergency power supply while deer-hunting. K5DUX acquired a 90-ft. crank-over tower. BBA is building a Globe Scout. The OOs had a busy month, especially RRM. VKH is working on an AFSK 2-meter teletype rig. New officers of the Bartlesville Club are BDL, pres.; YKB, vice-pres.; K5BSU, secy.-treas. K5JJE and K5JTG dropped the "N" from their calls. K5JJE, age 13, has his General Class license. KEY got a KWS-1 and a 75-4 from Santa. The Bartlesville Club's code and theory classes hatched eight new Novices. Oklahoma's Ham of the Month: ESB. Bill's fine business operating and traffic total of 591 won his another BPL certificate. A mobile club was formed at Lawton. New ORSs: K5CBA and K5KFS. LPL, not LLQ, moved to Clinton. Traffic: (Dec.) W5ESB 591, W7ESO/5 341, W5KY 254, JXM 233, K5LAP 211, CAY 116, EGS 103, W5MRK 102, K5DVE 99, CBA 61, W5QVV 48, MFX 37, MGK 33, PNG 33, FEC 32, FKL 32, CCK 20, SWJ 20, K5DUX 18, W5VLW 17, BBA 16, K5JGZ 16, W4RCM/5 16, K5HIV 12, DUJ 10, BNQ 6, W5GOL 1.

SOUTHERN TEXAS—SCM, Roy K. Eggleston, W5QEM—SEC: QKF. RM: FCX. Members of the South Houston IRE and the Houston Amateur Radio Club are setting up a station for satellite tracking. The new officers of the Houston Dragnet are K5DIM, NCS; DNE, Alternate NCS; and K5BVG, secy.-treas. FCX and EUF visited in Houston for mobile gear. Glad to hear QTL on from Port Aransas. His station will be a

(Continued on page 142)

Cesco

Standing Wave REFLECTOMETER

W8FYR
W8FYT
W8LNZ

Now! with new dual scale all clear meter calibrated in SWR and relative power.

A quality instrument employing mutual inductance and capacity coupling between linear conductors for continuous measurement of standing waves on transmission lines. Suitable for frequency range from 3 to 200 megacycles. For continuous line insertion at power from 25 to 1000 watts. Will work satisfactorily on power input of 10 watts at 7 mcs. and up. Will work on 5 watts output 100 mcs and up. Line insertion power loss less than 1 DB at 30 mcs.

FEATURES:

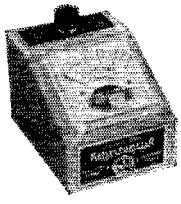
- Uses sensitive 0-100 microamp meter calibrated in SWR
- Has relative power scale
- For continuous transmission line insertion
- Power to 1000 watts and over
- Prevents false loading from antenna tuner, match box, PI network etc.
- SWR observed immediately at all times without adjustment of Reflectometer
- Power output indicator
- Makes possible increased radiated power by reduction of line reflection
- Simplifies adjustment of antenna match
- No balancing adjustments, no reversing
- Each unit accurately hand calibrated and perfectly balanced
- Frequency tested from 3 to 200 mcs.

MODEL CM-52
For 52 ohm coaxial cable
MODEL CM-75
For 75 ohm coaxial cable

Contains phasing unit, loading control and reversing toggle switch, equipped with SO-239 at each end for inserting into feedline. Ideal unit for inserting in feedline at antenna for visual readings while making antenna adjustments. Housed in an aluminum box, Hammertone finish. Has all features as specified.

Amateur and Industrial net

$29.95



DUAL UNITS
MODELS CM-52-2 AND CM-75-2

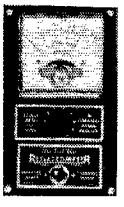
Identical electrically to models CM-52 and CM-75 and has all features except in two units for remote control. Supplied with ten feet of cable and plug wired to control and indicator unit. Standard finish Dove Grey.

Amateur and Industrial Net
Phase and control unit **$34.95**

SPECIAL CONTROL PANEL
For Collins Speaker Grill or Built-In Installations

Special panel containing meter, control, reversing switch and with ten feet of cable and plug. For use with CM-52-2 or CM-75-2 phase units. Standard finish control panel and phase unit Machine Grey.

Amateur and Industrial Net
Phase unit and Control Panel **$34.95**



MINIBRIDGE
MODEL CL-52-72

A resistive type unit for observing line standing waves when adjusting antenna match. For use with either 52, 72 or 75 ohm coaxial line. Designed for use with small amounts of RF excitation or Grid Dip Meter. Requires the use of an external indicator such as 0-100 Microamp meter.

Amateur and Industrial Net

$12.95

Why gamble on home built or kits of problematical accuracy, see your dealer or write for brochure today. ***New Dealers Solicited.***

CONTINENTAL ELECTRONICS & SOUND COMPANY
6151 DAYTON LIBERTY ROAD DAYTON, OHIO

vital link in the emergency net for South Texas. K5BWM and her OM are moving to Groesbeck. Congratulations to EGD on making BPL for the third time. Thanks to LOW, activities manager, for the nice Christmas Party he put on for the Corpus Christi Amateur Radio Club. The South Texas C.W. Net did an FB job with the heavy load of Christmas traffic. QEM is busy trying to get the mobile unit in a new Pontiac. He is also the proud possessor of a new Elmac receiver. Now that the Holidays are over and all we have to look forward to is income-tax paying time, maybe we can have a little more news from Southern Texas. How about it, gang? Send us some copy. While eavesdropping on the high end of 40 meters, I heard a station get all over another one who was 10 kc. from him about QRMing him. I checked the QRMing station and with a 3-kc. filter in the receiver he was 4 kc. wide. The QRMing station's license calls for the same thing as the license of the complaining station. I can't find on my license where the FCC gave me exclusive use of any one frequency. Let's try to be a little more tolerant and really enjoy our ham radio. Traffic: W5UMY 505, EXK 442, EGD 391, EPL 378, LVC 121, K5BYV 42, W5ZIN 39, K5DER 12.

CANADIAN DIVISION

MARITIME—SCM, D. E. Weeks, VE1WB—Asst. SCM: Aaron Solomon, 1OC. BL has a new RME receiver. FQ, in a recent television appearance, made an excellent job of publicizing our hobby. RL has a new Viking Ranger. AEB has challenged all-comers to a game of chess at 3800 kc. on Sundays. Many New Brunswick amateurs are sporting their new call letter license plates. Members of the Sydney Club are going all out to obtain a new club house. Officers of the Goose Bay Club are VO2UA, pres.; VO2AH, vice-pres.; VO2NA, secy.-treas.; VO2GB, NCS; VO2HR, RCAF rep.; KIDHE/VO2, USAF rep.; VO2AB, awards mgr. VO2s GB, HR and BD are new calls in the Goose Bay Area. VO2NA reports that he has finally

ANNUAL GOOSE BAY AMATEUR RADIO CLUB QSO PARTY
April 4–10

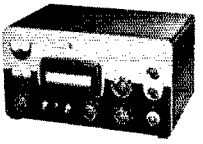
The party commences at 0000 GMT April 4 and ends at 2400 GMT April 10. All bands and either phone or c.w. or both may be used. The exchange will consist of RST, name, and QTH. A Worked All Goose (WAG) Certificate will be issued free to the following: (1) all amateurs in Canada and U. S. A. who submit logs showing they have worked five VO2 stations during this period; (2) all other amateurs who submit logs showing they have contacted four VO2s during this period. Logs showing date, time, and frequency of QSOs should be submitted to Ted Harvey, VO2AB, Awards Manager, Aeradio, Dept. of Transport, Goose Bay, Labrador. No QSL cards are required for WAG as logs can be crosschecked locally.

hooked Utah after 5 years of trying and now needs only Nevada for WAS since his call was changed from VO6N. Stations active on 10 meters include VE1s ABM, ADE, AM, NQ, YO, HY, YR, ACP, ADM, OM, VS, GD, ACX, VN and OC. ADE and NQ are active on P. E. I. (the DX Province). FQ and OC were kept busy over the Christmas period with phone-patch traffic for the North. QM, VN and OC report good DX conditions on 75-meter phone. Traffic: (Dec.) VE1FQ 187, FH 46, DB 13, AAW 4, AEB 4.

ONTARIO—SCM, Richard W. Roberts, VE3NG—The Scarboro RC will hold its annual dinner Mar. 22. BXM has a new jr operator. New hams in the Scarboro Club who recently passed their tests are CHX, John Dandy, and EIS, Lorn Mallory. BBD was guest speaker at the Nortown RC meeting recently. His talk on Signal Tracers was of the best. The Kingston RC's officers are BEO, pres.; EIJ, vice-pres.; EII, secy.-treas.; ATL, act. mgr. EII reports for them each month. DSX, editor of the Norquobont *Newsletter*, outdid himself on the Christmas issue. DQL is OBS for the far North. The paper from the Niagara Peninsula RC was full of good news. BSA and his YYL, Irene, deserve a lot of credit for getting this paper together. Glad to hear from CAA, who was on leave from the Navy. The Quinte RC is raising funds for a new club transmitter. Club officers are Norman Moore,

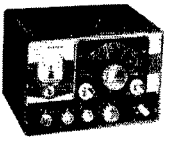
(Continued on page 144)

Serving The RADIO AMATEUR For Over A Quarter Century !



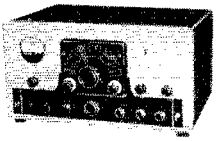
JOHNSON Viking "Thunderbolt"

Delivers solid communication power—over 2000 w. P.E.P. input; 1000 w. CW; 750 w. AM linear; in a completely-self-contained desk-top package. Continuous coverage 3.5 to 30 mc.—instant bandswitching. May be driven by the Viking "Navigator", "Ranger", "Pacemaker" or other unit of comparable output.
Amateur Net (Kit with tubes) **$524.50**
Amateur Net (Wired & tested) **$589.50**



JOHNSON Navigator

Self-contained power supply. 40 watt CW transmitter. 160-10 meters.
Amateur Net (Kit) **$149.50**
Amateur Net (Wired & tested)... **$199.50**

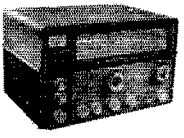


JOHNSON Viking "Valiant"

275 watts CW and SSB*.....
200 watts phone! Band-switching 160 through 10 meters!

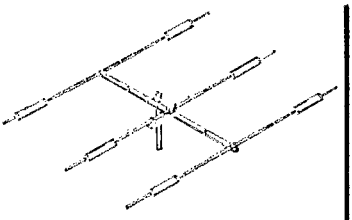
Built-in VFO or crystal control. Pi-network antenna matching from 50 to 600 ohms — final tank coil silver-plated. Timed sequence, break-in keying. TVI suppressed. High gain push-to-talk audio system. Low level audio clipping. Built-in low pass audio filter. As an exciter, will drive any of the popular kilowatt level tubes. Complete with tubes—less key, crystals and mike.
Amateur Net (Kit) **$349.50**
Amateur Net (Wired & Tested) **$439.50**

* P.E.P. input with auxiliary SSB exciter.



NATIONAL Model NC-109
General Coverage Receiver

4-band coverage from 540 kc to 40 mc—voice, CW or SSB reception. Bandspread is calibrated for all bands 10 through 80 meters. Built-in "S" meter on front panel. Separate crystal filter and product detector for CW and SSB. Slide rule dial; accessory socket for external adapters.
Amateur Net **$199.50**



MOSLEY Model TA-33

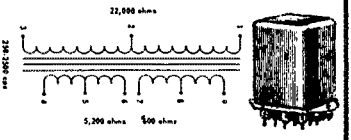
3 element, 3 band beam for 10, 15 and 20 meters. Forward gain, 8 db., front-to-back, 25 db., SWR 1.5/1. Maximum element length, 28 ft. Boom length, 14 ft. Weight 47 lbs.
Amateur Net ..... **$99.75.**

MOSLEY Model TA-32

2 element, 3 band beam for 10, 15 and 20 meters. Forward gain 5.5 db., front-to-back 20 db., SWR 1.5/1. Maximum element length 28 ft. Boom length 7 ft. Weight 34 lbs. Converts easily to Model TA-33.
Amateur Net **$69.50**

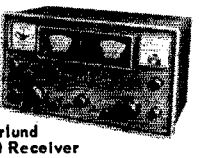
MOSLEY Model V-4-6

Broad band trap vertical for 10 thru 40 meters. Low SWR on all bands. Requires little space. May be mounted on ground or rooftop. Automatic band-switching all bands. Base loading coil available for operation on 80 meters.
Amateur Net **$27.95**



Versatile Miniature Transformer

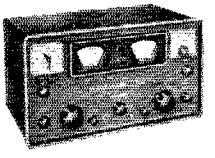
Same as used in W2EWL SSB Rig — March '56 QST. 3 sets of C.T. windings for a combination of impedances: 600 ohms, 5200 ohms, 22,000 ohms. (By using the centertaps the impedances are quartered). The ideal transformer for a SSB transmitter. Other uses: interstage, transistor, phone patch, line to grid or plate, high impedance choke, etc. Size only 2" h. x ¾" w. x ¾" d. Brand new. Fully shielded. At fraction of Government cost.
Amateur Net, each **$1.39**
3 for **$3.49** 10 for **$10.75**



Hammarlund
HQ-100 Receiver

Dollar-for-dollar the most amazing communications receiver ever produced. Continuously tunable from 540 kc to 30 mc with sensitivity and selectivity surpassing anything in its class. Electrical bandspread tuning with unequalled direct dial calibration. Q-multiplier. Voltage-regulated and temperature-compensated high-frequency oscillator for extra stability. 10-tube superheterodyne circuit. Warm-up Timer automatically turns on receiver any pre-determined time*.
* Optional feature.
HQ-100 (less clock).....**$169.00**
HQ-100 (with clock-timer)..... **$179.00**

Matching 6" x 9" Speaker. Extended range. 8-watt capacity. Housed in attractive metal cabinet. Dimensions: 9⅝" w. x 9⅝" h. x 7" d.
Amateur Net..... **$14.95**



Hammarlund HQ-110

Amateur Communications Receiver — Dual conversion superheterodyne with automatic noise limiter. Covers 6, 10, 15, 20, 40, 80, and 160 meter amateur bands. Separate SSB linear detector. Q-Multiplier. Crystal calibrator. Separate stabilized BFO. Crystal control. Auto-response. Clock $10 extra.
Amateur Net.....**$229.00**

"Wonder Bar" 10 Meter Antenna

As featured in Nov. 1956 QST. Complete with B & W 3013 Miniductor. Only 8 ft. long for 10 meters.
Amateur Net.....**$7.85**

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.

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pres.; EHI, vice-pres.; Ron Chapman, secy.; BND, treas. BPR worked E12W on 6 meters. From North Bay we hear that BZM is transport officer for a local female basketball team. ENE and CHG are new members of the Gateway Club. YD writes poetry. BOV and DVU are vacationing in Florida. DGB has a new jr. operator. EAW makes beams in the cellar. GJ, DQG and NG/mobile can be heard in QSO with EAW in the very early morning. CED is working portable W1 and looking for North Bay lads on 3.5 or 7 Mc. Otis, Mass., is the QTH. DYJ and DPG were in on the S.S.B. Contest. The Thumb Area RC is changing its name to the St. Clair Valley ARC. This is the Sarnia group. Membership of this club is part VE3 and part W and K from across the border. We listened with interest to Mr. Red Foley, of TV fame, on a recent TV program as he thanked the radio hams for passing many Christmas greetings for him. GI, of Ottawa, was active with traffic over the holidays. AML, NO, ELL and AJR were busy with traffic from the troops at Gaza. Your traffic reports must be in the hands of your SCM before the 3rd of the month, otherwise they will be held over for another month. I MUST write this column and mail it by the 4th. Very glad to hear from the Windsor group. Traffic: (Dec.) VE3BUR 211, EII 100, DTB 88, DPO 77, NG 74, AUU 59, TM 57, GI 53, KM 40, BJV 32, AJR 25, EAU 17, ACQ 14, DWN 14, CAA 12, CE 11, AES 10, APL 9, DU 9, AUS 8, SG 2. (Nov.) VE3AUU 53, BZB 17, DH 16, AES 15, DWN 9, RW 8, APL 6, SG 2.

QUEBEC—SCM, C. W. Skarstedt, VE2DR—Net: OSN/PQN, daily at 1900 on 3535 kc. ABE bought AWK's DX-100 and is trapping DX on 20-meter c.w. and 10-meter phone. AWU also has a new receiver, an S-41G. ASM, ACD, AFJ, ABN, AWW, AWV and ABE are all 16-17 years old. ASM is AWU's son. ACD bought a Heathkit VFO. AGA has moved and is planning a new rig. AUI, IL and AKB are active at Valleyfield, IL, with QRP, succeeds well on 15 meters. ATL, AGN and AWK went out for a hot dog and landed in Albany. IU is testing a new beam on 20 meters using a DX-100. ALD is experimenting on 2 meters. KC, AAH, EG, ATS, AWD, AJN and ABN assisted during the severe flood conditions at Beauceville; AWD and AJM were mobile in the town itself using an Army Set #19. AIB is on 80 meters with a new DX-100. BG is proud of his OPS certificate No. 1 issued in 1934. HV's early morning 75-meter phone skeds with W friends have been consistently successful for several years. AWA's 65-ft. towers help him corner the DX. AID, in Montreal, is breaking S-meters in Quebec City with his 7-watter. UB and VI report into the Quebec Phone Net. ANK and AHU now are endorsed for phone. HS is back on 80-meter phone with powerful 813s. QB, at Sherbrooke, is n.f.m.-ing on 20-meter phone. CA also is active on the same band. ATQ is using a temporary antenna from his new QTH at Beaconsfield with fine results. YU is anticipating early DXCC; 99 confirmed. Traffic: (Dec.) VE2DR 93, CP 77, ATL 75, AGN 63, EC 30. (Nov.) VE2ATQ 21.

MANITOBA—SCM, James A. Elliott, VE4IF—Activity reports have been coming in rather slowly, although there has been more action on the bands. A newcomer to Manitoba is JP, ex-VE5. Hope you like it here, Don. AH and GF have been putting in good signals on 75 meters from the Far North. BJ has been keeping skeds on 20 meters with his dad, 6HQ, in Calgary. LO is back in town and has the antenna up again. ER is slowly recovering; he now has a walking cast and with the help of his budgie has been able to work on various projects. Ten meters has opened up with NO, SH, PE, MP, WS, BJ, LF and TA making many contacts. It has been rumored that CP has acquired a KWS-1. LK is now set up to work 6 and 2 meters. He would like to contact more who are interested in these bands. University exams have kept BB and XZ off mobile for a while. Hope you get good marks, boys. The ARLM meets on the 4th Mon. of each month in the Free Press Building. Visitors are most welcome. Traffic: VE4AY 16, VJ 16, EF 13, GE 13, JY 8, EG 6, IF 6, KN 6, PA 6, QD 6, RR 6, VE5YR 6, VE4VX 3, AN 2, JW 2, RF 2.

SASKATCHEWAN—SCM, Lionel O'Byrne, VE5LU—SEC: IG. RM: HR. PAM: QL. OES: JK. IG has been appointed SEC for the Saskatchewan section. Bill McLeod, ex-MK, was seen around Regina. EQ is building a new operating desk and is renovating the rig. XX and his XYL, YY, have found a new QTH so will be active soon. SW is chasing bugs in his rig. WG has been appointed EC for Regina and is building a VOX and TR units for s.s.b. UU, KK and GG provided communications for the Astronomical Society during the December meteor showers. KK has a DX-40

(Continued on page 146)

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ready to go. CM has returned home and is on the air again. JK has 25 watts on 144 Mc., time clock operated, so as to supply a signal for the boys getting started on this band. AW was injured in a fire and has been hospitalized. We wish you a speedy recovery. Al. Traffic: VE5RE 22, DS 19, BZ 18, HF 8, DR 7, NR 6, EQ 5, CB 4, QL 4, BF 2, IG 2, WB 1.

Technical Correspondence

(Continued from page 47)

regions with excellent signal strengths. At about 2200 GMT a transition period occurs, during which the short-path signal strength increases, the long-path signal decreases, and appreciable echoing is evident due to differential time delays on the two paths. Directional antennas are helpful in comparing signal strengths by the two paths and in minimizing echo QRM, which can be serious. After about 2215 GMT, the short-path signal clearly predominates and the long-path signal gradually disappears.

Examination of both routes under the above conditions shows that the entire great circle lies almost exactly centered in the twilight zone on the earth's surface (during November, for example). This situation has long been recognized as favoring echo activity and round-the-world signals.[1] However, when one attempts to explain why the long-path signal is observed for a time as being at least 15 to 20 db. *stronger* than the short-path signal, the reason is not completely clear. The attenuation due to *D*-layer absorption per unit distance is very low, and should be about the same along both paths on the average. Spreading and scattering losses should certainly be greater on the long great circle route (29,000 km.) than on the short path (11,000 km.) *even in a symmetrical twilight condition. Perhaps this is* evidence that absorption in the auroral regions is not the same in the northern and southern hemispheres at a given time. Incidentally, a check with JA1ANG in Tokyo on 21 Mc. at 2200 GMT early in December 1957 indicated that the short-path signal predominated, but that some echo activity was evident.

A perhaps related phenomenon which has frequently been noted here during the past year, especially during the equinoctial periods, is the very definite long-path signals from Antarctica on 14 Mc. arriving here over the North Pole at 1200–1300 GMT. This appears to be another twilight zone condition and again raises the question about auroral absorption.

— *J. Gregg Stephenson, W2OBX*

[1] Hess, "Investigations of High-Frequency Echoes," *Proc. IRE*, Vol. 36, pp 981–992; Vol. 37, pp. 986–989.

The World Above 50 Mc.

(Continued from page 64)

stations and many new mobiles, 50 Mc. is becoming good for a contact at any time. Also increased interest in 220 Mc. in Providence area.

W1HDQ, Canton, Conn. — Combination of more than one inch of freezing rain and high winds Jan. 14 destroyed or damaged all antennas for 50, 144, 220 and 432 Mc. Some components had been in service since 1946.

W1UHE, N. Tiverton, R. I. — Checked results of silver-plating plate circuit of 2C39 tripler. No improvement in efficiency after plating.

W2LWI, Wappingers Falls, N. Y. — Eastern New York AREC Net operates Fridays at 2100. 145.35 Mc.

W5LIU, Lubbock, Texas — About 15 to 20 stations on 51 Mc. locally, using MBF transceivers.

W6LWT, El Cajon, Cal. — Excellent inversion at end of December. W6GTZ worked Oxnard (155 Miles) easily on 432 Mc.

K6UJL, San Diego, Cal. — Heard automatic c.w. of CT1CO for 15 minutes beginning at 0700 PST Dec. 7. EI9J and PAØFM heard, 0810 to 0815 Dec. 27.

W7BDK, Seattle, Wash. — Attempting to develop u.h.f. interest; will be glad to join with others in this work.

(Continued on page 148)

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W7EPZ, Billings, Mont. — Alaska and VE1 worked frequently on 50 Mc. Skip short in early January, bringing in W1s. Heavy QRM during V.H.F. Sweepstakes.

W7QDJ/7, Logan, Utah — High mountains blocking path to east seem to have no effect on W1 and VE1 signals on 50 Mc. during F_2 openings.

W9GAB, Beloit, Wis. — Geminids skeds on 144 Mc. with W5VWU, Albuquerque, N. Mex., and W5AJG, Dallas, paid off with states 28 and 29.

K9IKM, Fond du Lac, Wis. — Looking for activity on 145 Mc. nightly, 1830 CST. Six-meter CD net operates each Monday and Wednesday.

K9IQO, Milwaukee, Wis. — Milwaukee area ragchew net operates on 50 Mc. each Monday at 2000 CST.

W9MHP, Indianapolis, Ind. — Central Indiana 6-Meter Net operates Monday through Friday, 2030 CST, 50.55 Mc. K9EEK, Frankfort, NCS.

WØIXF, Denver, Colo. — Now running 200 watts, f.m. on 50 Mc. Worked PAØTN for first European DX. Would be glad to know of 6-meter interest in the Pueblo area.

WØKLQ, Jefferson City, Mo. — Mid-Missouri Amateur Club in process of organizing 6-meter net in Cole County, with emergency operation in mind. Also interested in possibility of statewide net.

WØMOX, Overland Park, Mo. — Worked W2NLY on 144 Mc. Dec. 21, during Ursids shower.

FEEDBACK

In the overtone oscillator circuit for use in the SCR-522 (World Above 50 Mc., January *QST*, p. 69), if you encounter difficulty getting the thing to oscillate, try a capacitor of 0.001 to 0.0015 in the feed-back network, in place of the 500-$\mu\mu$f. shown. Also in connection with this diagram, crystals above 8.333 Mc. are for use in case the 522 is operated on 50 Mc. For operation on 144 Mc. the crystals should be between 8.0 and 8.22 Mc., of course.

—•••—

The 2-meter certificate award being made by the V.F.H. Institute of New York (World Above 50 Mc., January *QST*, p. 68) is being made only to stations operating above 146 Mc. The station worked need not be above 146 Mc. The text referred to above stated just the opposite. Our apologies to W2SJX, who gave us the information right.

How's DX?

(Continued from page 70)

. . . . . Despite the demands of Hamfesters Radio Club *Ham-Gab* editorship, W9LNQ found time to assemble evidence for DXCC with 100 watts and a Windom on 14 Mc. . . . . W4UWA would become DL4UWA upon completion of his Ft. Monmouth service schooling . . . . . VE7-KX's multicolored QSLs vigorously plug 1958 British Columbia Centennial doings . . . . . W4IHW/KS4 tells WGDXC interviewers he's about to knock it off . . . . . Helping to round out the DX story conveyed in the preceding proceedings were the well-edited organs of the DeRidder (La.) DX Club, International Short Wave League, Japan DX Radio Club, Newark News Radio Club, Northern California DX Club, Southern California DX Club, West Gulf DX Club and Willamette Valley (Wash.) DX Club. Now let's see what was happening

Ten Years Ago in "How's DX?" — The DX pages of your March, 1948, *QST* infer a rapid and general shift in propagation conditions. Ten meters quite abruptly goes soft, while at the lower end of our spectral domain we find 80 *red* hot. On 3.5 Mc. J2AIA and ZC6BK are pursued by numerous North Americans who suddenly need only Asia to finish 80-meter WACs. FA8s BG IH, GD3UB, HE1CT, KS4AI, NY4CM, OX3MG, VP4TAB, YU7KX and ZK1-AM add to the festival air . . . . . On 75 phone W1IIM reports twenty quick countries including such as D2DB, MB9AS and OX3GE . . . . . Forty steps up DX pace with FO8TY, Js 2SCS 3AAD, KS4AF, LB4QA, MB9s AA AS, OX3ME, Tahiti's RV2, UC2KBA, UB5s BG KAB,

(Continued on page 150)

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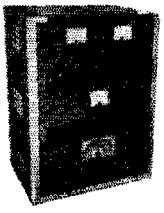

Bandswitching 10-160 Xmttr. for 540 W. on fone & CW; 540 W. on SSB (P.E.P.) with any 10W external exciter. Relay-controlled; includes built-in antenna relay, built-in VFO, and separate power supply for modulator section allowing better overall voltage regulation. Commercial type compression circuit keeps modulation at high level. Features grid-block keying. Pi-net matches most antennas, 52-600 ohms. Provisions for crystal operation.

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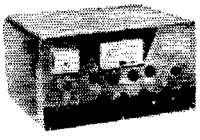

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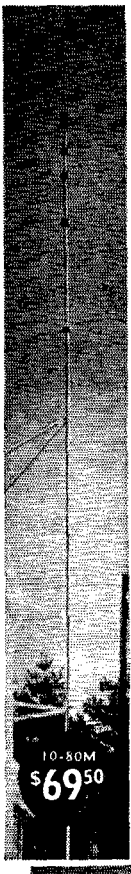

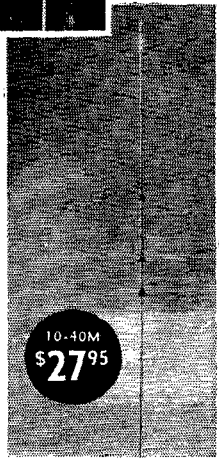

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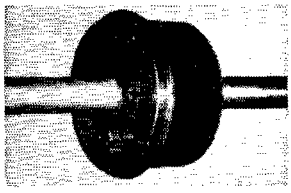

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Model 12-AV (10, 15 20M)	$19.95
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True Love

(Continued from page 57)

concerned about Civil Defense? Suppose we had a disaster? Where's your patriotism? Haven't you any regard for the safety of your country?"

"But I don't even know what a net means," Mary Juanita protested indignantly. "And what has my hamming to do with the safety of my country? And if you are so patriotic, why don't you join the army?"

As Jasper was too disgusted to explain, she marched out, determined to assert her rights, even to the point of jeopardizing the safety of her country. But Jasper, suddenly remembering another net due in a few minutes, and fearing that she would again ruin his reception, hastily apologized and begged her to stay and help him.

After that, it was easy. Mary Juanita had only to depress her key a couple of times at the strategic moment to have him call and ask her to join him in the shack. And realizing that this was not always suitable or circumspect, he soon proposed, and no doubt they would have been married if Mary Juanita had not suddenly discovered DX, and found that she preferred it either to traffic nets or Jasper. So, having perfected her technique, she nabbed a DX hound who strayed down to her frequency one night by mistake. And they were married and disappeared onto ten meters and have spent a perpetual honeymoon there ever since.

Correspondence from Members

(Continued from page 71)

on my frequency, my partner's frequency and all the way from 20 kc. down to 20 kc. up. It does not matter who is transmitting, they will call and call and bang goes your rag chew. O.K., I am a smart chap, I call my pal on 14002 kc. and he replies on 14097 or thereabouts. Fine, our rag chew goes on for two complete overs. Guess what happens next? I'll tell you: 20 Ws split forces, ten camp on 14002 and ten on 14097. End of rag chew number two.

When a chap is looking for his 100th country or stickers, all the subterfuge on the DX man's part won't fox him for long.

On a recent rubber-stamp spell on 14 c.w., I had just finished my 35th contact when a short snappy call off my frequency was heard. Sure enough, it was an old pal. I decided that it would be nice to have a short rag chew. This would give me a break from the monotony of the "RST, QSL" contact and further cement a long-standing friendship. The rude comments were beyond belief. Such phrases as "move over wolf" and "QRT you hog" to my pal were tame to some of the things that were said. We ignored the comments and proceeded with our chat. Not for long however. Three of the fellows camped on and around the par-

(Continued on page 152)

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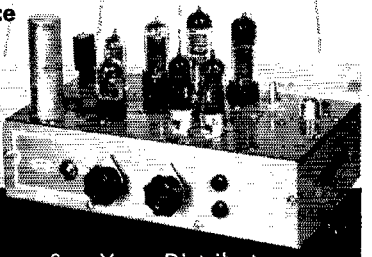

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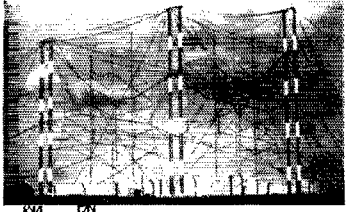
From the unique broadband curtain antenna shown below and difficult microwave and television installations involving rigid sway and twist limits, to lightweight towers for amateur beams —Trylon's sound engineering approach to every phase of antenna design pays important performance dividends.

FIRST SUCCESSFUL Broadband CURTAIN ANTENNA



Designed, built and installed by Trylon, these two broadsides give 5% to 10% more reliable long-distance communications than comparable rhombics — and with a bandwidth of ±15% of center frequency at 1.5 VSWR.

WIND TURBINE COMPANY, West Chester, Pa.

In Canada: The Wind Turbine Company of Canada, Ltd., Toronto 9.

ticular frequency and screwed their keys down. My pal was running 150 watts.

I think Ed has a justifiable crib, but surely the answer lies with the W stations themselves. If you insist on breaking up rag chews, the only answer is the rubber-stamp QSO. I ask you to realize that the DX man is doing you a favour when he comes back to a call from a state from which he has already received a couple of hundred cards so if you hear him rag chewing, please respect his feelings and allow him to get on with his contact without interrupting. When I was a kid, I was taught that it is bad manners to interrupt a person when he is speaking to someone else. Surely the same applies on the air.

Whilst on the subject of QSOs, may I as a DX operator request that stations who are in contact, do not ask the DX man to QRX for his pal or listen for his fone transmission on another frequency. This only makes your colleagues more furious and causes more QRM.

One final comment before closing. During a recent spell listening on frequencies between 7010 and 7050 kc. at 0600 GMT, the W stations were coming into Ghana with 9-plus signals. I shall be around most mornings at that time, if any W is interested in a 7 Mc. QSO I shall be pleased to hook up with him, but don't expect a rock crusher signal. I only run 70 watts input on this band.

All the best for 1958. We shall try to give as many stations as possible a new country, and to those who already have Ghana we would like to hear you call and have a yarn.

— *John Woodcock, 9G1BQ*

LET'S RAG CHEW

9525 W. Concordia
Milwaukee 16, Wis.

Editor, *QST:*

I know it has been said many times, but how can we get more informality on the ham bands? I have been trying in my small way to try to make QSOs more interesting, but most of the fellows are the "Rig here, name here, weather here" type of ham and it sure is not interesting to QSO with them. Why can't we just forget how many "db.'s above S9" we are before we can start to rag chew or else go on to another QSO because we aren't the strongest station on the band. So next time you warm up the rig, try to get to know the interests of the ham circle. You will have much more enjoyable QSO and get more out of our wonderful hobby.

— *Roger Loebel, W9HCA*

259 Highland Ave.
Arlington 74, Mass

Editor, *QST:*

Because of the many recent protests over short QSOs, I thought the following data might interest you.

Between the dates 17 September 1957 and 12 December 1957 KN1BGM and I have had 46 QSOs, 25 of which have been of one hour or longer. Only one QSO was less than 30 minutes. Our longest QSO was one hour 29 minutes and our shortest 10 minutes. Our total operating time together was 43 hours and 4 minutes. Ralph has his general ticket now and we plan to continue a schedule every night we are both free. I am primarily a phone man, but have been able to get my code speed from 15 w.p.m. to 22 w.p.m. in this space of time. All of our contacts were on 80 c.w.

— *W. Page C. Clason, W1TAJ*

POWER LINE TVI FILTER

Effectively reduces rf interference feeding into power lines . . . minimizes transmitter effect upon nearby receivers . . . provides convenient fuse-protected twin outlet. Two types available . . .

Model LF-1B 50 to 250 mcs (115 V., 15 AMP.) $16.95

Model LF-IC 1.5 to 250 mcs (115 V., 15 AMP.) $29.50

A MATCHING BALUN For Your Receiver

1.5 mc to 150 mc (Type RB-1)

Used between unbalanced circuits of 50 to 100 ohms and balanced circuits of 200 to 600 ohms. Use of this balun between coaxial feed line and receiver often brings notable increase in signal strength and signal to noise ratio . . . used also to efficiently feed twinlead into receivers designed for coax input . . . also to transform from twinlead to coax, decreasing noise pickup. A needed piece of gear!

TYPE RB-1 . . . PRICE $2.95

(Also available: Type RB-2, 75-ohms unbalanced and 300-ohms balanced . . . 50 mc to 1000 mc) Size 3½x2x1 inch . . . Wt. 3 oz. Price $2.95

It's Here!

(TypeTRS-1)

AN ELECTRONIC T-R SWITCH THAT REALLY WORKS!

Frequency Range 1.5—60 MC

(TypeTRS-2)

FEATHERWEIGHT • MIDGET-SIZE • 1KW

Type TRS-1: Don't confuse this great, new electronic Transmit-Receive Switch with anything similar you have ever known. See article June, 1957, QST by S. Sabaroff. Designed for mounting in transmitter; does not add any TVI; no dead spots; makes most receivers work better giving up to 15 db increase in sensitivity. This TR Switch is a must for every Ham Transmitter.

Type TRS-2: Designed for those who find it impossible to mount a TR Switch in the transmitter. This TR Switch is of the customary type connected to transmission line by means of a T connector (Amph. 83-1T). The gain is approximately unity or more over the frequency range.

For those who wish to make their own — RF Output Transformer, only, type TRS-1T (with instructions) $3.45

Both types use negligible RF power for operation and take 6.3 volts filament and 100-150 volts for plate of type 6AH6 Tube, ordinarily delivered by the transmitter, receiver or simple, external supply.

Dimensions: 1½ x 1½ x 2¼ Weight: Approx. 4 oz.

PRICE each $11.95 (with tube)

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Ppd. in U. S., Possessions and Canada. — Penna. Residents 3% tax. Dual Track 7" 1200' tape. Recorded at 3¾ IPS.

See Your Local Ham Distributor. If he doesn't carry them, order direct and give us his name

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FOR RECEIVING

RADIO TELETYPE

To receive amateur or commercial teletyped messages by radio, you need the following equipment: (1) Good communications receiver. (2) A TELEWRITER CONVERTER which plugs into the receiver phone jack. (3) A Polar Relay which plugs into the back of the Telewriter Converter. (4) A small 110 volt, 60 ma. d.c. power supply, to operate the selecting magnet(s) in the teleprinter machine. (5) A teleprinter (teletype) machine, which is an electric typewriter controlled by radio signals. (Used teletype machines are available from $75 up) Telewriter Converter **$89.50**. Polar Relay **$14.75**. For additional information write: Tom. W1AFN.

ALLTRONICS-HOWARD CO. **Box 19, Boston 1, Mass. Tel. Richmond 2-0048**

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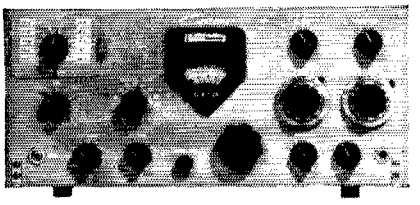
the Collins KWM-1

SSB Mobile Transceiver



FIRST Mobile SSB Transceiver — 175 watts PEP input, 14-30 mc. Excellent frequency stability. Use as mobile or fixed station without modification. Break-in CW using VOX circuits, side tone for monitoring CW. Ten 100 kc. bands available anywhere in the 14-30 mc range. 6¼" H x 14" W x 10" D. Net price $820.00

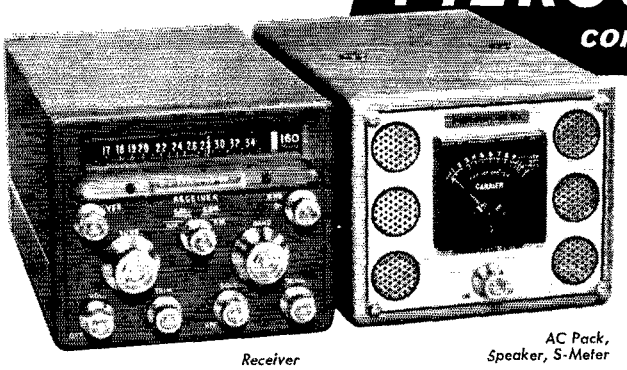
Write or see us about trade-ins, time payment terms.

RADIO PRODUCTS SALES CO.

1237 Sixteenth St.

Denver 2, Colorado

NEW, IMPROVED PIERSON KE-93 communications receiver



Receiver — AC Pack, Speaker, S-Meter

The Pierson KE-93 is a full-fledged, 12-tube all-band communications receiver of superior performance for *any* purpose. It readily meets and conquers all of the rigid requirements for a quality mobile receiver – such as shock and vibration, temperature and humidity extremes, noise conditions and power regulation – thanks to military, miniaturization techniques. Most important, in actual "side-by-side" tests, the Pierson KE-93 has been proven capable of meeting or beating many high-priced receivers of the table top variety! Your local dealer will be happy to arrange a complete demonstration of this "little giant" at your convenience.

NOW . . . REDUCED IN PRICE!

Thanks to you, production has increased and these savings are now yours!

- Extreme selectivity and sensitivity.
- Receiver Size: 6" wide, 5" high, 9" deep.
- Highly effective noise silencer and squelch circuits of new design.
- Function switch provides ideal settings for A.M., C.W. and S.S.B. operation.
- 6 or 12 V.D.C. or 110 V.A.C. power packs.

Write today for complete detailed information and address of your nearest dealer.

AUTOMATION ELECTRONICS, INC.
1500 West Verdugo Avenue, Burbank, California

ASSISTANT SUPERVISOR

Well established TV station in Northeast with transmitter staff of 6, requires assistant transmitter supervisor. Must be technically qualified in measurement and maintenance of TV transmission equipment. Character and technical references required with application.

Box 183 QST

CODE – SENDING – RECEIVING – SPEED

Be a Radio Ham or Commercial Operator. Pass FCC code test in few weeks. Fascinating hobby. Good pay, interesting work in Commercial field. Same system used by radiotelegraph specialists. FREE book explains how Amateurs and Operators learn code and develop amazing skill and speed.
Candler System Co., Dept. 4-C, Box 928, Denver 1, Colo., U.S.A. and 52b, Abingdon Rd., Kensington High St., London W.8, England

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HOW I EARNED THAT NEW KW RIG!

Like you, I've found the new-gear ads in QST mighty tantalizing, but I had to find a way to get the gear with *extra* income. Then I saw a Lampkin Laboratories' ad in QST offering their free booklet "HOW TO MAKE MONEY IN MOBILE-RADIO MAINTENANCE." I sent for it—and learned how I could turn my ham experience into a profitable part-time business *right in my own home* . . . doing regular maintenance and FCC checks on 2-way commercial and public-safety rigs.

Now when I call CQ on 20 meter 'phone on a Sunday afternoon it sounds as though the whole band comes back to me—for I finally got that new KW and beam . . . with money I earned in mobile-radio maintenance!

THE COUPON TO THE RIGHT CAN DO THE SAME FOR YOU

BETTER MAIL IT TODAY!

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The test instruments preferred by expert mobile-service engineers are made by

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LAMPKIN 205-A FM MODULATION METER
RANGE 25 TO 500 MC.
PRICE $240.00

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At no obligation to me, please send free booklet and dope on time-payment plan.

Name_____

Address_____

City_____ State_____

"I am now using the Gotham V80 vertical antenna with only 55 watts, and I am getting fantastic reports from all over the world". VP1SD

ALL-BAND VERTICAL ANTENNAS

GOTHAM'S sensational new vertical antennas give unsurpassed multi-band performance. Each antenna can be assembled in less than two minutes, and requires no special tools or electronic equipment. In the V160, resonance in the 160, 80, 75, and 40 meter bands is secured through use of the proper portion of the loading coil. Yet, when the coil is eliminated or bypassed, the V160 will operate on 20, 15, 10 and 6 meters! The same idea applies to our V80 and V40 multi-band verticals. No guy wires needed; rugged, occupies little space, proven and tested.

Simple design and superior materials give all-band operation, and effective, omni-directional radiation. Gotham verticals are rugged, with low initial cost and no maintenance. Guaranteed Gotham quality at low Gotham prices. Perfect for the novice with five watts or the expert with a kilowatt.

FREE! FREE! FREE! Details, specifications and characteristics of 50 antennas!

QUALITY MATERIAL

Brand new mill stock aluminum alloy tubing with Aluminite finish for protection against corrosion. Loading coils made by Barker & Williamson.

ALL-BAND OPERATION

Switch from one band to another. Operate anywhere from 6 to 160 meters. Work the DX on whatever band is open.

EASY ASSEMBLY

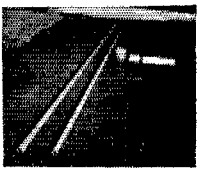
Less than two minutes is all you need to put your vertical together. No special tools or electronic equipment required. Full instructions given.

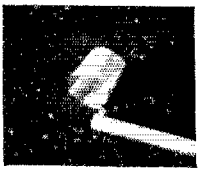
SIMPLE INSTALLATION

Goes almost anywhere. On the ground, on the roof, or outside your window.

AMAZING PERFORMANCE

Hundreds of reports of exceptional DX operation on both low and high power. You will work wonders with a Gotham vertical.





PROVEN DESIGN

Over a thousand Gotham verticals are on the air — working the world and proving the superiority of Gotham design.

AND THE PRICE IS RIGHT!

"I worked LU3ZS on Half Moon Island in Antarctica on Dec. 26 at 21150 Kc. I was using my Gotham V80 vertical antenna and only 35 watts." KN5GLI

Airmail Order Today — We Ship Tomorrow

GOTHAM Dept. QST
1805 PURDY AVE., MIAMI BEACH, FLA.

Enclosed find check or money-order for:

V40 vertical for 40, 20, 15, 10, 6 meters.....$14.95 ☐
V80 vertical for 80, 75, 40, 20, 15, 10, 6 meters.....$16.95 ☐
V160 vertical for 160, 80, 75, 40, 20, 15, 10, 6 meters.....$18.95 ☐

Name.....

Address.....

City.....Zone.....State.....

HOW TO ORDER. Send check or money order directly to *Gotham* or visit your local distributor. Immediate shipment by Railway Express, charges collect. Foreign orders accepted.

GOTHAM 1805 PURDY AVENUE MIAMI BEACH 39, FLA.

HAM-ADS

(1) Advertising shall pertain to radio and shall be of nature of interest to radio amateurs or experimenters in their pursuit of the art.

(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.

(3) The Ham-Ad rate is 30¢ 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 7¢ per word will apply to advertising which, in our Judgment, is obviously noncommercial 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 7¢ 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 30¢ 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.

QUARTZ — Direct importers from Brazil of best quality pure quartz suitable for making piezo-electric crystals. Diamond Drill Carbon Co., 248 Madison Ave., New York City 16.

MOTOROLA used FM communication equipment bought and sold. W5BCO, Ralph Hicks, 204 E. Fairview, Tulsa, Okla.

WANTED: Cash or trade, fixed frequency receivers 28/42 Mc. W9YIY, Troy, Ill.

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. NOrmandy 8-8262.

WANTED: Early wireless gear, books, magazines, catalogs before 1922. Send description and prices. W6GH, 1010 Monte Dr., Santa Barbara, Calif.

WANTED: All types aircraft & ground transmitters, receivers ART-13, RT/ARC-1, R5/ARN-7, BC-610E, ARN-6, BC-788C, ARC-3, BC-342. Highest prices possible paid. Dames, W2KUW, 308 Hickory St., Arlington, N. J.

ATTENTION Mobileers! Leece-Neville 6 volt 100 amp. system alternator, regulator & rectifier, $45.00. Also Leece-Neville 12-volt 100 amp. system, alternator, regulator & rectifier, $85.00. Good condition. H. A. Zimmerman Jr., K2PAT, 115 Willow St., Brooklyn 1, N. Y. Ulster 2-3472.

CASH for your gear. We buy as well as sell. Write for cash offer or trade. We stock Elmac, Gonset, Hallicrafters, Hammarlund, Johnson, Lysco Master Mobile, Morrow, National and other ham gear. H & H Electronic Supply, Inc., 506 Kishwaukee St., Rockford, Ill.

WANTED: Receiver R5/ARN-7, MN-62A transceivers, RT18/ARC-1, AN/ARC-3, BC-788C, 1-152C, Collins, Bendix equipment, test sets, dynamotors, inverters. We pay highest prices. Advise quantity, condition, price in first letter. Aircraft Radio Industries, Inc., 15 East 40th St., New York City. Tel. LExington 2-6254.

MULTI-BAND Antenna, 80–40–20–15–10. $19.95. Patented. Send stamp for information. Lattin Radio Laboratories, Owensboro, Ky.

SAN FRANCISCO and vicinity. Communication receivers repaired and realigned. Guaranteed work. Factory methods. Special problems invited, any equipment. Associated Electronics, 58 South P St., Livermore, Calif. W6KF, Skipper.

RECEIVERS: Repaired and aligned by competent engineers, using factory standard instruments. Authorized Factory Service Station for Collins, Hallicrafters, Hammarlund, National. Our twenty-first year. Douglas Instrument Laboratory, 176 Norfolk Ave., Boston 19, Mass.

RADIO magazines. Buy, sell or trade. Bob Farmer, Plainview, Texas.

HALLICRAFTERS, Central Electronics, ham gear — others. Swartzlander Radio Limited, Fremont, Ohio. Call Jerry, W8EPI or write.

"PIG-IN-A-Poke?" Not if you visit Ham Headquarters, USA, and take your choice from the hundreds of "Like New" bargains in the world-famous Harrison Trade-In Center! See photographs, p. 137, March *QST* and p. 133 April *QST*. Greater values, because tremendous turnover means lower overhead! Terms. Trades. BCNU. Bill Harrison, W2AVA, 225 Greenwich St., New York City.

QSL82 SWLS? Finest and largest variety samples 35¢ (refunded). Callbooks (Spring), $4.50 postpaid. DX Guide, $1.50 "Rus" Sakkers, W8DED, P. O. Box 218, Holland, Mich.

QSLS, Taprint, Union, Miss.

QSLs "Brownie," W3CJI, 3110 Lehigh Allentown, Penna. Samples 10¢; with catalogue, 25¢.

QSLS-SWLS. Samples 10¢. Malgo Press, 1937 Glendale Ave., Toledo 14, Ohio.

QSLS. Twenty exclusive designs in 3 colors. Rush $3 for 100 or $5 for 200 and get surprise of your life. 48 hour service. Satisfaction guaranteed. Constantine Press, Bladensburg, Md.

QSLS. Neat, Attractive. Samples 10¢. Woody's. Box 164, Asher Sta., Little Rock, Ark.

QSLS. Reasonable. 3 Week Delivery. Samples dime (coin). Dick, K6GJM, Box 294, Temple City, Calif.

QSLS-SWLS. High quality. Reasonable prices. Samples. Bob Teachout, W1FSV, 204 Adams St., Rutland, Vt.

QSLS of distinction! Three colors and up. 10¢ brings you samples of distinction. Uncle Fred, Meshoppen, Pa.

QSLS, SWL's, VHF's, XYL-OM's. (Sample assortment approximately 9¾¢.) Covering designing, planning, printing, arranging, mailing, eye-catching, comic, sedate, fatabulous, DX-attracting, prototypal, snazzy, unparagooned, cards. Rogers, KØAAB, 737 Lincoln Ave., St. Paul 5, Minn. Also glamorous, pulsating (Wow!).

QSLS. Plain and fancy samples 10¢. Fred Leyden, W1NZJ, 454 Proctor Ave., Revere 51, Mass.

CREATIVE QSL and SWL Cards. Are you proud of your card? If not, let us print your next order. Write for free samples and booklet. Personal attention given to all requests. Bob Wilkins Jr., KN6ZMT, Creative Printing, P. O. Box 1064-C, Atascadero, Calif.

QSLS, samples dime. Gay Krenz, Fall Creek, Wis.

QSLS-SWLS, 100, $2.85 up. Samples 10¢. Griffeth, W3FSW, 1042 Pine Heights Ave., Baltimore, Md.

DELUXE QSLS. Petty, W2HAZ, Box 27, Trenton, N. J. Samples 10¢.

QSL-SWL samples free. Bartinoski W2CVE Press, Williamstown, New Jersey.

QSLS-SWLS. 100, $2.50. Samples 10¢. QSO file cards, $1.00 per 100. Rusprint, Box 7507, Kansas City 16, Mo.

GLOSSY QSLS. 100 one color, $2.50. Send for samples. Pinion, K4JKK, 2004 Riverdale Road, Roanoke, Va.

BACKUS Press QSLS-SWLS. Samples dime. 703 Cumberland St., Richmond, Va.

QSLS. High gloss, 2 colors, samples 10¢ (refunded). K2VOB Press, 62 Midland Boulevard, Maplewood, N. J.

QSLS-SWLS. Samples free. Spicer, 4615 Rosedale, Austin 5, Texas.

QSLS, Glossy, colors, Samples 10¢, refundable. TRI Tackards also. Fred Merritt, W1GKH Press, Candleview Ridge, Danbury 18, Conn.

QSLS, Samples, dime. Printer, Corwith, Iowa.

BACKUS Press. QSLS-SWLS. Samples, dime. 703 Cumberland St., Richmond, Va.

RUBBER Stamps for Hams, sample impressions, W9UNY, C. W. Hamm, 542 North 93rd St., Milwaukee, Wis.

FABULOUS QSLS-SWLS by Mike. Distinctive, different, unique. Samples absolutely free. Write: K6GCJ Press, 8311 West Third St., Los Angeles, Calif.

QSL Special. Free sample. Nat Stinnette, W4AYV, Umatilla, Fla.

QSLS, samples, dime. Eddie W. Scott, W3CSX, Fairplay, Maryland.

QSLS: Cartoons, colors, something different. Samples 20¢. Chris, W9PPA, 365 Terra Cotta, Crystal Lake, Ill.

QSLS, 5¢ each. $3.00 hundred. Curley, 200 Buttington Road, Chester, Pa.

QSLS, SWLS 3-colors, 100 $2.00. Samples dime, Bob Garra, W3UQL, Lehighton, Penna.

QSLS — The first QSL printers. Samples 10¢. VYS QSL'S. 1704 Hale Ave., Ft. Wayne, Ind.

QSLS. Reasonable, nice designs. Samples dime. Stan, W2DJH, 19 Elm St., Warrensburg, N. Y.

QSLS. Glossy. Samples 10¢. W1OLU Press, 30 Magoun, Medford, Mass.

WANTED: BC-221, BC-348, BC-312, BC-342, BC-610-E, ARN-7, BC-788, ARN-6, APR-4, ARC-1, ARC-3, ART-13. All types surplus or amateur transmitters, receivers, test equipment taken in trade for New Johnson Viking Ranger, Pacemaker, Valiant, Hallicrafters, Hammarlund, National, B&W, Gonset, Elmac, Telrex, Fisher Hi-Fi, etc. Write Tom, W1AFN, Altronics-Howard Co., Box 19, Boston 1, Mass. Tel. Richmond 2-0048. Store: 60 Spring St, Newport, R. I.

MOBILE new development continuously wound tapered pitch helical whip antennas. Patent applied for. 10 and 15, 4 ft. long, $15 each: 20, 40 and 80, 6 ft. long, $18.00 each. High efficiency 50 ohm match, good band width. Mount on body not on bumper. Write for data. Dealers wanted. Mark Products, 6412 Lincoln, Morton Grove, Ill.

WORK the rare ones. Cruise the romantic Bahamas in luxurious 32 ft. sailboat equipped with maritime mobile Weekly and monthly cruises. W4DN, Yacht "Aloha" 1918 Pine Tree Lane, Largo, Fla.

HAMS! In Central Illinois it's Knox Electronic Supply, Galesburg, Ill.

WANTED: BC-610E, BC-614E, JB70 Junction Box, BC-939; ART-13, BC348, BC312, BC342, ARC-1, ARC-3, other military and aeronautical surplus. Give condition, name price. We pay C.o.d. James S. Spivey, Inc., 4908 Hampden Lane, Bethesda, Md.

WANTED: ART-13, BC-610E, BC-614E, BC-939, JB-70 junction box; BC-312; BC-342 and other military surplus. Advise what you have, condition and price. W4VHG, Ritter, Box 5878, Bethesda, Md.

VAN SICKLE, Gene, W9KJF, invites you to shop his fabulous new electronic supermarket for latest gear at lowest prices. Van Sickle Radio Supply Co., 4131 N. Keystone, Indianapolis, Ind.

WANTED: Used receivers and transmitters: Will pay cash or trade. 10% down with up to 24 months to pay. In stock: new 75A4s, KWS1s, KWM-1 SSB mobile transceiver, Johnson, WRL, B&W, National, Hallicrafters, Elmac, Hammarlund, Gonset, Central Electronics; Mosley, Hy-Gain and Gotham beams. Write for list of bargains in reconditioned receivers and transmitter with new guarantee. Shipped on approval. Write Ken, WØZCN, or Glen, WØZKD for your best deal. Ken-Els Radio Supply Co., 428 Central Ave., Fort Dodge, Iowa.

FREE Flyer. DX QSL Co-op. Box 5938, Kansas City 11, Mo.

MEET your winter-vacationing friends in Fort Lauderdale, Florida, at Broward Amateur Radio Club's second annual auction. Date: Saturday, February 15th. QTH: 800 N. E. 7th Ave., and doors open 10 A.M. Lunch at noon. Auctioning starts 1 P.M.

RECEIVERS and transmitters repaired by experts. Authorized factory service. Ham prices. M. T. C., 239 East 149th St., Bronx, N. Y. Tel. Mo 5-1100.

MUST SELL. Urgently need money. EQ-129-X, like new, $150. DX-20 new, wired and tested $40. Complete station with modulator and many extras, best offer over $200. FOB, W3CDE, Jerry, Masontown, Pennsylvania.

CASH Paid! Sell your surplus electronic tubes. Want unused, clean transmitting, special purpose, receiving, TV types, magnetrons, klystrons, broadcast, etc. Also want military, and commercial lab test and communications gear. We swap too, for tubes or choice equipment. Send specific details in first letter. For a fair deal write, wire or telephone: Barry Electronics, 512 Broadway, New York 12, N. Y. Tel. WAlker 5-7000.

DON'T Fail! Check yourself with an up-to-date, time-tested "Surecheck Test." Novice, $1.50; General, $1.75. Amateur Radio, 1013 Seventh Ave., Worthington, Minn.

FOR Sale: Elmac AF-67 transmitter, like new. No holes. Also two tape recorders. One hi-fi and two weeks old. Excellent. Make an offer. All inquiries answered. W4NJE, Box 48, Lewisburg, Tenn.

MICHIGAN — Used Collins 32V2, $395; Gonet Communicator II, GM 12V, $195; Gonset Communicator II GM 12V push-to-talk, $215; Globe Chief, $52.50; Johnson Adventurer — $45; SX-96, $195; HQ129S w/spkr, $149; RME50, $135; National NC100Xw/spkr and Q multiplier, $65, etc. New: Collins, Hallicrafters, Hammarlund, Johnson, National. WRL, etc. Radio Parts, Inc., 542-548 Division Ave., S., Grand Rapids 3, Michigan.

ELDICO TR-1-TV, bandswitching 80-10, 300 w. phone/c.w. with tubeless V.F.O., $200.00. Come see it and operate it. K2AJM, Don Kilgus, 3 High St., Valhalla, N. Y. W.H. 6-8764.

RECORDING & Brochure: Limited Edition. A tribute to Radio and Morse operators. "The Saga of Telegraphy" is a historical story of communications men and their progress since 1844. It highlights courageous deeds performed by them. Available in two parts: 33⅓ record, playing time 45 minutes, includes narration and code. Brochure is fine written & illustrated story. Special price to amateurs: Brochure, $100; Recording, $3.00 or both for $3.75. J. R. Graham, W4RJX, P. O Box 1556, Arlington 3, Va.

NC98 for sale, plus extras. Best offer, 6 meter converter, ground plane. K2VDJ, 166 East 92nd. NYC, N. Y.

WANTED: Receiver, RCA AR-88 or CR-88. Must be unmodified, A-1 shape. State condition and best price in first letter. All letters answered. G. Raiselis, W1BTZ, 265 Paddock Ave., Meriden, Conn.

FOR Sale: Astatic Mod. DN-HZ dynamic microphone, $8; Advance 7200 coaxial relay, $5; PR type Z-2 xtals, 3605, 3785, 7064, 7118 and 7216 Kc, each $1.25; power and bias supply complete wired on chassis 350V at 200 Ma., 5V at 3 amps, 12.6 at 6 amps, bias 150V for 522 transmitter $12. Please include postage. Power and audio transformers, chokes, air pad condensers, coils and small parts. Write for list. W. Steckiel, W3QEW, 2215 Riverside Drive, Scranton, Penna.

MOSLEY VPA-3 Band antenna, cost $195. For sale F.o.b. $80. In gud condx. W4CBZ.

SX96 one year old, like nu condx, $175. F.o.b. Thomasville, N. C. K4LGP, Murrill, 1031 Menden Hall.

FOR Trade TG34A keyer in exc. condx and tapes for what have you. Prefer plate xfrmer 2100-0-2100 VAC or higher and matching cond. & choke. K5DXW, Olney, Texas.

EVERYTHING Must go! If you need anything and I have it, you can save real money! Xmttg and revg parts, 500 new tubes, including pair of 4-125A original Eimac sealed boxes. Not surplus. First $25.00; 404A's, 417A's, etc. New Premax telescoping 33 ft. 9 in. steel antenna, insulator base and wall mount, $30; amplifiers, modulators, xmttrs, converters, resistors, condensers, transformers, GR Variacs, meters, dynamotors, tools, soldering guns, etc. F.o.b. Ossining, N. Y. Joe D. Curtice, W2DTR, Cedar Lane.

SALE: B & W 5100B and 51 SB-B, in like-nu condx, complete with instruction books and in orig. cartons. Will deliver within 150 miles. $560 F.o.b. Spring City, Penna. Walt Clevenstine, W3CUO, 711 Arch.

COAXIAL Cable: RG-55/U, 100 ft., $4.35, 53 ohms, 100 ft., $4.35 postpaid. Satisfaction guaranteed. Van Dick, Riverlawn Drive, Wayne, N. J.

SALE: B&W 5100B, $350; HT-30, $395; HT-31, $220; Heathkits, DX35, $50; 5" 'scope, $30; S.G. $12; Hickok 680 xtal calib. RF marker, Gen, $50. All equipment is in excellent condx, w/manuals. Need cash for new QTH. K2HPX, Bill Grunow, Box 223A, Egg Harbor, RD #1, New Jersey.

COLLINS KWS-1, $1550; 75A4, $535. Four months old. W6IMC, White, 403 Alden Road, Hayward, Calif.

CONDENSERS, Transformers, crystals, etc. Cheap. List free. Bob Sturman, W4SOV, 3221 E. Harrington Dr., Decatur, Ga.

FOR Trade: 6 volt 60 amp. heavy duty Ford generator and amp. meter. Fits 1949 through 1953 V8 Fords. What do you have? Write K5DUG, 3158 Hunt Ave., Abilene, Texas.

SELL: Heath AR-3 with cabinet, excellent condx, $25. Mike Schifsky, K6SAF, 1137 Shattuck, Berkeley, Calif.

MUST Sell: HRO60 w/4 coils. Excellent condition. Ship F.o.b. anywhere in U. S. First money-order for $300. W5PYU, Bill Hughes, Box 474, Tech Station, Ruston, La.

FOR Sale: Factory wired Johnson Ranger in excellent condx. $160. W8UBA, R. L. Bristol, Almont, Mich.

MUST Sell: Johnson Adventurer and screen modulator, in gud condx, $45. K1BOO, 243 Pearl St., Manchester, N. H.

FOR Sale: Like new B&W 5100-B transmitter and 51SB-B SSB generator. Best offer over $600. Also Elmac AF67 and PMR6A receiver with Jamse C1O50 power supply just recently reconditioned at factory. Make cash offer. L. A. Edmonds, Alburnett Road, Marion, Iowa.

416B Owners, brass mounting plate, machined ¼ — 40 hole. $2.50, Flint, W9YBV, Evelyn, Indianapolis 24, Ind.

FOR Sale: Sonar SRT-120-P (with power supp.) W/VFO, FB condx, bought new, factory-wired and tested, $299.95. Want $150.00. Carter Gon-e-motor 6V input, 400V DC, 200 Ma. outp. cont. Complete filtering system, 3 relays, fusing, brand new, $75.00. University 6201 coaxial Hi-Fi spkr, like nu, $37.50; 6V 80 amp. Leece-Neville, compl., $40. F.o.b. A. Clark, jr., W2PDH, 44 Lewis Lane, Syosset, L. I., N. Y.

WANTED: DX100, 500W "Handbook 813 Rig". Johnson Ranger, Valiant, any condition. Geo. Beck, W2CE, 55 E. Bedell St., Freeport, L. I., N. Y.

BUD CR1772 enclosed rack grey, $25.00. Sorry, will not ship. R. L. Walker, Adams Rush St., Peekskill, R #3, New York.

VIKING 500, factory-wired, like new condx, $725; HRO60T, in exc. condx, added xtal calibrator, Universal product detector, special 15-meter coil and matching spkr, $46.0; Johnson 52 and 72 SWR bridges, $5.00 each. Tail e mobile for part. Will deliver within 200 miles, otherwise F.o.b. deal. W0DSP, Woolfries, Box 1264, Sioux City, Iowa.

FOR Sale: SX99 with built-in Johnson xtal calibrator and built-in Central Electronics Mod. DQ Q-Multiplier, all in exc. condx. Asking $125.00. W2ONQ, Italo, 89-15 183rd St., Jamaica 23, L. I., N. Y. Phone AX 7-8128.

SELL: Johnson Matchb-box and RME DB23 Preselector. $30 each plus postage. K9IGJ, 1423 W. Augusta, Chicago, Ill.

FOR Sale: 6-meter Gonset linear amplifier, used only 6 hours (new), $100. W2NVX, C. M. Radford, 20 Dover Lane, Yonkers, N. Y.

FOR Sale: Excellently wired slightly used DX-100, $175. In exc. condx, National HRO-5 revr with xtal calibr., 7 coils, pwr supp. and spkr for $125. Don Meredith, K9CAL, 2416 Hansen Ave., Racine, Wisconsin.

FOR Sale: Selling out! Stamped addressed envelope for list. Several condensers, chokes, modulation transformers, pwr transformers, 6-V dynamotors, 310-C2, VFO-G66B and P/S. Bill, W6VPO, 10815 Rose Ave., Ontario, Calif.

CANADIANS! Selling: new 813s, new Gruppi VFO, Meissner Signal Shifter, BC375 rotary coil, transformers, cabinets, meters and many others. Send for list. VE3BNV, 396 West Gore St., Stratford, Ont P., Can.

COMPLETE KW Modulator: Stancor A-3899 Poly-Pedance modulation xfrmer, Stancor A-4763 poly-pedance driver transformer, bias supply, 2 meters, filament transformer and 810's, all completely built on new chassis and 19" panel. Have gone SSB. Will sell for first $75. Joe Shank, Jr., W8KBT, 2310 Washington Blvd., Huntington, West Virginia.

COLLINS KW-1: This transmitter is in exc. condition, having had very little use. This is a real opportunity for you if you want the very best in transmitters. The selling price, including factory crated and delivery paid: $3000. Robert R. Sprole, 630 Highland Rd., Ithaca, N. Y.

CANADIANS! 1955 Buick hardtop, power steering, power brakes, automatic transmission, plus every extra. Low mileage, dream rig includes Elmac AF67, Gonset Super Six, Gonset Superceiver and all-band antenna system. Extras include Gonset FM 152-164 Mc. tuner. All custom-installed, not a wire showing. Complete mobile, $3200. Mary Birnbom, VE2ANN, % Electronic Tube Co., 464 McGill St., Montreal, Queb. P., Can.

FOR Sale: P-P 4-250A, all band final, 810 mod. poly-pedance xfrmr, complete with power supplies, coils, vacuum condensers, 6 ft. enclosed rack, overload relay, PTT, Variac, ant. relay and 8 meters, $450 or medium power xmttr and gud revr. All replies will be ans'd. Delivery up to within 75 miles. K9CYZ, Box 288, Aroma Park, Ill.

120 FT. telescoping, tilt-over E-Z Way Tower, complete with installed prop pitch motor and guy wire, price: $300. C. R. Knowlton, Elm Ridge Road, Box 233, Pennington, N. J.

SELL — Heath VFO, clean, stable, only $16. VE3EGG Ernie Crump, 64 Barrie, Galt, Ont., Can.

HALLICRAFTERS S-38C, $25; Heath AR-2 with cab. Needs aligning; $15. W1BSW, Fata, 42 Water St., Woburn, Mass.

SELL: 25 to 44 Mc FM receivers, crystal controlled, double conversion, complete with 13 tubes and vibrator power supply, $27.50; Motorola FM-30 watt mobile transmitters with dynamotor, $16.50. Can be converted to AM. Ralph Villers, Box One, Steubenville, Ohio.

FOR Sale: 2M Communicator 6V, in excint shape: $125 or best offer. W3YPL, 58 Chambersburg St., Gettysburg, Penna.

SELL: Telrex 3-El. full size 20-m beam, small prop pitch rotator, 20 ft. mast, and 40 ft. steel tower all for $150. Complete with erection instructions. Perfect condition. National 1-10 high frequency receiver, all coils and power supply, perfect $35. Prefer local sale or come and get it. Burt L. Zimet, W2JUX, 246-15 81 Ave., Bellerose 26, L. I., N. Y. Tel. FI 7-3448.

K6BYE going mobile. For sale: xmttr; WRL Globe Champion 300; revr: RME 4300, mike: Astatic D104, Neel Tyree, K6BYE, 8706½ Belford Ave., Los Angeles 45, Calif. Tel. ORchard 2-8873.

SCR-522 transmitter, for 2 meters, with antenna, $20; tube tester I-177 like new condx, $25; frequency meter TS-173/UR, 90 to 450 Mc., $50. J. B. Bullock, 412A Whitman Dr., Haddonfield, N. J.

SELL: 600 grounded grid linear using one 837 driving four 837s; 1500 v 500 Ma pwr. supply, built-in table top cabinet metered, schematics, commercial appearance; Central Electronics 10A SSB exciter, QT1, stable 458 VFO, 80, 40, 20 operation complete, $175. Almost new Hammarlund HQ150 receiver with wired in Central Electronics signal slicer, perf. condx: $265. J. Armstrong, W8YAC, 411 West Liberty St., Springfield, Ohio. Tel. FA 4-1542.

OLD QSTS wanted. Need December 1915 and January through July of 1916. Will pay cash or will trade Bound Volume I. L. A. Morrow, WIVG, 99 Bentwood Rd, West Hartford 7, Conn. Phone ADams 2-2073.

SELLING Out for college money: NC-300 with speaker, $375, new in August. DX-100, $175; D104 mike with stand, $15; lightning bug, $10. Morrow CM-1 Conelrad, $30. Will ship F.o.b. Phil Caulkins, Fergus Falls, Minn.

FOR Sale: DX-35, $50; NC-98, $120; and other equipment. Write for full list. Want: Viking Ranger. Ed Barus, K9DBX, 293 Geneva Drive, Harvey, Illinois.

FOR Sale: NC-300 with XCU-300 xtal calib., excellent condition, $320. Frederick Wierk, K4BGU, 1043 Arbor Lane, Jacksonville 7, Fla.

75A4 purchased new 12-20-57. Serial #4945, $575. N. Konos, 8½ Summit Ave., Salem, Mass.

FOR Sale: Model 26 Teletype with table, $75; 2 to 3 Kc bandpass filters, toroids, polar relays. Wanted: teletype keyboard perforator, two 4X250B's. W0DNW, Route 1, North Platte, Nebraska.

FOR Sale: 61 foot Vesto self-supporting steel tower with platform. Also Telrex Super deluxe model 3-el, 15-meter beam. Both in excellent condx. F.o.b. Charlotte, N. C. only $150. Write K4BVQ, Frank Dowd, Jr., 2101 Queens Road East, Charlotte 7, N. C.

SELL: Knight 50 W xmttr (brand new, never used): $32. L. Monson, 2551 Ida, Omaha, Nebr.

BEAM Tower, galvanized steel, commercial, approximately 50 ft. high, 9 ft. base. Self-supporting, ladder, platofor, instructions. Good as new. Ship c.o.d. $75. W4CHO, H. Dunn, Lanett, Alabama.

WANTED: 75A1, 15 meter coil for HRO-7. K4OXZ, 230 Beverly St., Titusville, Fla.

TCS-12 receiver and transmitter, in excellent condx plus its 12V dynamotor supply, $40, plus freight. K5OCV, Paul Hayashi, 1604 N. 15th, Orange, Texas.

CALL Plates. Deluxe 8" x 1½" black phenolic laminate with engraved white letters. Only $1.00 p.p. Polished plexiglass base, $1.00 extra. L. & J. Products Co., P. O. Box 122, Downers Grove, Ill.

FOR Sale: Measurements Corp. Mod. 78B, 2 range VHF generator, 15-25 Mc., 120-250 Mc., accurate attenuated output, 1μV.-.1V., $55. Frequency meter LM-10, w/1000 Kc. xtal, no book, less tubes, $25; tubes, never used, 5-2P24, $3 ea., Amperex 6252 VHF final, $18. 2 xtal filter assemblies HQ129X, SP200, $10 each; National PWO dial and gear housing $14; SCR300 5 gang condenser, $5; I.F. xfrmrs (6) 85 Kc., $2 ea. and BFO's (3), $1.50 ea. Triplett 2 in. sq. 250 Ma. meter w/shunt, $4. Pwr xfrmr, 900V CT, .26A. 5V. 6A, $10. Sent F.o.b. T. Webb, 8891-20 Ave., Brooklyn 14, N. Y.

FOR College tuition; sell Gonset Communicator II-B with 3 xtals, ten element beam, VHF balun, new Bug; all 6 months old, worth $300 net; for $200 complete. W3MHZ, 3227 St. Vincent St., Phila., Penna. DE 2-0650. Super excellent condx.

WANTED: Receiver SX100, HQ150, HQ110, HQ140 or anything in that price range, have beautiful DX-35, VF-1, S77A, intercontrolled rack. Sale or trade, have photos and info. K2RRT, Box 636, Mantua, N. J.

SIX Meter conservative 8llowatt; three k.w.-c.c.s; finest 6M xmttr in USA; pair Eimac 450TL modulated by four 8388; speech amplifier and drivers, exciter and 826 drivers, power supplies, rack mounted, spare tubes; $495; 47 states and 25 countries on 6M. Will take Communicator, receiver, mobile, SSB in gear in partial trade. W4UCH, Sterling, Va.

XMTTR 600 to 1 Kw., 80 to 20 meters, 304TL's in pp, pole xfrmr, ant., mike and spares, in enclosed roll-out rack, moved to trailer. Will trade for portable gear or money. U haul it from Chicago. Wilson, W9RNL, 3113 S. Main, Rockford, Ill.

FOR Sale: Collins 75A2 receiver with xtal calibrator and speaker, $275. C. Lindemann, Riverside Ave., Riverside, Conn.

WANTED for restoration purposes RCA parts made in 1922, 2-#PR535 rheostats, 2-#UP415 reactors, 1-#UL1655 choke, 1-#CC1634 condenser, Geo. N. DeLaplaine, Box 861, New Brunswick, N. J.

WANTED: RME-HF 10-20. State price and condx. WØEEA, 11301 W. Ridgemount, Mpls, 27, Minn.

SOLAR Auto focus enlarger Kodak 35 DeJur meter and accessories for exchange for ham receiver, etc. W2JES, 161 Redwood Ave., Inwood 96, N. Y. Tel: CE 9-2328.

FOR Sale: Lampkin micrometer frequency meter type 105B and Lampkin FM modulation meter type 205A, like new, never used. Best offer considered. Col-R-Tel color converter in unsealed factory carton, will convert black and white to color. Original price $149.50. First offer of $40 f.o.b. N. Y. Kaar FM-179X VHF transmitter and *FM-47X VHF receiver, excellent condition, including all accessories*, original price $480; $150 or best offer f.o.b. New York. One brand-new and one slightly used transistorized power megaphones, quarter-mile range, cost $179.50 each; sell $90 and $70 respectively. Arthur Riegelhaupt, K2UBN, 228 Stephen St., Levittown, L. I., N. Y.

B&W 5100-B with 51SB-B $550. Central Electronics 10A SSB exciter with QT-1 switch and BC-458 VFO, coils for 15, 20, and 75 meters, $95. W4FNY, P. O. Box 3386, Savannah, Ga.

NATIONAL NC300 receiver, like new, $275. Arthur Lukach, 35 East 84th St., New York City.

COLLINS 75A3 receiver, excellent condition, best offer over $350; Central Electronics signal slicer with AP1 adapter, $50; Hallicrafters HT1 transmitter, $125. Satina, 231 Troutman St., Brooklyn, N. Y. Tel. HY 7-1978.

BARGAINS: Antenna scope (new) — $14.95; Eimac PMR6, mobile receiver (new); $95; Millen 92101 Pre-amp., $9.95; Drake low pass filter (new), $9.95; Instructograph, all tapes, $19.95; Rider's Volumes VII, VIII, IX and X, $5.00 each; Deluxe signal shifter, $10; Millen 90800 pre-amp., all coils, $15; Kay Electric mega-sweep and mega-marker $200. W4ODK, 480 Skain Avenue, Lexington, Ky.

PRINTED Circuits 10¢ per square inch from your drawing. Send 25¢ for your call or name etched on 1" wide board plus catalog and ordering information. Benjamin Solow, K6YGP, R & D Co., 5743 Rhodes Ave., N. Hollywood, Calif.

FOR Sale: Lampkin frequency meter, Mod. 105B; Lampkin frequency modulation meter, Mod. 205A; Simpson multi-meter, Mod. 269; DuMont oscilloscope, Mod. 208; Standard signal generator, Mod. 80-R; Motorola test set, Mod. PS501B; Bird Termaline RF watt meter, Mod. 67; Bird Truline RF watt meter, Mod. 43, all above six months old, little used. W8QMN, Harry S. Gantz, 5918 Salem Road, Cincinnati 30, Ohio.

TWO New Vocaline transceivers $110; Senior Voltohmyst, $20; LN Super-Pro $150; General Radio wavemeter, $35; TS-27 $25; EMC mutual conductance tester, $55; Want: Navy RBO or a dual-diversity receiver; condenser tester, enlarger; vertical phono cartridge; consider swaps. Send list. Al Pratt, 114 W. Lakeview, Milwaukee 17, Wis.

FOR Sale: Collins 51-J-2 receiver, rack mount. Best offer over $450. In excellent condition. E. Kaplan, 105 Rose Lane, Rome, N. Y.

CE 20A-SSB, $195; Gonset 500W linear, $195; Eimac 67 mobile xmttr, $135; Hallicrafters SX-42, $150; Pickering 190D, arm $24; Jensen folded horn enclosure, Blond, $75. Above items LN, Cook Benauval preamp $39. Cash, no trades. W2DTD, 29 Charles St., Merrick, L. I., N. Y.

TRADE Ham equipment for fiberglass boat. W9YIY, Troy, Ill.

NEED: A, B, C bandspread coils for HRO-5, -3 or Senior. State price and condition. Sell or trade: JA, JB, JC, JD, G, H, J coils HRO-5. In excellent condx. Bob Moon, Rte. 2, Coffeyville, Kansas.

SSB: Latest diagram, template, 3 xfrmrs, disc ceramic and mica condensers, coils L1 through L7 for "W2EWL Special" (March 1956 QST): $10.95 postpaid. A. Vitale, W2EWL, E. Glen Rd., Denville, N. J.

ATTRACTIVE Two-color "Danger High Voltage," sign for your transmitter, 50¢ K6PTQ, 4277 H St., Pomona, Calif.

FOR Sale: Heathkit DX-100, $150; Hallicrafters SX-99. Both in perfect condition but I need the money! Terms. Cecil R. Campbell, KN6RVE, 1250 E. Avenue R-2, Palmdale, Calif.

ATTENTION Traffic handlers, Remington "17" Communications typewiter just overhauled, $55. Also complete mobile unit, Stancor ST203A PE103 Gonset 10-11 converter, relay and whip, $95. W8JKQ, 817 N. 12th St., Cambridge, Ohio.

SALE: RCA CMV-1B 152-174 Mc mobile, 12-15 watts, excellent, $125; B & K model 500 tube tester, very good, $55; 45 amp. variac, Cutler-Hammer, $50; new Kenyon plate transformers, type 670 and 671, Simpson type 59 AC ammeters, 0-5, $6.00. Other items. Slim's, 2025 Sunkist, Waukesha, Wisc.

MUST Sell immediately: Factory-wired Viking Ranger, HQ140X; either or both to first reasonable offer. W5KKH, 719 Carolyn, Austin, Texas.

FOR Quick sale: Vertex enlarger, old but in excellent condx. Three trays and prongs. Safety light. Everything in tip-top shape. Make an offer. W1FGF % ARRL.

HEATH DX-35, like new, $56: HQ129X, $130; both with balun, xtals and mike, $180. Louis Price, 1816 Tucker Ave., Falls Church, Va.

SALE: Eimac AF-67, $140; Gonset G66B with 3-way supply, $200; James C-1050 supply, new, $40; C-D TR-4 rotator, $20; 5-el. 2-meter beam, $5; Webster all-band mobile antenna, with mount, $25. *In exc. condx.* Disbrow, K2DFP, *Box 161*, Hazlet, N. J.

WANTED: 40 & 15 meter coils for Meissner EX Signal Shifter. W5KBH, Box 8, Russellville, Ark.

GP Antenna kit, never installed, consists of all hardware plus 1000 ft. bare copperweld three #12, 1000 ft. bare copperweld #10, 300 ft. RF polyetheylene 2 conductor 205SL, insulators, protector, and blue prints. Kit provides one inverted L transmitting and 2 receiving antennas; one can be doublet. Shipping weight 150 lbs. approx. Cost $163. Will sell for $82, you to pay freight. Lt. Col. T. Davis, 08A Ret, Box 693, New Braunfels, Texas.

FOR Sale: Brand new Gonset G66 receiver with 12-110 volt power supply in original carton. $175. R. E. Kemp, K9DAR. 2114 Herbert St., Evansville, Ind.

WANTED: Manufactured xmttr or kit, also revr. Must be reasonable and clean. Also need 6-meter xmttr. I will buy your equity and assume balance on some equipment. Ward Lantis, W4LEB, 3935 Skyline, Kingsport, Tenn.

TS-47/APR Test Osc. 40 to 500 Mc., $129.50 Navy RBL receiver 15 to 600 Kc., $79.50; Lavole freq. meter 375 to 725 Mcs., $19.50; Fluxmeter 500 to 4000 guass, $19.75; General Radio DC amplifier type 715-AE, $149.50; SO-1 radar pedestals, $98.50; 46-in. paraboloids, $29.50; AN/APT-2 Jammer Transmitter 425 to 750 Mcs., $19.95; AN/APT-5 Jammer Transmitter 300 to 1600 Mcs., $169.50; AN/APR-5 revr 1000 to 6250 Mcs., $98.50. All in new condx. Tech. manuals TM11-273, 120 pp covering BC-342 revrs and BC-191 xmttrs, $2.50; ID-60/APA Panadapter maintenance manuals, $2.75. Both postpaid in U.S.A. Write for bargain list. Electronicraft, Inc., Box 269, Bronxville, N. Y.

FOR Sale: Viking II, matching Viking VFO and Signal Sentry. All in A-1 condition with instrux manuals. New spare modulator transformer 807 and pr. of 6146 finals. All for $250 cash. Gone high power. Come and inspect. Sorry, no shipping. C. E. Lane, W1ZGD, 233 Prett Ave., Somerset, Mass. Tel. OS 3-6821.

VIKING Valiant assembled by qualified technician, in factory, new condx. In orig. carton and manual. Operates perfectly: $300. Will not ship. W8DQN, Jim Eckenwiler, 1366 Grant St., Akron 1, Ohio.

AMERTRAN 3100-0-3100 volts, 700 Ma. xfrmr. $50; G-E 2KVA voltage stabilizer, 95-130 volts input, 115/120/125 volts output, $99; Thordarson 115V to 115V isolation transformer, 1000 VA, $20; Thordarson 75W MultiMatch mod. xfrmr. $10 10 hy, 1 amp. smoothing choke, uncased, $10; new Eimac 450TL, $30; 3-new 304TL's, $10 ea.; BC-191, $20; 200 ft. RG-22 balanced coax, unused, $9; Smith-Corona portable typewriter, Good condx, w/case, $30. John J. Willig, W8ACE, 280 Canterbury Dr., Kettering 29, Ohio.

WANT 4-1000A. Have LM12 with book, AC supply; 813's, 4-125's and what? W6PYR.

MOBILE Eimac PMR7 revr. A54 H transmitter, two 12V dynamotor supply, aslo 110 AC supply for fixed operation, all relay control with cables included, Master Matcher field strength meter, $250 F.o.b. all exc. condx. W2ZLD, Irv Fishelberg, 2606 Atlantic Ave., Longport, N. J.

KWM-1 wanted. Also few high plate dissipation tubes. W2KUW, 64 Grand Pl., Arlington, N. J.

FOR Sale: Gonset Communicator II 6 volt 2-meter. Best offer. Need money for college. Bill Meburon, W9ZGB/9, P. O. Box 192, H-1, Purdue University, Lafayette, Ind.

$70 Takes this complete 10-meter 30 watt mobile phone station; 6v. input, "Sonar" 80-20-10 meter receiver, speaker, Vibrapack, "Subrace" transmitter, box mounted dynamotor, filters, fuses, relays. Coax, mike, xtal. Master Mobile Mounts mount, spring and whip antenna. Orig. cost of this equipment over $250. Stanley Zuehora, W8QKU, 2748 Meade St., Detroit 12, Mich.

FOR Sale: SX-71 with 15 meter calibration. Very recently checked and realigned. In excellent condition. $140. Louie Camp, W8WBV, Loomis School, Windsor, Conn.

SELL: 20-A and QT-1. In excellent condition. Has all factory modifications. Best offer above $175. F.o.b. All letters answered if received by March 30th. Earl L. Eggers, 1326 Lawrence, Apt. 2, Eugene, Oregon.

WANTED: SX100 in gud condx. Kenny Wendel, KNØMOQ, 604 E. 2nd, Hoisington, Kans.

WANTED: High quality used receiver. Dale Hartley, 718 Behrends, Peoria, Ill.

WANTED: Collins KW-1, W3AOH.

BC610D with BC614D speech ampf, VFO tuning units, 80 thru 20 and 10 xtal. Final coil 80, 40, 20, 10 extra tubes plus extra 250TH, new. Coax relay, mike and technical manuals, complete, $350. Will take trade 75A4, KWS-1. Kahn Quan, K4EGJ, 1157 South 18th Ave., Birmingham, Ala

RADIO Magazines: unbroken runs: 33 years of IRE Proceedings, 1925 through 1957, $175.00. 24 years of QST, 1934 thru 1957, $75. H. H. Gleason, Steeplebush Road, Levittown, Penna.

SUPER-SIX, $25; Sonar SRT 120P, 100 w. fone/120 c.w., $75 (80 thru 10); Simpson 340 signal generator, $45; 12v/375V/150 Ma. dynamotor, $6.00; Superrotor, works, $10; SX32A, $45; 829B, $3.00; transformers, tubes, chokes, coils, etc. 10¢ up. All inquiries will be answered. Sorry, will not ship. K2KPF, Dolde, 403 E. Linwood Ave., Maple Shade, N. J.

HQ129X, $128.00; DX100, $178. Will ship F.o.b. N. Y. Both in exc. condx. Leon Wecker, 15 Bayview Ave., Babylon, L. I., N. Y.

BARGAINS: With New Guarantee: S53A $69.95; NC-57 $69.00; S-72 $49.50; SX-43 $109.00; SX-73 $450.00; Lysco 600 $69.00; Collins 32V-3 $495.00; Eldico TR-75TV $25.00; Heath QF-1 $7.50; B&W 5100 $299.00; Heath VFO $17.50; Adventurer $29.50; Knight CW xmtr. $29.50; Morrow MAH-B $499.00; Globe Trotter $29.50; Globe King 500A $475.00; Globe King 500 $449.00; Globe Scout 65 $59.00; Scout 65A $69.00; Scout 680 $89.95; Globe Chief $39.50; CE 600L SSB AMP NEW "SPECIAL" $325.00; NEW "CLOSE OUT" LYSCO 382 VFO $19.95. Free trial, terms, write Leo, W9GFQ for best deals. World Radio Laboratories, 3415 West Broadway, Council Bluffs, Iowa.

FOR Sale: DX-35 with VF-1 VFO, $55; AR-2, $15; equipment like new, K9ACS, Box 229, Carlinville, Ill., or phone 65.

WANTED: Complete 12 volt mobile rig or individual transmitter, receiver, antenna. All replies will be answered. Courtney Smith, KØLRU, 7613 E. 110th St., Hickman Mills, Mo.

FOR SALE: Viking Adventurer in excellent condition, only used for a year, $40.00. K2SEB, George Tekirian, 851 Bogert Road, River Edge, N. J.

FOR SALE: DX-100, three months old, $200; in service at W2GJJ, Chris Vinson, RFD #2, Peekskill, N. Y.

VIKING II, factory-wired, and Johnson VFO, $225; Hallicrafters S-76, $100; DX-35, $45; 270w. Matchbox, only 6 months old, $32; Carter Dynamotor 6v inp. 400 v. @ 150 mils outp. All equipment is in exc. condx and wkg. John Birken, K2SFS, 65 Southgate Rd., Valley Stream, L. I., N. Y. Am interested in 20-m. beam.

SELL: Mobile gear, 6 volts, Viking xmttr; Super Six, dynamotor, mount, whips, loading coils, relays, control panel plus 10 Mtr. rcvr, 110 v. pwr. supply, case, controls, for converting above gear to fixed or portable operation. All, $125.00. Harvey-Wells TBS50C w/pwr; Heath VFO, $75. Pick-up deal only, sorry cannot ship. Ed Ross, 612 Terrill Rd., Plainfield, N. J.

MOBILE Batteries, Vita-Plate Special Service Types, 6 and 12 volt, for all cars. Used by Police and Fire Departments. Free data. Cornell Communications, 1340 Ford Rd., Cleveland 24, Ohio (Paul, W8EFW).

SELL: Heathkit FM-3 tuner, $24, gud condx; Ameco Conelrad monitor, $10; Regency transistor 5-band mobile converter, $65; 75# Permanent magnet from radar transmitter; excellent for demonstrations. Make an offer. Dow-Key 110V AC antenna co-ax relay with double male adapter. Frank Sibley, 34 Puritan Drive, Port Chester, N. Y.

SALE: Heathkit grid dip meter, WRL 6 meter converter; Astatic JT-30 mike. Wanted: buy, rent, borrow Instructograph code practice machine. KØDDV, Charles Conner, Seneca, Kansas.

BARGAINS: Reconditioned with new guarantee. Shipped on approval. Hallicrafters S38 $29.00; S40A $69.00; SX99 $119.00; SX71 $149.00; SX100 $229.00; Viking Adventurer $39.00; Viking II $199.00; Ranger $199.00; Valiant $359.00; S40B; S85; SW54; NC98; NC183D); NC300; HQ129X; HQ140X; GPR90; A54; AF67; PMR6; PMR7; Collins KWS1; 75A1; 75A3; 75A4; 32V3; many other items. Easy terms. Write for list. Henry Radio, Butler, Missouri.

THE Original Vacuum Coaxial Antenna Relay. Sideband and high power operators, end your antenna relay problems! Price $69.90. Send for dope sheet. South Bay Electronics. 3125 Barney Avenue, Menlo Park, Calif.

NATIONAL Model RBL low frequency receiver 15-600 Kc in 6 bands — practically new — in perf. condx — best offer over $40 F.o.b. New York unpacked. K2MQO, 130 East End Avenue, New York City.

NATIONAL NC300 xtal calibrator, matching speaker, perfect, $295.00. A. S. Lawrence, 3645 Peachtree Rd., N.E., Atlanta, Ga.

BARKER & Williamson, 5100B/5188B, never used, original carton, brand new: $575.00 F.o.b. Phila. W3COZ, 7234 Bustleton Ave. 49, Phila., Pa.

VIKING II, factory-wired; Johnson VFO, $225. Ed Fitzgerald, 2215 South K St., Bakersfield, Calif.

FOR Sale: National NC-73 receiver, low drift model, like new condx, speaker, Q-multiplier and 100 Kc xtal calibrator, $149, complete. RME DB23 preselector, $25 if purchased together or $30 if purchased separately. Sorry, no shipping. Al Formica, W2YMH, 320 Fountain Ave., Brooklyn 8, N. Y. Tel: TA 7-8115.

YOUR Kits wired. Prices 20% of equipment price. Write Alan Wilcox, W3DVX, 65 N. Church St., Carbondale, Penna.

FOR Sale: 3-element 10-meter beam (Workshop Assoc.) $25; Alliance T-12 rotator, $15.00. Both for $35.00. W9PVD, Lauder, 134 Marquette, Park Forest, Ill.

DXERS — International Reply-Paid QSL's get results! 25, $1.00; 100, $3.00. Sample Free. Hartland Smith, W8VVD, 467 Park, Birmingham, Michigan.

COMPLETE 25-watt 75M mobile rig: RME converter 12V Stancor transmitter w/new modulator 12V dynamotor, Spring antenna mount, coil antenna push to talk Motorola mike, $75.00. Pat Waters, Box 2110, Harlingen, Texas

GLOBE Champion 300 transmitter, factory-wired, almost new, used very little. Just returned from WRL for all modifications: $350.00. New HQ-110 receiver, $200, matching speaker, $10. New B&W filter, $10. Used Heath VTVM, $15. Make offer on all. Bill Lee, Box 2110, Harlingen, Texas.

FOR Sale: Collins 30K1 transmitter, single-knob-bandswitching, 80 thru 10 VFO, Collins, matching exciter with cable for table operation: 400 watt. fone 500 c.w. TVI suppressed; like new condx. Bargain. Weight 425#. W8VYE, Orville Wood, Camden, Ohio. Tel: 243

FOR Sale: HQ-129X and matching speaker, $120; Viking II and VFO, $220. Melvin Gardner, Batavia, Iowa.

GLOBE Chief with screen modulator, mike and key: $60. Viking VFO, $30. N. R. Thornton, Madison, Indiana. RFD #4.

TRADE Remington noiseless model 7 portable for 813's, 810's, hug or cash. K5IPK.

COLLINS 75A4 receiver for sale. Latest model. Used very little. In excellent condition: $525.00 F.o.b. H. Ferber, K2BMV, 140 Krone Place, Backensack, N. J. Phone HU 7-1726.

SELL: Viking Valiant, factory-wired, $325; DB23, $35; DX100, $185; Hammarlund HQ150 and speaker, $245. F.o.b. K2SRO, RFD NRI, Millville, N. J.

WANTED: Long-wave communications receiver, Wireless Specialty Co. type IP-501 (Navy SE1420) or Navy SE143. Pay cash or trade used Hallicrafters SX42 for consideration. B. Chance, 4014 Pine, Phila., Pa.

SELL: GE YRS-1 SSB adapter, unused. Original carton. Best offer. W9ADN, Box 117, Lockport, Ill.

NOVICES: For sale, DX-35, $55, like new, also Heath AR-2, $18, both for $70. Eddie, KØHQZ, RFD #2, Excelsior Springs, Mo.

COLLINS KWS-1 just returned from factory with latest modifications and tune-up; $1500 including extra 4X250B's. Can ship in original packing. Leon Oser, W1RMS, 198 Euclid Ave., Waterbury, Conn.

SALE: NC300, matching speaker, crystal calibrator, $285; National 2 and 6 meter converters with matching cabinet, $65; like new condition, never station operated due to illness. Delivery to 200 miles. Tower crank-up, 46 ft. overall, TR-4 beam rotator, 2 meter beam, double set of guys, insulators, and cable clamps, complete $75. Ken Stroud, C-18 Grip Trailer Park, Black Horse Pike & Crescent Blvd., Rt. 130, Camden, 4, N. J.

FOR Sale: Viking I transmitter in perf. condx with Viking VFO, 3-element Telrex beam, coax relay and D104 mike for $185; also Hammarlund HQ-100, 3 months old, with speaker and clock for $150. Write Dennis Schultz, 185 Park Ave., Passaic, N. J.

FOR Sale: Globe King 400A LN condx, w/75 and 10 coils, $265; Sonar Mod. CFC VFO, output 80 and 40 calib. all bands w/crystal standard, $20; Millen 90810 VHF xmttr w/10-6 and 2 M. coils, $60; G-E 40 min. signal timer w/electric cut-off for photo work and timing, $7.50; Eico Mod. 625 tube tester, $20; set FT-200 all band antenna traps, $8; Bud Globe King cabinet, $12; hundreds of items, transformers, chokes, condensers, tubes, etc. Send stamped envelope for list. All F.o.b. Ware Shoals, S. C. John H. Ashley, W4OSC.

CUSTOMIZED Chassis service. Save time and money on any project, with our punched-to-order chassis and panels. P. Nugent, 149 Millet St., Boston 24, Mass

FOR Sale: PMR-6A receiver in A-1 condx, 6 volt with pwr supp., $75; Mallory Vibrapack 6 volts inp. at 400 volts 150 mils outp., $20, both for $90. D. E. Frahm, 714 San Miguel, Sunnyvale, Calif.

BC-1031-C Panadaptor with manual, $45. F.o.b. Wanted: Heath VFO. Richard Weaver, 2234 Darlington Dr., Augusta, Ga.

EXCELLENT condx: Gonset 6 volt 2-meter Communicator II, $145. Robert Champlin, Jr., 31 Ox Bow Lane, Summit, N. J.

NEW DX-100 in beautiful condition. No scratches, etc. Yours for $175.00 pick-up, or $185 F.o.b. Summit, N. J. If shipped. Larry Pyle, K2YOQ, 70 Hillcrest Ave.

DUE To ill health am selling my aluminum business to my friend Dick, W8IJL, Cherry Ave., Tiffin, Ohio. He will carry on. Write to Dick for listings of perforated aluminum sheet, beams, tubing, etc. Willard Radcliff, W8LAH.

NOVICES — Technicians! Cure your TVI with W1DBM's new TVI book. It covers Two Meter and Six Meter TVI as well as other bands. Just the book to give your TV neighbors to explain TVI to them. $1.75 in U.S.A. and $2.00 foreign. Nelson Publishing Company, Box 28, Redding Ridge, Conn.

SELL All like new: Collins 75A4 receiver, $535; 20AC SSB exciter, $210; 600L linear amplifier, $365; new Mosley VPA 2-40 meter beam, $45. New mobile mike, $3. Master Matcher, $12.50. Flynn, W9IHD, 3118M Francisco, Chicago 18, Ill.

FOR Sale: 20-A with VFO, $200. Preston Barrett, W0WWR, 1523 Stone, Great Bend, Kansas.

CENTRAL 20A exciter 458 VFO, like new, $225; 1 KW linear AB, final push pull RK65's in dolly mounted Par-Metal rack attached desk; 7 meters, 3000V 500 Ma. pwr supply. Professionally built. Spare xmttr tubes, $125. K2HEA, 12 Elm St., Lynnbrook, L. I., N. Y.

SELL: SX100 15 hours and R-46B, $250 and postage; OF-1, $7 & postage; 100 QSTs, 46-54, 75 CQs, 48-54, both $10 & postage. Graham Macmillan, 37 Sherwood Ave., Madison, N. J.

SALE: Viking Ranger, push to talk relay, Collins 75A2 with speaker, Eico mod. 147, deluxe signal tracer, Eico mod. 460 'scope with 3 probes, Heathkit Mod. Ts-4A alignment generator, Heathkit mod. LP-2 generator, radio specialties 3-el; 20 meter Shortbeam, U.H.F. resonator 2-meter colinear beam, Tecraft 2-meter converter intermediate I.F. 26 to 30 Mc. All A-1 condx. All with manuals. Best cash offer. K. Ring, W8GYY, RR 1, Parker Drive, Conneaut, Ohio.

TRADE for SSB gear, 2¼ x 3¼ B&J speed press camera with F:4.5 lens in Rapax full synchro shutter, 1 sec. to 1/400 sec.; T&B Kalart coupled range-finder, paralax corrected viewer, ground glass focusing, good condx; Wratten filter, holder and sunshade, cut-film developer tank. Lewis E. See, WO-1, Box 38, Navy 230, Seattle, Wash.

CLEANING Out: cheap, new, used and surplus receivers, transmitters, power supplies, components, commercial 25 watt audio amplifier, B&W KW final, new DC-35, AR-3, tubes, new Elmac 250TH, 6G21s (3). Need plate and screen modulation transformer 200 watt, for 4E27A. Send card for your needs. WIRMU, Elmwood 10 Conn.

WANTED: All types Aircraft Airline Military Electronics Gear; Collins, Bendix, ARC Airforce BC348, ARN6, ARN14, ART13, 51R3, ARC1, MN62A, others. We pay C.o.d. Advise price and condition. Riteo, P. O. Box 156, Annandale, Virginia. Phone JEfferson 2-5805.

FOR Sale: Central 20A exciter, BC458 VFO 10-160 meters, with deluxe case, P400GG amplifier, all in "like new" condition. First money-order for $425.00 buys it. Will ship anywhere in the world, collect. W4LCR, 308 W. 6th St., Panama City, Fla.

FOR Sale: Globe Scout 680 in exc condx with screen switch, $75; Heath VFO, hardly used, $15. Will ship collect. K3AMU, 205 No. 28th St., Allentown, Penna.

FOR Sale: SX-43 in gud condx, $85; Pentron two-speed tape recorder, Model 9T-3, with mike and 4200 feet tape, $69. George Rupert, W5NID, 1210 7th St., Los Alamos, New Mexico.

FOR Sale: Gonset Super-Six converter. Exc. condition, $39.50. K4PBK, Box 261, Griffin, Ga.

SIX Meters: WRL 5-el. beam, $10; Johnson SWR bridge, $5. K2OOG, Brooklyn, N. Y. CL 2-3726. David Herskowitz, 1590 E. 26th St., Brooklyn 29, N. Y.

PERFECT NC-98 with National 10" spkr, $120.00; Magnemite 610TD battery-amplifier/spring-motor; tape recorder, cost $275. Sell for $125, in perf. condx. Fred S. Eggert, W8FIL, 11833 Wisconsin, Detroit 4, Mich.

SELL: NC300, $325; Viking Valiant, $350; Bud FCC 90A, $10; D-104 and stand, $10; Commercial traps for AM, $6.00. W9YRM, 1126 Summer St., Hammond, Ind.

VIKING Kilowatt with desk, $1,100.00; NC-300 with new warranty, $300; Viking Ranger, $200; complete with all connecting cables and relays, $1,600.00. Write: W9BTN, Gus Wirth, Jr., 505 W. Center St., Cedarburg, Wis.

SPECIAL! Collins TCS-12 radio (100 watt xmtr, rcvr, pwr supp, spkr for 160 thru 40) for sale for $125 or best offer. In perf. condx. Jim Rea, 220 Pine, Cabot, Ark.

HT-20 With ten crystals, $250; SX-100 with R46A spkr; both are in exc. condx w/manuals. W3CJI, 3110 Lehigh, Allentown, Penn.

NOVICES: DX-20, key, in gud condx, $30. W2AZO, Woodlands Rd., Harrison, N. Y.

SELL: GO-9 transmitter w/spare 803's; BC375, RCA 1750V dynamotor, 12v. inpt. Charles Liese, Morrisville, Vt.

TO Settle an estate: A "Dream Station" for sale: Johnson kilowatt final with matching desk, Ranger exciter, HRO-60 with six coils and xtal calibrator, Telrex Tri-band beam, Tri-Ex 60 ft. crank-up tower, rotator, dynamic mike, purchased last May, used less than 100 hours, looks like new, cost over $3000. First $2,295.00 takes it F.o.b. Safford, Arizona. Contact J. B. McNutt, Jr., Athens, Texas, Phone 3590.

WAVERLY Wholesale, Box 21, Waverly, Illinois, best deals, new used ham gear, antenna, tubes, etc.

SSB Transformers identical to those used in W2EWL exciter (see QST March 1956), brand new, 3 for $4.00. Elmac 32 KV vacuum condensers, 12$\mu\mu$fd and 50 $\mu\mu$fd, brand new, $5.50 each. No C.o.d. please. S. Tucker, W2HLT, 51-10 Little Neck Pkwy, Little Neck 62, N. Y.

PORTABLE Typewriter, new condition, $35; AM-FM tuner, $35; "Williamson" amplifier with KT-66 tubes, $50; Alliance TV booster, new condition, $7.50; Ten station Intercom Master, $17.50. Shipping additional. V. R. Hein, 418 Gregory, Rockford, Ill.

NC-300 and Speaker. Used two weeks. Perfect. Must sell.: $320. Will ship. Don Goodrum K4DBH, 2819 Plantation Dr., East Point, Georgia.

ELDICO SSB-100A, $395; linear amplifier 400 watt Adams design, $145. Norman Rowe, K2DFW, Tel. FL 4-5344, 85 Huron Rd., Bellerose, L. I., N. Y.

FOR Sale: Lakeshore P-400GG 400 watt linear amplifier. Two months old. Like new condx: $150.00. Don Birks, K9IUI, 1100 Main, Peoria, Ill.

FOR Sale: 304TL, exc. condx. Price: $11.50. Contact K2MMO, 289 Summit Ave., Mt. Vernon, N. Y.

SELL: Globe King, 400B, 10-20-40-80 meter coils, speech filter, extra V70D's, W.R.L. VFO express collect: $295. W9RQR, 204 South 11th St., Belleville, Ill.

SALE Or trade: Like new Bell & Howell 16 mm sound projector with portable screen and lots of good film, Mohawk Midgetape recorder, all accessories and Andover airplane power plant twin cylinder 101 p. 28½ V DC, 200 amps. Sell highest bid or trade for good factory wired, amateur gear including communications receiver. Nelson, 222 Merchants Bank, Ft. Smith, Ark.

SPORTS Car . . . commercial fiberglass body, also custom chassis with rebuilt Crosley motor, dual carburetors, ready for assembly. Will swap for factory-built ham gear or sell for cash. Also practically new mobile Gonset transmitter and receiver, also Eldico SSB 110A transmitter. Must sacrifice. Rev. Mark B. Strickland, 508 Union St., Manchester, N. H.

RIG: RME-69, Globe Chief, accessories. All for $100. Richard Kirkpatrick, South Hadley, Mass.

TRADE: 19.8 cubic inch Wizard outboard motor for H.F. transmitter and/or receiver. Motor used 6 hours. Present value $235. Give or take boat. Paul Wade, 125 Fairground Drive, Waverly, Tenn.

SALE: 518B generator with adaptor for 32V series, $170. Keller, 514 Stevens Rd., Morrisville, Penna.

WANTED: Collins 32V2 receiver in gud condx. W1MVO, 7 Oliver Terrace, Revere, Mass.

TB50D and power supply. Best offer. Kenneth Nicks, 2395 Coates, Dubuque, Iowa.

HAVE LTS-01 power supply, new, with guarantee, 400v. @ 200 mils. Sacrifice at $25. Ligh, K2UOY, 640 Riverside Dr., New York 31, N. Y.

FOR Sale: Husky 10 metre 3 element pretuned beam, 2 minute assembly, 20 ft. boom suitable for 20, 15 or 3 band. Cost $65. Sell $32.50 F.o.b. J. P. Nell, 372 Rincon Ave., Livermore, Calif.

SELL: RME 45 with speaker, $65; Knight 50-watt transmitter, $25; Eldico brand new TR-75-TV4 transmitter, $30. John Bradley, General Delivery, Montclair, N. J.

FOR Sale: Tubes brand new 832As, $3.75; 813s, $8.00; 811's, $2.00; 4-65As, $12; 4-400As, $22.50; 810s, $8.00; 100THs, $8.00; 4-1000A. Make offer. KW plate transformer, $42.50, KW modulation transformer, $45; BC-221 frequency meter, 125 to 20,000 KCS, $65.00; RCA AVT114 VHF transmitter 12V power supply, $185; P.S. 225 dynamotor 12V inpt., 375V-150 Ma, $7.50; ART-13 modulation transformer, $8.50; SCR522 power supply, $12; new Motorola FMR-13V receiver, $60.00; Motorola FMT-25V transmitter $45.00; ARC-4 two meter transceiver $38.00; Need BC-348, ARC-3, ARN-14. All guaranteed. C.o.d.'s OK. Bill Siep, W4FHY, Box 178, Ellenton, Fla.

FOR Sale: T17, $4.00; Type E Baldies, $10.00, Turner model 80 with stand, $9.00 3E29 tubes, $7.00 each; Westinghouse NH35 60-cycle time meter, $12.50; Thordarson 20C56 choke, $4.50; pair 60-cycle selsyns, $8.50. W2TB, 39-20 220th Street, Bayside, L. I., N. Y.

WANTED: Several 25$\mu\mu$fd 32KV vacuum capacitors, also 304TL tubes. John Callanan, W9AU, P.O. Box 155, Barrington, Ill.

FOR Sale: 12v. mobile rig. Gonset G-66 receiver and Gonset G-77 transmitter. Used about one year. Best offer over $350. W9QPI, 730 Lake Ave., Wilmette, Illinois.

SELL: Johnson Viking mobile xmitter and Johnson VFO w/T, $120. Local preferred. Al Cassella, K2JUQ, 4323 De Reimer Ave., Bronx 66, N. Y.

FOR Sale: KWS-1 and 75A4, both $2100 total. Exc. condx. Write P. Z. Reid, W5IMU, 6910 Virgillan St., New Orleans, La.

CRYSTALS Since 1933. Novice, General. FT-243, 3500 to 8600 kilocycles, $1.00. Airmailed. C-W Crystals, Box 20654Q, El Monte, Calif.

FOR Sale: Excellent condition, 75A4, Johnson KW tuner, PSR-6, PSR-12, DB23 Preselector, 6N2. Heathkit FM tuner, AF67, 310-C2, Space Raider B-20-3 and B10-3 beams, Amerite self-supporting tower, KW power supply and many other parts. Selling out. Write for list. Best offer on all items. Bill, W6VPO, 10815 Rose Ave., Ontario, Calif. Tel. LY 8-2292.

FOR Sale: Collins 32V-3, $475 Collins 75A-3 with matching speaker and xtal calibrator, $375 Johnson Matchbox, $39.50 Johnson low pass filter, $12.00; Johnson SWR Bridge, $7.50; DN-HZ Astatic mike with Model G mike stand, $22.50. All like new and in excellent condition. Will sell separately or as a unit for $850. Bill Fountain, 107 East 5th Street, Long Beach, Miss.

SELL: B&W 51-3B SSB generator, $175; Viking I, TVI suppression and B&W SSB kits installed with Heathkit VFO and spare 4D32, $175; PE-103A, $15; Johnson Signal Sentry, $8.00; Triumph model 841 Oscilloscope, $25; Brush BA-200 headphones, $7.00; Heathkit antenna impedance meter, $10; LM-14 with power supply, $70; LM-18 less calibration book, $15; Vibroplex, $10. F.o.b. Oak Lawn, Ill. Dr. J. R. Perciful, 11624 Joslyce Dr.

SELL Or Swap: Kilowatt transmitter, custom deluxe, push-pull 250TH TVI-suppressed final; 810 Class B Modulator! Speech restriction, negative peak clipping; bias supplies regulated. All new components! Two 2500 volt 750 Ma. supplies. Variac controlled. 8 relays, 8 meters! Collins 35C-2 filter plus kilowatt antenna tuner. Provisions for SSB. Complete with deluxe 7 ft. commercial rack. Write for full view photos. Priced to sell. Will swap for 18 ft. outboard boat complete with motor. Also Viking Ranger used as driver! Finest kilowatt available today and fully guaranteed! Frank Cooper, RFD. #1, Reeds Ferry, N. H.

FOR Sale: UTC plate transformer, primary 110-220 volt, 4800-6000-7000 ct at 1.1 amp, UTC Varimatch modulation transformer 600 watt for $270 and $90 resp. also UTC 10 hy. 1 amp. filter choke, Meissner Signal Shifter Model EX 10 meter Workshop beam, 9 amp. variac 110-220 primary, fil. transformers, 5 volt 60 amp. 5 volt 30 amp, 5 volt 15 amp. 10,000 volt ins. D104 mike; table stand, small prop-pitch motor, transformer, indicator, selsyns, 125 ft. 6 conductor cable; Advance antenna relay. Above items bought new, never used. TG10 keyer, 15 tapes in slotted box, tubes, meters, etc. C. Wooten, 307 No. Lena St., Dothan, Ala.

FOR Sale or swap: 75A1 with 800 cycle filter, $195; 100 ft. steel tower complete with guys, $295; 60-watt band-switching 80 through 10, built-in power supply, rack mounted, $49; 100 watt 829B with silver plated lines crystal switching for 2 meters, $39; power supply for 2 meter rig, $15; 2 meter converter and preamp, $35; 60 watt Class B modulator, $25; power supply for modulator, $20; prop pitch motor, $15; all kinds of equipment usually found in a ham shack. Will make a deal for all or any. Want: A.C. generator. Don, W1VLE, RFD #3, Rockville, Conn. Tel. TRemont 5-7768.

FOR Sale: Globe King 400, HQ129X, Meissner Signal Shifter, extras. All for $350. Consider individual sale. Tom McDonald, W1MRJ, 84 Seaside Ave., Stamford, Conn.

CLEVELAND: DX20, excellent, 3 months old. No longer need it. Take it away for $30.00. K8GEK, Chardon, Ohio. AVenue 5-7178.

FOR Sale: Globe Scout 65-A, factory wired, $60; SCR-522, converted with power supply, $40; TS-123/MPN-1A, 3 in. scope, $25; BC-223-A, $15; BC-433G, $10. F2W handset, $2.50. W. Turner, W3WSA, 1600 E. Joppa Rd., Towson 4, Md.

FOR Sale: Johnson Ranger, $165; KW 813's, with all coils and power supply capable of 1-KW CW and 600 w. fone: $135. Pair, $290. C. J. Boutell, W5YSC/9, 621 W. Dayton St., Madison, Wis.

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What is a Mercury Battery?

How does this battery differ from zinc-carbon batteries in construction and performance?

Mercury batteries are ideally suited to modern trends toward *miniaturization* such as vest-pocket portables, hearing aids, instruments, electric wrist watches, and military equipment.

The electrical characteristics of the mercury cell differ considerably from those of the zinc-carbon cell. Its high capacity-to-volume ratio gives it from 2 to 15 times the capacity of other primary cells of the same volume—or, by the same token, substantially reduced volume for the same battery capacity.

The mercury battery—a mercuric oxide, alkaline primary cell—was invented during WWII, and developed by P. R. Mallory & Co. Inc. Chemically, this battery consists of a depolarizing mercuric oxide cathode, an anode of pure amalgamated zinc, and a concentrated aqueous electrolyte of potassium hydroxide saturated with zincate.

Mechanically, the cathode and anode are pressed shaped structures which are assembled into a steel container. Currently, there are two basic physical designs—the flat, button-like unit, and the cylindrical unit resembling an ordinary pen-light battery. Both structures are self-venting for protection against circuit abnormalities such as shorts or reverse currents.

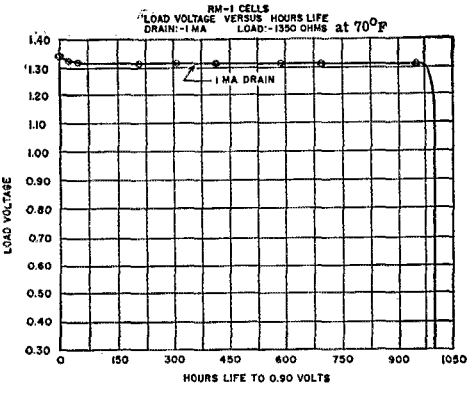
Longer shelf life is possible because deterioration during inactivity is minimum. This is important where batteries must be installed in equipment which operates at widely separated intervals or only in case of an emergency.

When used at current drains within design specifications, no "recuperation" is required to maintain a mercury battery's efficiency. The most important electrical feature, however, is the mercury battery's constant voltage. The measured potential of this battery, under a given set of conditions within its ratings, stays substantially the same to the end point of its life. (See performance curve.) Over long periods of time, voltage regulation within 0.5% is maintained—for shorter periods, regulation of 0.1% may be realized. This enables the use of these batteries in such services as a reference point in a regulated power supply, computers, and other critical circuits.

Mercury batteries have an exceptional ability to withstand severe shock and acceleration, and have extremely high resistance to moisture and corrosive conditions. Momentary short circuits will cause no permanent damage, with almost complete recovery to full open circuit EMF within minutes. Excessive load currents cause no damage, with almost immediate EMF recovery.

Mallory Mercury Batteries are available through Mallory distributors. For those who desire more complete engineering information, a copy of the Mallory Technical Data Bulletin on Mercury Batteries may be had by writing me in care of the Mallory Ham Shack, P. R. Mallory & Co. Inc., P. O. Box 1558, Indianapolis, Ind.

Lem Temple, W1DI



A typical mercury battery performance curve showing voltage vs. life. Note the constant potential to the end.

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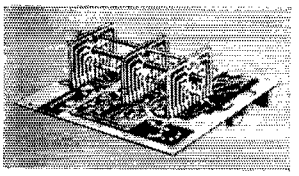

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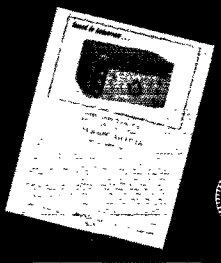

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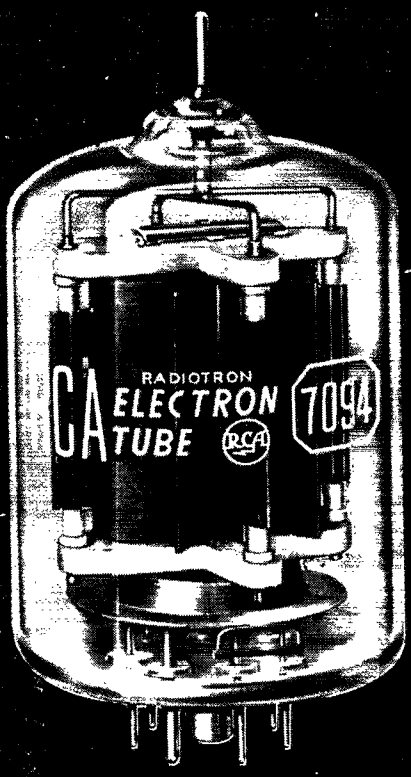

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RCA-7094
Typical Operating Conditions (ICAS) at 60 M

TYPE OF SERVICE	CW	AM	SSB AB1
DC Plate Volts	1500	1200	2000
DC Grid-No. 2 Volts	400	400	400
DC Grid-No. 1 Volts	−100	−130	−50
DC Plate Ma.	330	275	200*
DC Grid-No. 2 Ma. (approx.)	20	20	35*
Required Driver Power Output Watts (approx.)	4	5	4*
Useful Power Output Watts (approx.)**	340	240	250*

*Maximum-Signal ** 90% Output Circuit Efficiency

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