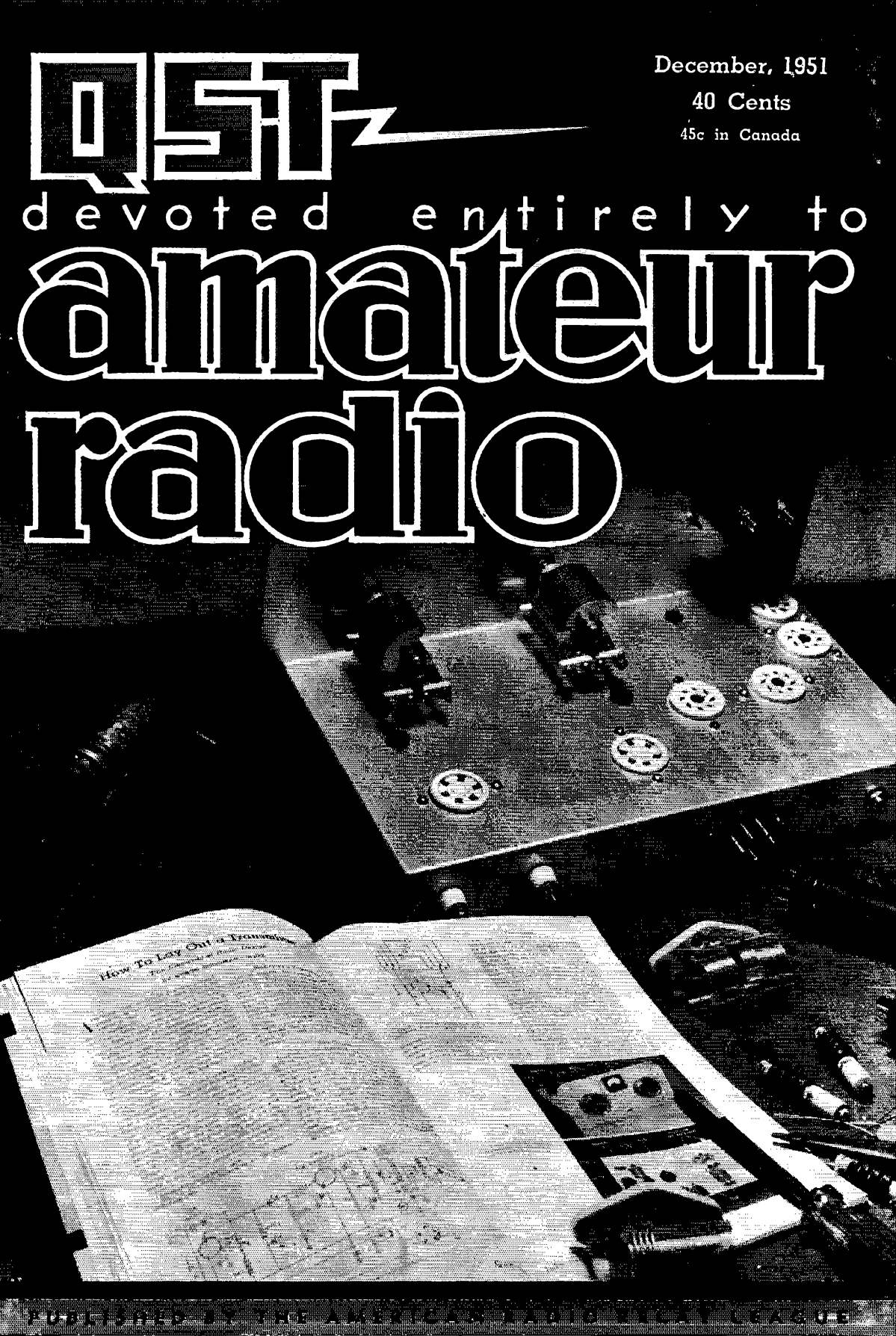
QST

December, 1951
40 Cents
45c in Canada

devoted entirely to

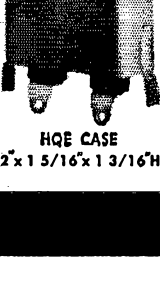
amateur radio



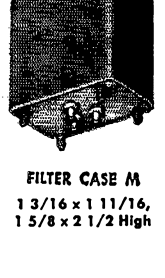
PUBLISHED BY THE AMERICAN RADIO RELAY LEAGUE

The UTC type HQ permalloy dust toroids are ideal for all audio, carrier and supersonic applications. HQA coils have Q over 100 at 5,000 cycles... HQB coils, Q over 200 at 4,000 cycles... HQC coils, Q over 200 at 30 KC... HQD coils, Q over 200 at 60 KC... HQE (miniature) coils, Q over 120 at 10 KC. The toroid dust core provides very low hum pickup... excellent stability with voltage change... negligible inductance change with temperature, etc. Precision adjusted to 1% tolerance. Hermetically sealed.

HQA, HQC, HQD CASE
1 13/16"Dia. x 1 3/16"High

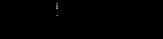


HQB CASE
1 5/8"x 2 5/8"x 2 1/2"High



HQE CASE
1/2"x 1 5/16"x 1 3/16"High

Type No.	Inductance Value	Net Price	Type No.	Inductance Value	Net Price	Type No.	Inductance Value	Net Price
HQA-1	5 mhy.	$7.00	HQA-16	7.5 hy.	$15.00	HQC-1	1 mhy.	$13.00
HQA-2	12.5 mhy.	7.00	HQA-17	10. hy.	16.00	HQC-2	2.5 mhy.	13.00
HQA-3	20 mhy.	7.50	HQA-18	15. hy.	17.00	HQC-3	5 mhy.	13.00
HQA-4	30 mhy.	7.50	HQB-1	10 mhy.	16.00	HQC-4	10 mhy.	13.00
HQA-5	50 mhy.	8.00	HQB-2	30 mhy.	16.00	HQC-5	20 mhy.	13.00
HQA-6	80 mhy.	8.00	HQB-3	70 mhy.	16.00	HQD-1	.4 mhy.	15.00
HQA-7	125 mhy.	9.00	HQB-4	120 mhy.	17.00	HQD-2	1 mhy.	15.00
HQA-8	200 mhy.	9.00	HQB-5	.5 hy.	17.00	HQD-3	2.5 mhy.	15.00
HQA-9	300 mhy.	10.00	HQB-6	1. hy.	18.00	HQD-4	5 mhy.	15.00
HQA-10	.5 hy.	10.00	HQB-7	2. hy.	19.00	HQD-5	15 mhy.	15.00
HQA-11	.75 hy.	10.00	HQB-8	3.5 hy.	20.00	HQE-1	5 mhy.	6.00
HQA-12	1.25 hy.	11.00	HQB-9	7.5 hy.	21.00	HQE-2	10 mhy.	6.00
HQA-13	2. hy.	11.00	HQB-10	12. hy.	22.00	HQE-3	50 mhy.	7.00
HQA-14	3. hy.	13.00	HQB-11	18. hy.	23.00	HQE-4	100 mhy.	7.50
HQA-15	5. hy.	14.00	HQB-12	25. hy.	24.00	HQE-5	200 mhy.	8.00



FILTER CASE M
1 3/16 x 1 11/16,
1 5/8 x 2 1/2 High

These U.T.C. stock units take care of most common filter applications. The interstage filters, BMI (band pass), HMI (high pass), and LMI (low pass), have a nominal impedance at 10,000 ohms. The line filters, BML (band pass), HML (high pass), and LML (low pass), are intended for use in 500/600 ohm circuits. All units are shielded for low pickup (150 mv/gauss) and are hermetically sealed.

STOCK FREQUENCIES
(Number after letters is frequency)
Net Price $25.00

BMI-60	BMI-1500	LMI-200	BML-400
BMI-100	BMI-3000	LMI-500	BML-1000
BMI-120	BMI-10000	LMI-1000	HML-200
BMI-400	HMI-200	LMI-2000	HML-500
BMI-500	HMI-500	LMI-3000	LML-1000
BMI-750	HMI-1000	LMI-5000	LML-2500
BMI-1000	HMI-3000	LMI-10000	LML-4000
			LML-12000

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For u-h-f experimenters—

NOW ...a brand-new G-E economy triode with design performance to 950 mc!

HERE'S A LOW-COST MUST for u-h-f circuits such as light, compact handie-talkie rigs that will help in disaster control. Price of the 6AF4 is right in line with other receiving tubes, yet you get enough output at top frequency, 950 mc, to run a crystal mixer.

A "NATURAL" FOR U-H-F EXPERIMENTERS! At a bargain figure, G. E.'s new 6AF4 enables you to explore the fascinating possibilities of the wide-open u-h-f amateur bands. The tube is well up to this job, for it will put out 1 w in a 1¼-meter rig—plenty of power for short-haul communication.

CAN BE USED AS A GROUNDED-GRID AMPLIFIER in the ultra-highs . . . another 6AF4 application you'll find valuable! You can count on solid performance over a long life-span, because the triode was developed for commercial high-band TV.

SEE YOUR G-E TUBE DISTRIBUTOR TODAY about this new low-priced "key to the ultra-highs"! There's no better, more up-to-the-minute tube investment! *Electronics Division, General Electric Company, Schenectady 5, New York.*

6AF4

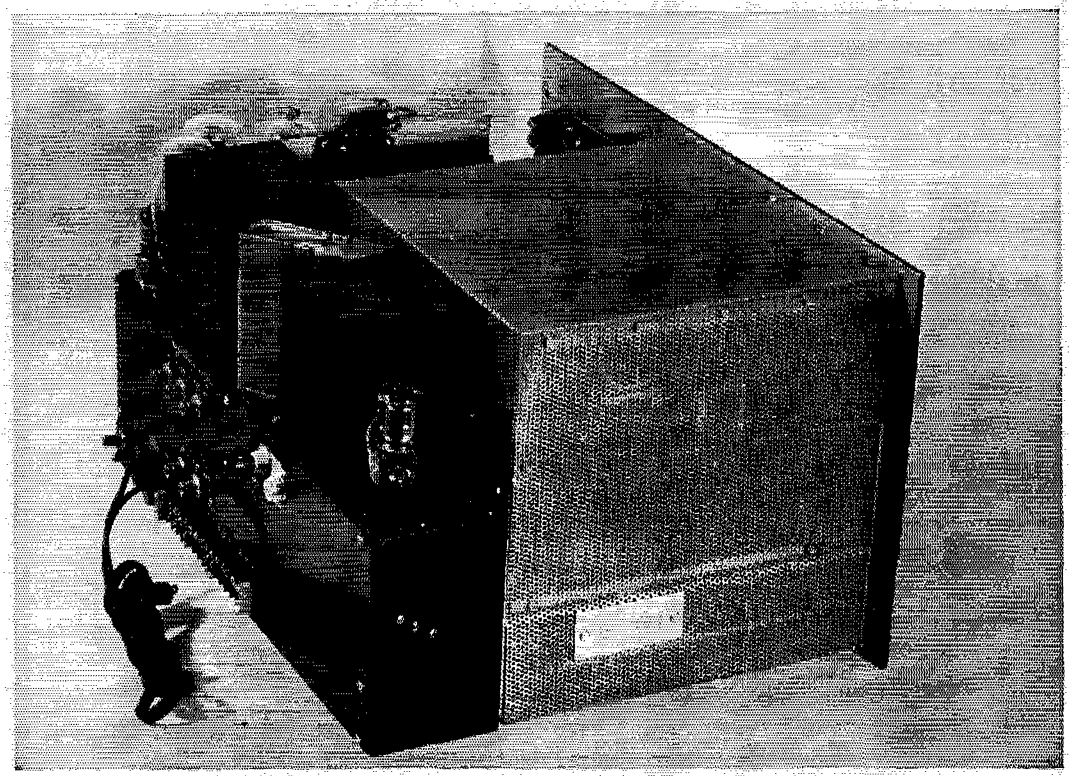
7-pin miniature u-h-f triode

Heater voltage	6.3 v
Heater current	0.225 amp
Max plate voltage	150 v
Max plate dissipation	2.25 w

ELECTRONIC TUBES OF ALL TYPES FOR THE RADIO AMATEUR

GENERAL ELECTRIC

184-KA12



ROAD BLOCKS AGAINST TVI

This view of the Collins 32V-3 chassis will give you an idea of the shielding and filtering which have been added to reduce the possibility of television interference on all amateur bands.

The entire r-f section has been completely enclosed in an outer shield of perforated metal which permits adequate ventilation while blocking radiation of troublesome harmonics. This is in addition to the r-f shielding used in the 32V-2.

Low pass filters in the following outgoing leads are visible at the back of the chassis: both sides of the a-c power line and (above) the antenna relay line and both sides of the receiver disabling circuit. Additional low pass filters, not visible, are installed at the microphone connector and the key circuit, and one in each lead to each of the two meters.

See the September issue of this publication for a description of cabinet construction.

QST

DECEMBER 1951

VOLUME XXXV • NUMBER 12

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

OFFICES

38 La Salle Road
West Hartford 7, Connecticut

TEL.: 3-6268 TWX: HF 88

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INDUSTRIAL ARTS INDEX

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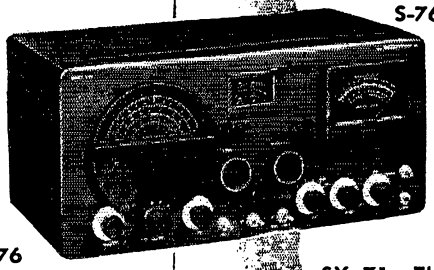
S-40B—The World's Most Popular Ham Receiver

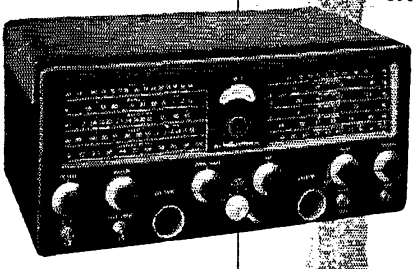
Latest version of an old favorite, proven through years of dependable service. One r-f, two i-f stages. Temperature compensated oscillator. Series type noise limiter. Micro-set iron core i-f coils. Separate electrical bandspread. Built-in PM speaker. Range 540 kc to 43 Mc in four bands. 7 tubes plus rectifier. **$99.95**



S-76

S-76—The Outstanding "Set of the Year—1951"

New double conversion set, with 50 kc 2nd i-f to give more useable selectivity than the best crystal. 500-cycle selectivity at 6 db down—3 kc selectivity at 60 db down—with selectivity control in sharpest of five positions. 2 microvolt average sensitivity with ½ watt output. One r-f, two conversion and two i-f stages. Giant 4-in. "S" meter. Calibrated electrical bandspread. Range 538-1580 kc, 1.72-32 Mc in 4 bands. 9 tubes plus rectifier. **$169.50**



SX-71

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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. **All ARRL Field Organization appointments** are now available to League members. These include ORS, OES, OPS, OO and OBS. Also, where vacancies exist SCMs desire applications for SEC, EC, RM, and PAM. In addition to station and leadership appointments for Members, *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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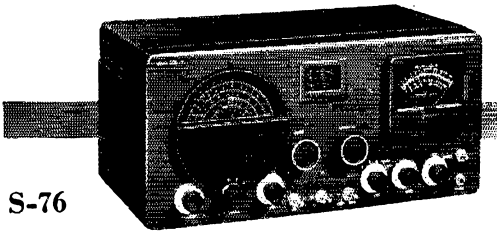
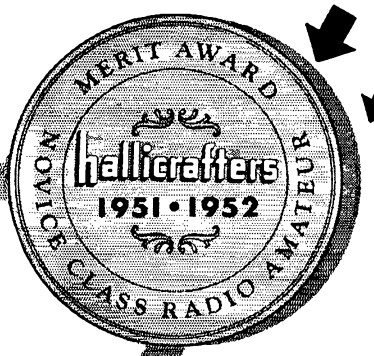


S-76



Everyone who qualifies WINS!

Remember, *everyone* who completes the course wins! The *first ten* Novices who complete the following will receive, absolutely FREE, a Hallicrafters S-76 Receiver. *All* of the other Novices who complete will receive $25 in cash, each.

1 HALLICRAFTERS Merit Awards will be given to every Novice who, during the period beginning 12:01 A. M., September 8, 1951, and ending 12:00 P. M. September 7, 1952, (local time) works all states and has obtained by September 7, 1952, a General or Conditional Class Amateur License. Both Novice-Class and "regular" QSOs can be used to make up the total of 48 contacts.

2 Rules governing contacts and verifications thereof are the same as for ARRL W.A.S. Certificates (see page 6, "Operating an Amateur Station"). Your package of verifications must be postmarked not later than October 7, 1952.

Thanks to all of you who have already dropped us a line that you are "working all states" for the 1951-1952 Merit Awards. We would like to know the names of everyone who is competing —so we can publish later a list of calls, names and addresses of those in the running. This list will help you in your contacts.

So please mail in postcard, or the coupon below:

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Bill Halligan, Jr. WN9OEP
The HALLICRAFTERS Company, Chicago 24, Ill.

Dear Bill: I've started working on my W.A.S. Certificate. Have contacted_____states so far.

MY CALL_____ DATE OF LICENSE_____

NAME_____

STREET_____

CITY_____ ZONE_____ STATE_____

QST

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.

All general correspondence should be addressed to the administrative headquarters at West Hartford, Connecticut.

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P. O. Box 212, Estes Park, Colo.
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Southeastern Division

LAMAR HILL W4BOL
104 Myrtle, Cochran, Ga.
Vice-Director: William P. Sides W4AUP
Fleming Road, Montgomery, Ala.

Southwestern Division

JOHN R. GRIGGS W6KW
10412 Don Pico Rd., RFD 2, Spring Valley, Calif.
Vice-Director: Walter R. Joos W6EKM
1315 N. Overhill Drive, Inglewood 3, Calif.

West Gulf Division

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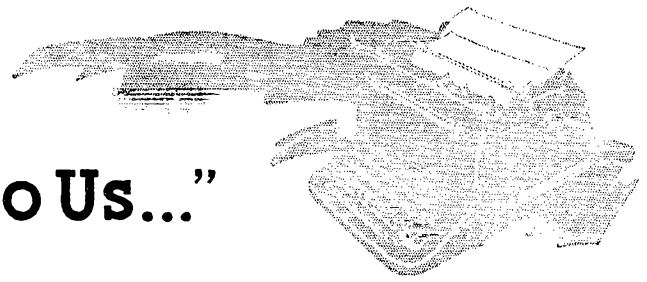
9 Kay Road, Tijeras, N. M.
Vice-Director: Frank E. Fisher W5AHT/AST
104 E. 11th, Pawhuska, Okla.



"It Seems to Us..."

7 MC.

We're still receiving more letters than we should on the subject of foreign 'phone stations "invading" our 7-Mc. band and urging us to initiate action to get these interlopers chased out. It indicates a general misunderstanding of regulations covering activity in this band. We thought we had explained it adequately; perhaps not, so let's try again.

Under the international regulations currently in effect (Cairo, 1938), 7000–7300 kc. is allocated exclusively to the amateur service in our hemisphere. In the rest of the world, 7000–7200 is amateur, and 7200–7300 is available to either amateur or broadcasting, at the discretion of each national administration (in practice, broadcasting usually gets the priority nod). So, above 7200, we regularly hear broadcasting stations located in Europe, with transmissions directed at other parts of Europe or Africa or Asia, and usually with beam antennas, but audible here because of the high power used. Often, especially in evening hours, the signal strength of each is great enough to wipe out a few kc. from usefulness for our amateur communication.

This is perfectly legal operation, quite in accord with regulations. It derives from the inability of all nations of the world to agree on an allocation of 7000–7300 kc. at Cairo. There the American nations wanted the band exclusively for amateurs, worldwide; most of the others wanted to split it 50–50 between broadcasting and amateurs. No common agreement was found, even after weeks of negotiation. The result was that our hemisphere went in one direction, labeling the band exclusively amateur, and Europe and the rest of the world went in the other, marking 7000–7200 for amateur and the remainder of the band mainly for broadcasting. To any engineering mind this is a horrible example of allocation, since a regional "solution" was attempted on frequencies which are not regional in nature. But the engineering minds did not win at Cairo; the political ones did, in demanding more space for high-frequency broadcasting. Inadequate as the regional concept is, for us it was deemed better than the alternative, which would have meant a worldwide split in the band between amateurs and broadcasting.

It should here be mentioned that Atlantic City in 1947 followed precisely the same routine as Cairo, except more so; the band remains exclusively amateur in this hemisphere, but broadcasting goes down to 7150, and even 7100–7150 may be used for outside-the-Americas broadcasting at the discretion of the national administrations. When Atlantic City goes into effect, we must expect more such interference. And there is nothing that can be done about it.

There are some of our inquirers who grant this point, but complain about the invading 'phones below 7200 kc., asking us to have them chased out. Again, this is operation strictly in accord with international regulations, and therefore nothing can be done about it. The reason is that these are *amateur* 'phones. International regulations do not decree how an amateur band is to be whacked up as between various modes of emission; that is up to each national administration. Our Government (FCC) can set up the 7000–7300 kc. band (or any other) as all c.w., as half 'phone and half c.w. (or any other proportion), or all 'phone. Or all f.s.k. teletype, or pulse, or anything else it wishes. Each other country possesses the same right. The difficulty arises from varying interests by the amateurs of different nations. To the south of us, Latin amateur interest is predominantly in voice; therefore, much or all of the 40-meter band is made available to those amateurs for voice operation. In this country and Canada there has not been sufficient sentiment, up to this point at least, in favor of voice privileges in this band to cause opening part or all of it to A3. But the amateur 'phones heard throughout 7 Mc. are not in violation of any regulation, national or international. They are operating their choice of emission, and we are operating ours.

While we're on the subject of 7 Mc., and particularly since the League's Planning Committee is in process of studying the possibility of recommending to FCC that part of the band be opened to 'phone, let us answer a couple of other inquiries that occasionally appear in our correspondence these days. In effect they say, "We had 40-meter 'phone before the war; why don't we have it now?" — or, "We voted for 40-meter 'phone; why don't you request it of FCC?"

Both are based on misunderstandings. We did not have 40-meter 'phone before the war. We *almost* had it; not, however, by request of the League but as part of a temporary re-orientation of our bands to permit loaning some other frequencies for military training purposes. The Air Force needed a couple of hundred kc. of our 80-meter band for pilot-training, late in 1941, which would have cut the 75-meter 'phone portion in two; as partial compensation for this loss to voice operators, it was arranged to open 7250–7300 kc. to 'phone. Strictly temporary, and strictly as a remedial measure. As it happened, December 7th arrived before the arrangement went into effect, so the whole thing went out the window.

"We voted 40-meter 'phone?" Nope. You are referring to polls of membership sentiment, of course. There have been three, according to our records; two on the basic subject, yes or no — and a third involving a special situation. The first was in 1935, which went 32% in favor of opening 7 Mc. to voice, 68% opposed. The second, and special, case was in 1939 and derived from the broadcast operations mentioned above, then just beginning; the question was, "If necessary to protect the regularity of amateur communication, in the event foreign broadcast interference in 7200–7300 kc. makes c.w. operation impractical there, would you be willing to permit that portion of the band to be made available for voice?"; the answer of amateurs was overwhelmingly yes, 82% in favor to 18% opposed. The third and most recent poll occurred in 1948, resulting in an expression of sentiment almost identical to the first poll in 1935; this time it was 31% in favor, 69% opposed.

But as to 7-Mc. 'phone solely on its own merits, despite the fact that previous recorded sentiment has never indicated that a majority of amateurs favor it as such, the Board has the ARRL Planning Committee at work studying the subject, as a part of its general policy of keeping an open mind on any matter and keeping close to the trends of amateur opinion so that the recommendations and decisions it makes may properly reflect the wishes of the membership.

To Hams Everywhere

Merry Christmas!

— The ARRL Hq. Gang

Coming Up!

The NOVICE ROUND-UP

January 12th to 27th

Calling all Novice hams! Here's your chance to get your brand on some of those hard-to-get QSL cards. ARRL takes pleasure in announcing this new operating activity for the new hands. Old-timers are invited to take part and give the newcomers contacts. Certificate awards will be given to the highest-scoring Novice in each ARRL section (see page 6). This is your opportunity to test and build your operating skill. A contest premium on working stations has been found to improve code speed, procedure ability and operating know-how as nothing else can.

The Round-up will start on Saturday, January 12th, at 6:00 P.M., local time, and end on Sunday, January 27th, 9:00 P.M., local time. There will be a time limit of 40 hours for operation. This can be used up in the first week end or spread out over the entire contest period. Activity will be limited to the 80-, 11-, and 2-meter bands.

Watch for complete announcement in January *QST*. For extra scoring credits, it is to your advantage to qualify in one of the code proficiency qualifying runs from W1AW, WØTQD or W6OWP (Dec. 7th and 19th, Jan. 5th and 17th) if possible by Round-up time. In the meantime, send ARRL Headquarters your request for a free map of the United States and contest log and reporting forms for the *Novice Round-up*. This map can be posted in your shack to keep a visual check on your worked-all-states progress.

Get the chuck-wagon loaded with coffee, keep the branding iron hot and let 'er rip!

Don't forget, complete details in January *QST*.

OUR COVER

Following up his earlier article, "How To Lay Out a Transmitter" (July *QST*), By Goodman has taken some simple tools in hand to carry the Novice — and old-timer — through the drilling and mounting stages. See "How To Build a Transmitter," page 25, this issue.

FEED-BACK

In the parts list of the article "Frequency Spotter for the Novice" (page 30, October *QST*) the value of R_1 should be 47,000 ohms. If you have difficulty making the gadget oscillate, try inserting a 22,000-ohm resistor in series with the lead from plus 150 volts to Pin 2 of the tube.

A Complete Portable 40-Meter C.W. Station

25 Watts of Convenience for Field or Mobile Operating

BY MYRON HEXTER,* W9FKC

• In this article, you will find the description of a portable 40-meter c.w. station, complete in every detail, including a 25-watt transmitter, a superhet receiver, and power supplies in one 19-pound package. Whether you are a traveling man making hotel stops, or a weekend country-jaunter, this suitcase job that will operate from either a.c. or a mobile supply will be something you'll want to read about.

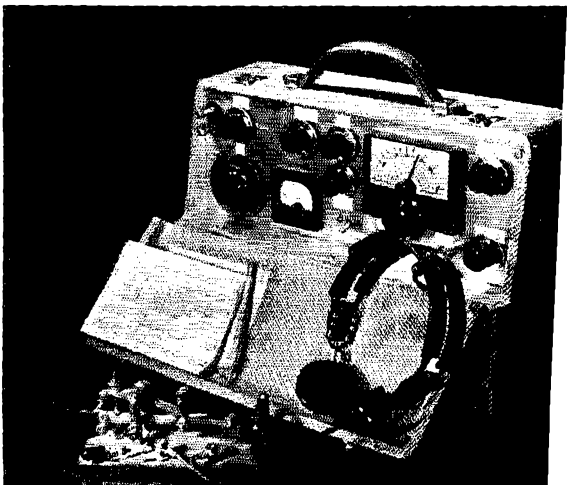
THE portable unit shown in the photographs is a result of the combined efforts of W9DIU, W9OLU, W9PSR, W9TO, W9QHZ and the author, with W9RYE contributing the photographs. It consists of a 40-meter 25-watt c.w. transmitter with VFO control and a crystal-controlled tuned-i.f. superhet receiver for the same band. Everything, including power supplies, is built into a 15 × 10 × 6-inch carrying case, with room left over for all accessories. The total weight is just under 19 pounds. By merely changing a power plug, the unit is ready for use as a mobile unit operating from almost any available mobile supply.

The receiver in particular has exceeded my fondest hopes. It is a never-ending source of amazement to me that four tiny tubes and a cigarette-package-size battery can produce such volume. Because the h.f. oscillator is crystal-controlled, and the i.f. comparatively low, frequency stability is exceptional. Vibration has no effect upon the incoming signal and temperature and humidity cause no noticeable alteration of calibration. The frequently-experienced defects of regeneration are absent. The circuit goes in and out of oscillation so smoothly that it is hardly audible and it isn't necessary to set the regeneration control critically. Two stages of audio provide more than enough headphone volume, even for noisy locations. Most of the time the gain controls are run about halfway open. The transmitter has been found equally effective in over 10,000 miles of portable and mobile work without a defect of any kind showing up.

* P. O. Box 73, Ravinia, Ill.

♦

The portable transmitter-receiver ready to operate. The knobs along the top from left to right are the controls for the transmitter output condensers, C_{13} and C_{14}, the receiver input tuning condenser and regeneration control. The r.f. and audio gain controls are below on either side of the main receiver tuning dial (Millen type 10039). The VFO control is the dial to the left of the meter. The key and headphone jacks are below the receiver dial and the send-receive switch is at the center below the r.f. gain control.



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Circuits

The circuit of the transmitter is shown in Fig. 1A. A high-C Colpitts circuit is used in the VFO. A broadband circuit consisting of a slug-tuned coil, L_2, used in the output circuit of the oscillator, requires only initial adjustment. The 2E26 output tube works into a pi-section tank that permits coupling into almost any random length of wire as an antenna. The amplifier only is keyed.

The receiver circuit is shown in Fig. 1B. A 6815-kc. crystal is used in the oscillator section of the 1R5 converter which feeds a regenerative 1T4 second detector tunable over the range of 185 to 485 kc. This gives a signal range of 7000 to 7300 kc. The two following stages are choke- and resistance-coupled audio amplifiers.

S_1 is the control switch. On the transmitting side, it closes the a.c. line to the power supply (or the battery circuit to the dynamotor-starting relay in the case of mobile operation) and the positive high-voltage line to the transmitter, and shorts the input to the receiver. On the receiving side, it breaks the transmitter power connections and connects the receiver input circuit to a link wound around the transmitter output coil. This provides another tuned circuit for the receiver.

Fig. 2 shows the power-supply diagram. Sele-

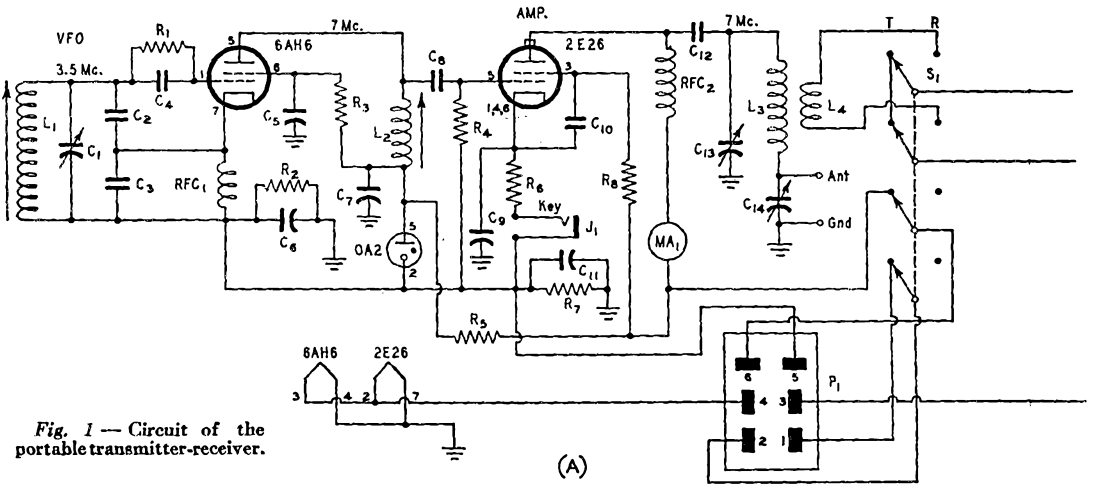


Fig. 1 — Circuit of the portable transmitter-receiver.

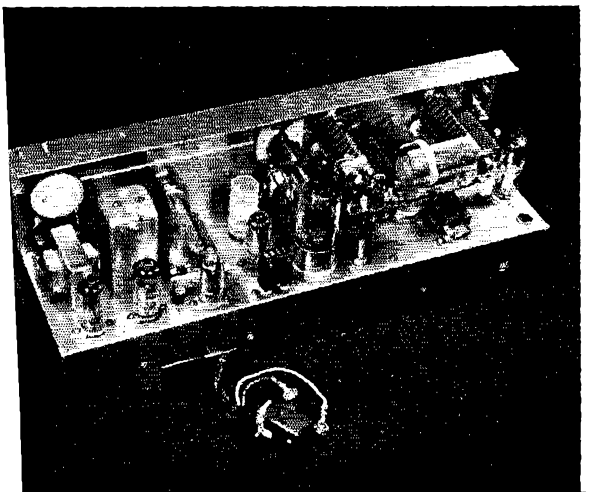
C_1 — 50-$\mu\mu$fd. midget variable.
C_2, C_3 — 0.001-μfd. zero-coefficient mica.
C_4, C_8, C_{19} — 100-$\mu\mu$fd. mica.
C_5, C_6, C_7, C_9, C_{11}, C_{25}, C_{28} — 0.02-μfd. paper.
C_{10}, C_{12} — 0.0047-μfd. mica.
C_{13}, C_{14} — 325-$\mu\mu$fd. midget variable.
C_{15} — 100-$\mu\mu$fd. miniature variable.
C_{16}, C_{32} — 0.001-μfd. mica.
C_{17} — 0.0033-μfd. mica.
C_{18} — 300-$\mu\mu$fd. midget variable.
C_{20} — 0.05-μfd. paper.
C_{21}, C_{22} — 470-$\mu\mu$fd. mica.
C_{23} — 4-μfd. 150-volt electrolytic.
C_{24}, C_{26}, C_{31} — 0.0022-μfd. mica.
C_{27}, C_{29} — 47-$\mu\mu$fd. mica.
C_{30} — 8-μfd. 150-volt electrolytic.
C_{33} — 0.1-μfd. paper.
R_1 — 47,000 ohms, ½ watt.
R_2, R_7 — 0.1 megohm, 1 watt.
R_3 — 47,000 ohms, 2 watts.
R_4 — 22,000 ohms, 1 watt.
R_5 — 12,000 ohms, 10 watts.
R_6 — 22 ohms, 1 watt.
R_8 — 20,000 ohms, 10 watts.
R_9 — 0.1 megohm, ½ watt.
R_{10}, R_{22} — 10,000 ohms, ½ watt.
R_{11} — 0.25-megohm volume control (r.f. gain).
R_{12} — 2200 ohms, ½ watt.
R_{13} — 2.2 megohms, ½ watt.
R_{14} — 50,000-ohm volume control (regeneration).
R_{15} — 2-megohm volume control (audio gain).

nium rectifiers in a voltage-tripling circuit provide 385 volts for the transmitter under full load (72 ma. to the final). The circuit is arranged throughout so that the power plug for the a.c. supply can be inserted either way without placing the chassis and panel at a dangerous potential to ground. A 6.3-volt transformer for the transmitter and dry batteries for the receiver are included in this unit.

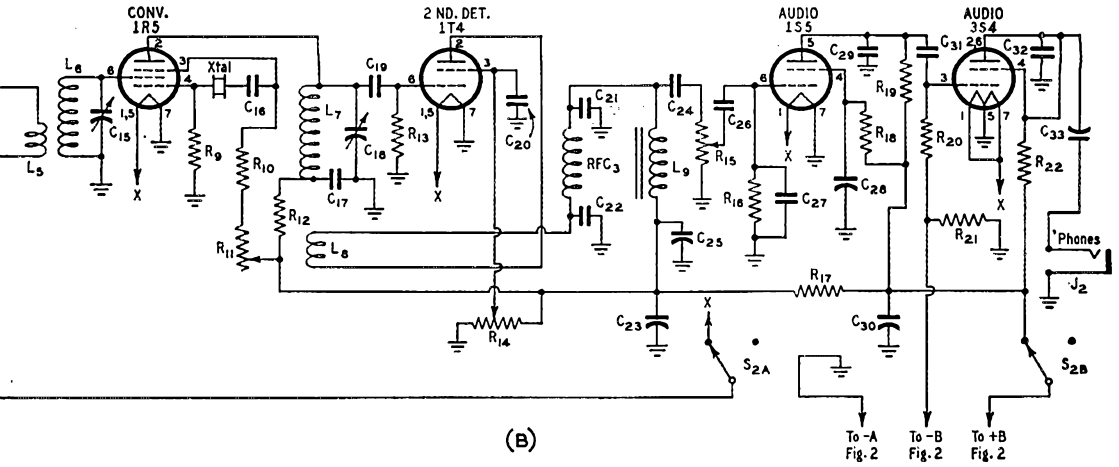
Construction

The main unit carrying both transmitter and receiver r.f. circuits is assembled on two pieces of aluminum each bent into Z shape. The two are joined together, one piece forming the panel, the other the chassis. The exact dimensions will depend upon the dimensions of the carrying case used, of course. This one happens to be made for a GE Model 254 portable receiver, but others of similar, or nearly similar, dimensions frequently are to be found in local stores or mail-order catalogs. The panel height corresponds to the height of the panel opening in the case. The top lip fastens against the inside of the top of the case, while the lower lip must be wide enough to extend out to the front of the cabinet where it can be screwed to the edge of the opening. A shelf partitions the carrying case at the level of the front opening. The shelf has a lip bent up at the rear to overlap the rear edge of the chassis. A hole is cut in the shelf to pass the power-supply cable.

Most of the details of assembly are evident



The receiver components are grouped at the left. The 3S4 is behind the coupling choke, the 1S5 is behind the i.f. transformer and the 1T4 is behind the main tuning condenser. The receiver input coil and the 1R5 are in front of the crystal. The receiver input tuning condenser is on the panel in front of the 2E26. To the right, the transmitter output tank coil joins the two output tuning condensers. The 6AH6 is in a shield behind the coil. The tube to the extreme right is the 0A2 regulator. The slug-adjusting screw to the right of the 2E26 is for L_2 in the transmitter. The crystal below the transmitter tank coil is a spare for the receiver.



R_{16} — 10 megohms, ½ watt.
R_{17} — 2200 ohms, 1 watt.
R_{18} — 4.7 megohms, ½ watt.
R_{19} — 0.33 megohm, ½ watt.
R_{20} — 3.3 megohms, ½ watt.
R_{21} — 820 ohms, ½ watt.
L_1 — 3.5 μh. — 22 turns No. 30, on Millen 69046 slug-tuned form.
L_2 — Approx. 20 μh. — 57 turns No. 30, on Millen 69046 slug-tuned form.
L_3 — 7 μh. — 25 turns No. 18, 1-inch diam., 1½ inches long (B&W 3015 Miniductor).
L_4 — 3 turns insulated hook-up wire close-wound around L_3, about one-third way from C_{13} end.
L_5 — 4 turns No. 30 close-wound ¼ inch from bottom of L_6.
L_6 — 7 μh. — 16 turns No. 30, close-wound, ¾-inch diam.
L_7 — 455-kc. i.f. transformer (Stanwyck S-102, altered as described in text).
L_8 — 70 turns No. 30 scramble-wound below L_7 (see text).
L_9 — 300-hy. audio choke.
NOTE: All windings should be held in place with Duco cement.
J_1, J_2 — Open-circuit 'phone jack.
MA_1 — 100-ma. d.c. milliammeter.
P_1 — Female connector (Jones S-306-CCT).
RFC_1, RFC_3 — 2.5-mh. 50-ma. r.f. choke.
RFC_2 — 2.5-mh. 125-ma. r.f. choke.
S_1 — Four-pole double-throw toggle.
S_2 — D.p.d.t. (on back of R_{15}).
Xtal — 6815-kc. crystal.

from the photographs. Care should be taken to make connections to the chassis or panel only at the points indicated by ground symbols in the diagrams. In the transmitter, the key jack, the VFO tuning condenser and grid leaks are connected to negative high voltage, not to the chassis. The jack and condenser are insulated from the panel by means of fiber washers.

In the receiver, L_7 is made from a regular 455-kc. i.f. transformer commonly used in commercial superhets. The windings and the rod on which they are mounted are carefully removed from the shield can and the leads to the trimmer condensers are cut off as close to the trimmers as possible, since the latter are not used. Inspect the bottom coil to see if the top lead comes from the inside or the outside of the winding. If it comes from the inside, solder it to the outside lead of the top coil, or the inside lead if the lower-coil lead comes from the outside. The bottom lead of the bottom coil should be marked for identity so that it can be connected later to C_{17} and R_{12} at the ground end of the circuit. This lead and the one from the top coil should be extended to come out the bottom of the shield can. There will be about a half inch of supporting rod below the bottom winding on which the tickler L_3 can be scramble-wound, leaving leads of 4 or 5 inches.

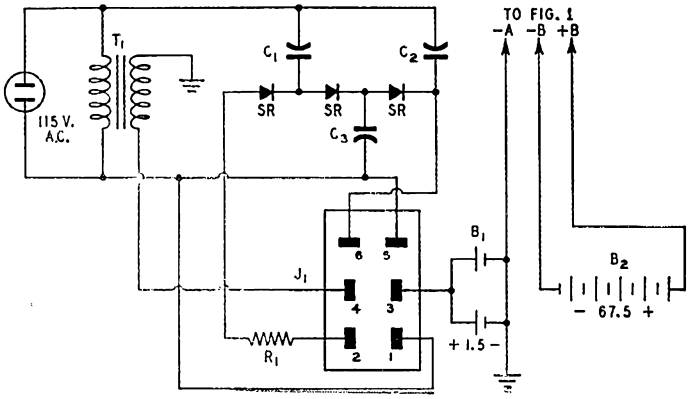
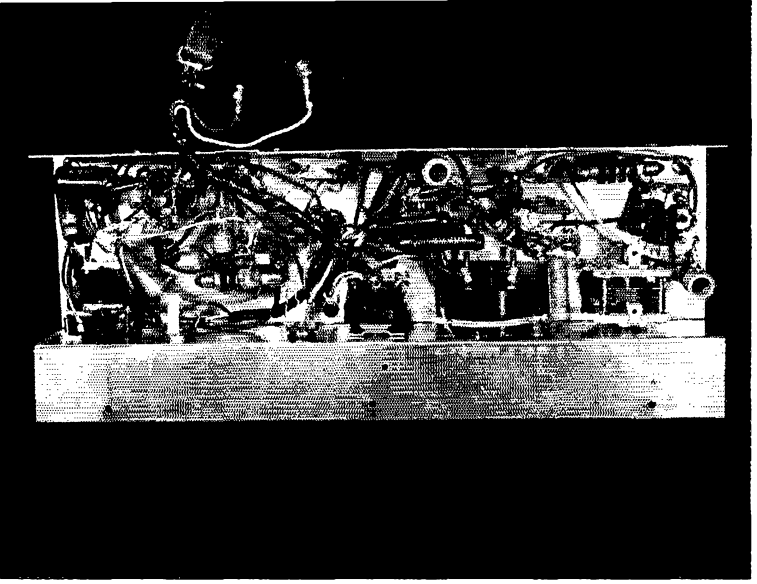


Fig. 2 — Circuit of the power unit for the portable transmitter-receiver.
C_1, C_2, C_3 — 40-μfd. 450-volt electrolytic (Mallory FP-146).
R_1 — 5 ohms, 2 watts.
B_1 — 1.5-volt A battery (two No. 2 flashlight cells in parallel).
B_2 — 67.5-volt B battery (Burgess XX45).
J_1 — Male connector (Jones P-306-AB).
SR — Selenium rectifier (Federal 404-D-2795).
T_1 — 6.3-volt ½-amp. filament transformer (Stancor P-6134).



Bottom view of the portable transmitter-receiver. Cutouts in the chassis are necessary for the meter and the rotor plates of the VFO tuning condenser to the right. Alongside the condenser is the oscillator coil. The oscillator output coil is to the rear of the chassis, near the center. The key and headphone jacks are set in the lower edge of the panel, to the left.

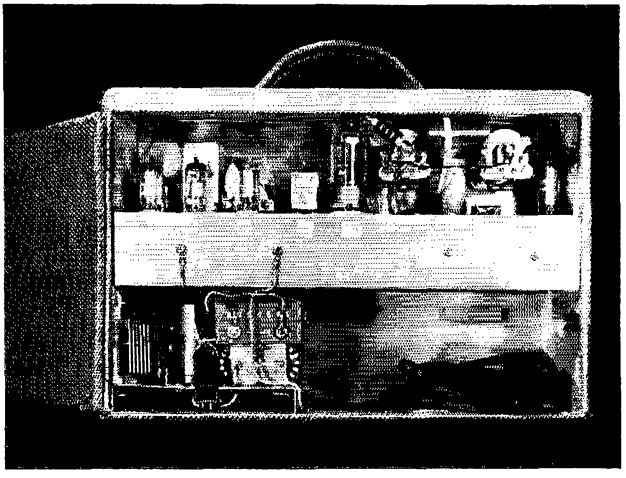
In wiring the receiver, precautions must be taken to guard against picking up hum from the transmitter a.c. power leads. The leads from the arm of R_{15} to C_{26}, and from C_{26} to the grid of the 1S5 must be shielded and as short as possible. R_{16} and C_{27} should be soldered right at the tube-socket pin and grounded with the shortest possible leads. It may be necessary to shield R_{16}, C_{26} and C_{27} by wrapping them first in Scotch insulating tape, then a layer of tinfoil which is grounded.

Adjustment

In adjusting the transmitter, the frequency range of the VFO is set by varying the position of the slug in L_1 until the circuit tunes to 3500 kc. when C_1 is at maximum capacitance. Then the slug in L_2 is adjusted to 7100 kc. This can be done with a grid-dip meter, or by setting the VFO to 3550 kc. and watching the plate current to the 2E26 as the slug is adjusted. L_2 should be tuned for minimum 2E26 plate current. In the final-amplifier output circuit, C_{14} is used to adjust the loading and C_{13} to retune to resonance after each adjustment of C_{14}. With short antennas, the setting of C_{14} for proper loading usually is quite critical. The 2E26 has a maximum plate-current rating of 75 ma. and the loading should be limited to this value.

Although the transformerless supply will work with the a.c. plug inserted either way, a loud ripple will come through the receiver if it is plugged in the "wrong" way.

In the receiver, the only important adjustments are those in reference to regeneration and proper tuning range of L_7C_{18}. If the circuit does not oscillate when the regeneration control, R_{14}, is advanced, the connections to the tickler winding, L_8, should be reversed. If the i.f. transformer specified is used, no trouble should be experienced with the tuning range when using a 6815-kc. crystal. If a transformer of different make is used, a crystal of different frequency may be required, or it may be possible to adjust the tuning range by sliding the i.f. coils closer together or farther apart. If the frequency range is too high, it may be possible to compensate with a trimmer across C_{18}, but too much fixed capaci-



The portable transmitter-receiver and power supplies mounted in the carrying case. The bent-up lip at the rear of the bottom plate overlaps the bent-down lip at the rear of the chassis. Plenty of space is left over at the lower right for headphones and other accessories.

tance here will decrease the tuning range, making it impossible to cover both ends of the band. Best c.w. sensitivity is obtained with the circuit oscillating, but near the point where oscillation ceases. However, it will seldom be necessary to make this adjustment critically. In going from one end of the band to the other, C_{15} can be peaked up for the best signal, but in covering 100 kc. or so, readjustment will be unnecessary.

Antennas

A spool of 300 feet of stranded wire is provided for the antenna. Any length over 25 feet will work, although more should be used, if possible. It is not necessary to cut the wire off the spool. Just bend the wire back on itself, attach it to the antenna terminal and lay the spool on top of the case. If suitable trees are available, it is easy enough to tie a string to a rock and toss it over a branch, using the string to pull the antenna wire up to within a foot or two of the branch. In a hotel, the wire can be fed out a window to within a story or two of the ground, or the wire can be strung around two or three sides of a room. At a motel or cabin, don't be afraid that an inside wire won't work, even though it is only 7 or 8 feet above ground. Antennas of the sort suggested work best with a ground connection, so take along a ground clip and several feet of wire. Clip the ground wire to the nearest water pipe or radiator. If no water pipe is available and you are camped near a lake or river, or the shore, wrap the end of the wire around a large stone and toss it into the water.

If a more permanent antenna is desired, the best simple one seems to be a folded dipole with one feeder going to the antenna terminal, and the other to the ground terminal, although no ground connection is made, of course. With an antenna of this type, it is not unusual to work foreign DX.

Mobile Operation

No changes are necessary in operating the rig from the car battery and any dynamotor or other mobile supply delivering up to 500 volts. All that is required is to pull out the connector plug at the a.c. power supply and plug it into a female connector from the battery and dynamotor. Plug connections for the PE-103 dynamotor are shown in Fig. 3.

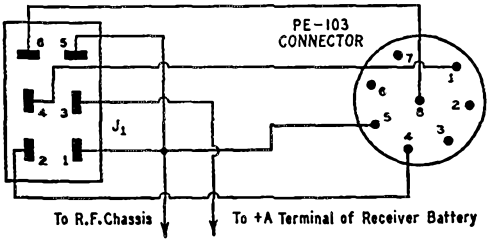
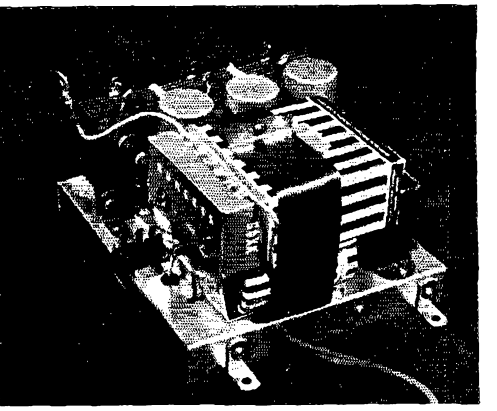


Fig. 3 — By plugging the cable from P_1 of Fig. 1 into J_1 above instead of J_1, Fig. 2, the portable unit will operate from a PE-103 mobile supply. With the connections shown, both filament and plate voltages will be supplied to the transmitter. J_1 is a Jones P-306-CCT attached to a cable from the PE-103 connector.



A separate chassis is provided for the power-supply unit. The selenium rectifiers and filter condensers are to the rear. The filament transformer is behind the receiver A and B batteries. The output terminals are brought to the connector to the left of the batteries.

For a mobile antenna I use a center-loaded whip, feeding it with a piece of RG-59/U coax cable. The antenna coil will have to be adjusted for proper loading, of course.[1, 2]

I made a little table to hold the rig in the front seat alongside the driver. On a 300-mile trip through Illinois, I operated for about 6 hours and had 10 QSOs lasting most of the trip. On Field Day, I had 43 contacts from the car in 6 hours. As mentioned previously, all told, the portable has been carried over 10,000 miles, and I've never had a breakdown or any other trouble with it. The beauty of it is that it is always ready to grab at a moment's notice, no matter for what purpose. Nothing is ever forgotten because it's all there in the box.

[1] Buff, "A Tunable 75-Meter Mobile Antenna," *QST*, August, 1950, p. 19.

[2] Saunders, "An Easily-Adjusted Low-Frequency Mobile Antenna," *QST*, August, 1951, p. 37.

Silent Keys

It is with deep regret that we record the passing of these amateurs:

ex-1CDD, Albert Y. Forrest, Interlachen, Fla.
W2AXA, A. J. Bremmer, Collingswood, N. J.
ex-W2BDP, Ernest J. Vogt, Colorado Springs, Colo.
W2TJA, Richard A. Fiesel, Jr., Forest Hills, N. Y.
ex-3CT-3RB, Joseph M. Nassau, Philadelphia, Penna.
W3LFD, Gabriel J. Uljon, St. Mary's, Penna.
W4DT, ex-2BI, Randolph S. Enslow, Miami, Fla.
W4PRX, John W. Floyd, Lexington, Ky.
W5FLY, James F. Gray, Corpus Christi, Texas
W5MAO, ex-W9BJA, Will Dowell, Leachville, Ark.
W5OOY, Frederic B. Wood, Woodward, Okla.
W5RPQ, Walter L. Randolph, Jr., Rotan, Texas
W7ACF, Clifford C. Cavanaugh, Auburn, Wash.
W9EUR, Ferm E. Andeen, Chicago, Ill.
W9JWJ, Donald W. Alexander, Clarendon Hills, Ill.
DL4CS, Sgt. Jack V. Leonard
G2IX, James Fairley, Leicester
GM6UK, T. W. Gentleman, Glasgow

Some Novel Ideas for Bandswitching Mobile Converters

A Compact Unit for Five Bands

BY FRANK Y. SPEIGHT,* W3MNR, AND C. L. BUCHANAN,** W3DZZ

• The converter shown in the photographs is designed to cover 75, 20, 15, 11 and 10 meters with a switch position for each and an additional position for switching the converter out of the circuit. It works into a 1500-kc. i.f.; in other words, the antenna terminals of a standard automobile receiver. A unique lever mechanism for the bandswitch permits maximum utilization of panel space for the calibrated bandspread dial.

HAVING successfully designed and built several mobile converters of the single-band variety, the authors were sufficiently encouraged to tackle a multiband job. Before starting construction, however, a considerable amount of planning was done, which paid off by eliminating much of the tediousness of trial-and-error procedure.

The design was based principally on certain mechanical features we felt were of practical importance in operating such a unit in a car. The converter should be as compact as possible, consistent with adequate selectivity and sensitivity. The dial should be large enough to be read and handled easily in daylight or darkness so as to minimize distraction while driving and operating. Front-panel space, which is always at a premium, should be practically all dial, and the bandswitch, used much less frequently, should take up a minimum of space, both on the panel and under the chassis. And last, but not least, all of the 'phone bands from 3.85 to 29.7 Mc. should be covered with a switch position for each.

The Circuit

As the diagram of Fig. 1 shows, the circuit includes an r.f. stage, mixer and h.f. oscillator, each using a 6AJ5 obtained from surplus glide-path receivers. This tube was chosen because of its small size and low filament drain. It is similar to the 6AK5 which can be used interchangeably in this circuit. The input circuit can be peaked up with the 50-$\mu\mu$fd. air trimmer, C_1. The plate circuit of the mixer is broadbanded, requiring no further attention after preliminary adjustment. The main tuning control is C_{1G} in the h.f. oscillator circuit. Fixed parallel padders are selected to spread each of the bands over a good share of the dial. All coils, including the i.f., are slug-tuned. Included in the bandswitch are the sections S_{1G} and S_{1H} which turn off the filament and plate power, as well as the dial lamps, when the gang is thrown to the b.c. position. Originally an NE48 (or 991) voltage-regulator tube was included to regulate the h.f.-oscillator plate voltage, but it was found that the frequency stability was satisfactory without the regulator tube, so it was taken out. Thus the empty socket in the lower right-hand corner of the chassis in the bottom view. In some cases, however, voltage regulation may be desirable or necessary. A small relay, controlled from the transmitter panel, cuts the B supply to the converter while transmitting.

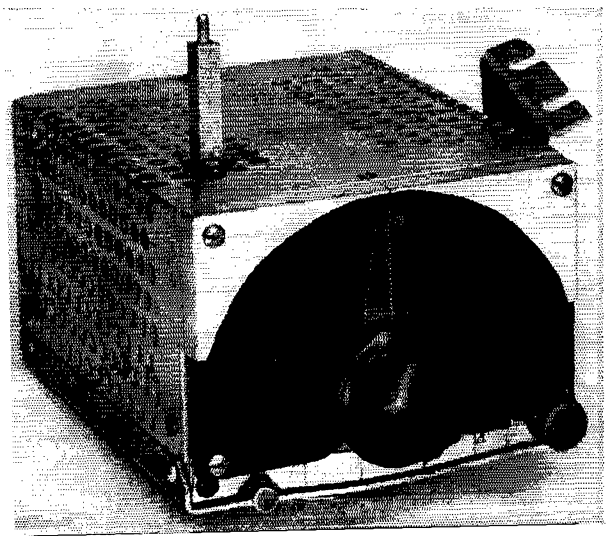
Construction

Although the components used in this converter were selected from various surplus units and what could be found in the junk box, commercially-available parts of equal value may be used if they can be fitted into the space.

The over-all dimensions are 3⅝ by 5⅛ by 6½

* 7703 Frederick Road, West Lanham Hills, Hyattsville, Md.

** 4671 Lacy Ave., Washington 20, D. C.



A bandswitching mobile converter. The dial is a piece of clear plastic with calibration marks inscribed. The bandswitch control is at the lower left and the antenna trimmer to the right.

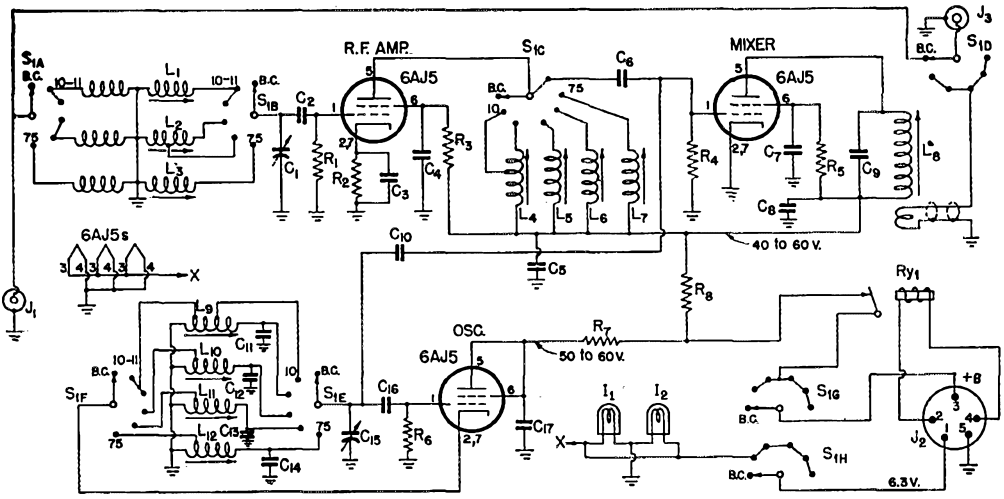
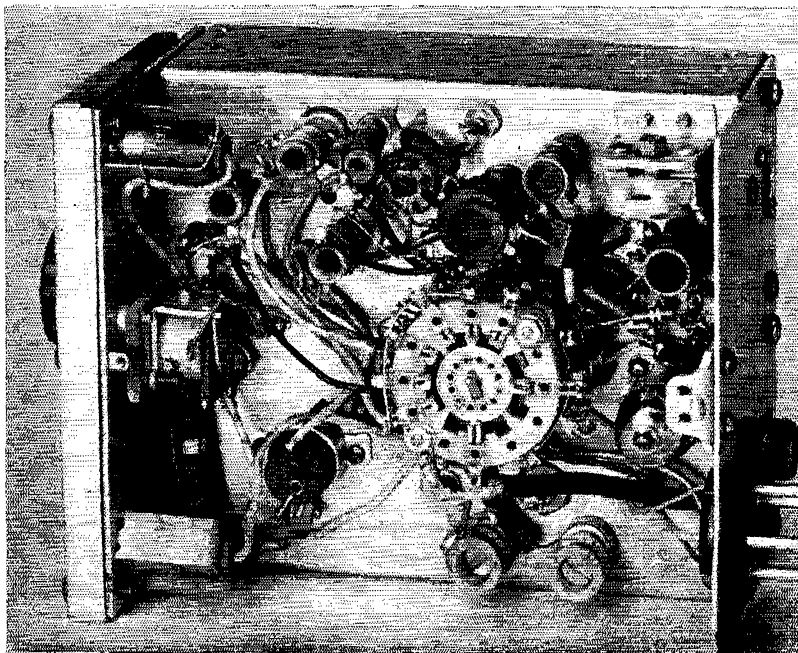


Fig. 1 — Circuit of the bandswitching converter.

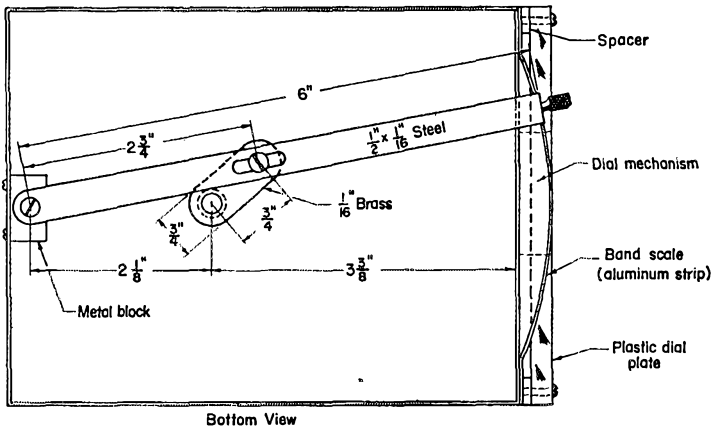
C_1 — 50-$\mu\mu$fd. miniature variable.
C_2, C_6 — 50-$\mu\mu$fd. mica.
C_3 — 100-$\mu\mu$fd. mica.
C_4, C_5, C_7, C_8, C_{17} — 0.001-μfd. mica.
C_9 — 220-$\mu\mu$fd. mica.
C_{10} — 3 $\mu\mu$fd.
C_{11} — 45-$\mu\mu$fd. mica.
C_{12} — 175-$\mu\mu$fd. mica.
C_{13} — 145-$\mu\mu$fd. mica.
C_{14} — 33-$\mu\mu$fd. mica.
C_{15} — 15-$\mu\mu$fd. variable.
C_{16} — 33-$\mu\mu$fd. mica.
R_1, R_4, R_6 — 10,000 ohms, ½ watt.
R_2 — 180 ohms, ½ watt.
R_3, R_5 — 2000 ohms, ½ watt.
R_7, R_8 — Values dependent on supply voltage. Adjust for voltages marked.
I_1, I_2 — 12-volt dial lamp.
J_1, J_3 — Coaxial connector.
J_2 — 5-pin male power plug.
Ry_1 — 6-volt relay.
S_1 — Ceramic rotary switch — 4 wafers, 2 circuits per wafer, 6 positions per circuit, and 1 wafer, 1 circuit, 6 positions (1 below, 4 above chassis) (made from Centralab kit parts).

inches, not including protuberances, such as the r.f. tuning knob and the power plug. The panel is 5 by 3½ inches and includes the dial, antenna-trimmer control and bandswitch. The chassis is 5 by 5¾ by 1¾. All parts of the enclosure are made from salvaged aluminum sheet.

The dial mechanism is a planetary unit with a 5 to 1 ratio (National AVD). This is mounted on the panel one inch from the bottom edge. It may be necessary to file a little off the lower edge of the frame of the mechanism to allow room for the bandswitch control lever underneath. The dial face is a piece of ¼-inch Lucite or Plexiglas 3 by 5 inches. A semicircle is cut out of the bottom edge with a jig saw to clear the dial mechanism, and is also notched out on the right-hand side to pass the shaft of the antenna trimmer. Before making these cuts, however, the various dial scales should be laid out with a compass scriber, using the position of the dial shaft as the scribing center. This will simplify the calibration later on. The back side of the plastic is covered with ordinary black or other dark-colored paint to form a contrasting background for the calibration marks.



Top view of the bandswitching converter, showing oscillator and mixer coils grouped around the bandswitch. The relay mounted against the front edge of the chassis cuts the power to the converter during transmissions.



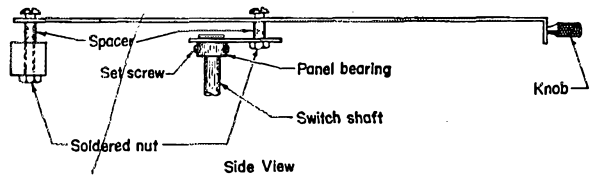
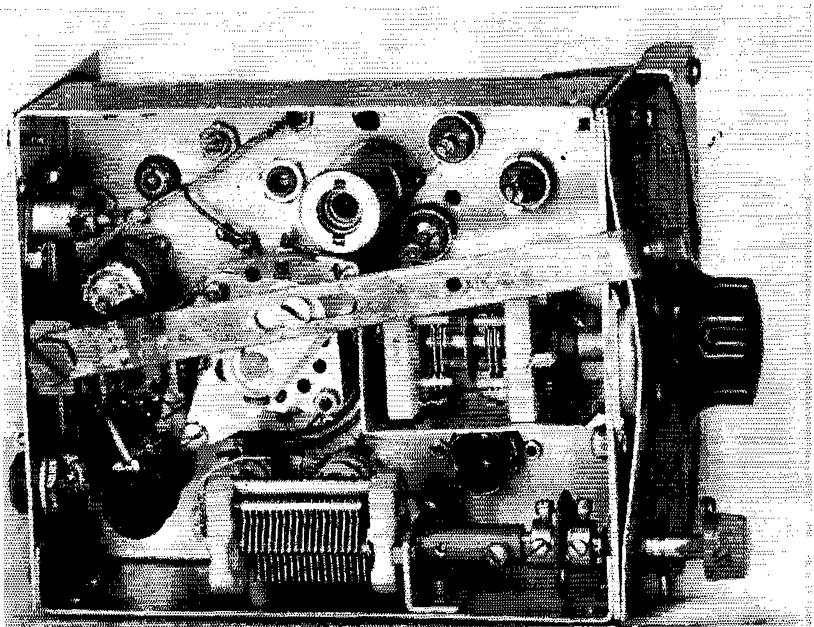


Fig. 2 — Sketches showing the construction and dimensions of the bandswitch mechanism.

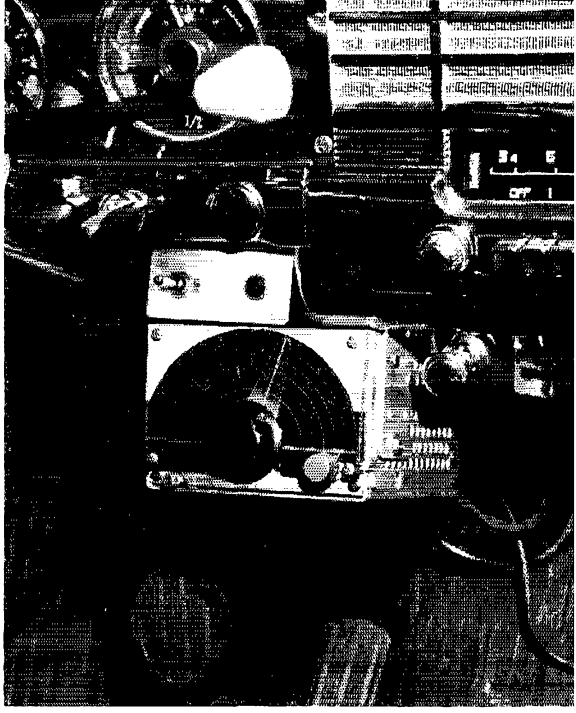
A dial lamp is mounted in each upper corner of the panel and the plastic is drilled part way through at these points. The ends of the bulbs extend into these depressions and the transmitted light illuminates the panel nicely. Twelve-volt lamps, or two 6-volt lamps in series, provide plenty of light at half normal voltage. The series connection for the 6-volt lamps requires insulated sockets. A metal cover of light-gauge aluminum was fashioned to fit over the upper corners of the plastic to eliminate direct light from the lamps. The pointer is a piece of thin transparent plastic, cut to shape and fastened to the dial mechanism with the screws provided. A line is scribed down the center of the pointer.

Underneath, the main tuning-condenser shaft is matched up with the dial shaft and mounted in place. While the condenser shown in the photograph is a two-section job, only one of the sections is used. An L-shaped shield runs along the right-hand side and across the rear of the condenser to isolate it from the antenna trimmer mounted nearby on the right-hand edge of the chassis.

The bandswitch gang is made up from Centralab switch-kit parts and consists of five ceramic wafers. Three wafers carry two circuits of five positions (Centralab type RR). The sixth position, shown in the diagram, is the arm slider contact which can be used in this case because the last switch position for all but S_{1D} is an open-circuit position. S_{1C} and S_{1D} are separate wafers each having one circuit and six positions (Centralab type X). The switch is mounted directly behind the main tuning condenser in a vertical position, its shaft 3⅜ inches from the front edge



Bottom view of the bandswitching converter showing the switch operating mechanism and inverted mounting of the h.f. oscillator and mixer tubes.



The bandswitching converter installed under the dashboard near the b.c. receiver.

of the chassis. This unusual mounting is convenient for grouping tubes and coils around the switch sections. Only the switch index head and the first wafer are below the chassis. The two circuits of this wafer, comprising S_{1A} and S_{1B}, handle the r.f. input circuits. The other four wafers are mounted above and a clearance hole for the switch shaft is drilled in the chassis. Additional bracing against the action of the control lever is provided by adding a strap bracket across the index head at right angles to the assembly rods. This strap is fastened to holes in the index head and with long screws to the chassis.

A sketch of the switch operating mechanism is shown in Fig. 2. Dimensions can be adjusted to suit a variety of conditions. It is merely a matter of experimenting with a few pieces of cardboard and some thumbtacks to find dimensions that will fit each case. The short arm attached to the switch shaft should preferably be of brass so that the nut can be soldered fast. The set-screw collar to which the short arm is attached is a panel bearing. The threaded neck is cut and filed down so that it is a little longer than the thickness of the arm. The excess is then hammered down over the arm to make a firm joint. Solder flowed around the hole will add strength. The flange of the panel bearing should be drilled and tapped for two set screws. The bandswitch scale is a strip of thin aluminum. The arm positions for the various bands are marked with a scriber and then the lines are filled in with crayon.

Most of the other details of construction can be seen in the photographs. The r.f. tube is the only one mounted top-side up. The mixer and oscillator tubes are upside down and have their connections and associated coils above the chassis. This arrangement permits better utilization of space and the chassis becomes a shield for the r.f. circuit.

Coil Table for Bandswitching Converter

Coil	*Band Mc.*	*Lμh.*	*Turns*	*Wire Size*	*Diam. Inches*	*Length Inches*	*Slug*	*Millen Form*
L_1	27–29	0.6	14	24 d.s.c.	¼	⅜	copper	69047
L_2	14–21	2.5	25	24 d.s.c.	½	1	copper	69045
L_3	4	33	70	34 d.s.c.	½	1	iron	69046
L_4	27–29	1.2	17	24 d.s.c.	½	1	copper	69045
L_5	21	2.3	24	24 d.s.c.	½	1	copper	69045
L_6	14	5	35	24 d.s.c.	½	1	copper	69045
L_7	4	67	95	34 d.s.c.	½	1	iron	69046
L_8	27–29	0.294	10	24 d.s.c.	¼	⅜	copper	69047
L_9	21	0.344	11	24 d.s.c.	¼	⅜	copper	69047
L_{10}	14	0.434	12	24 d.s.c.	¼	⅜	copper	69047
L_{11}	4	14.6	46	34 d.s.c.	½	1	iron	69046
L_{12}	1.5	45	80	34 d.s.c.	½	1	iron	69046

Adjustment

Standard automobile receivers are designed for high-impedance antennas and transmission lines. Since the output of the converter is coupled to a low-impedance coax line, considerable mismatch results. Most b.c. receivers are "hot" enough so that the losses as a consequence can be tolerated. However, the gain can be increased considerably by modifying the r.f. coil in the b.c. set. This is accomplished by winding a link of about 25 turns of No. 24 wire on the "cold" end of the antenna coil. This modification, however, will reduce the gain on the b.c. band. One compromise is to use one push button only for the converter and modify only the coil associated with that channel.

The entire converter was wired and aligned with a grid-dip meter before applying power. Depending on the forms used, some slight alteration in the number of turns shown in the coil table may be necessary.

A Simplified Electronic Break-In System

Using the Key for Complete Station Control

BY DANIEL B. CAREY,* W5LVD

THE progressive-minded amateur will no doubt agree that an efficient break-in system is a great aid to proficient operating. By proper use of such a system an operator can practically eliminate the necessity for repeating long drawn-out transmissions and useless duplicating. Third, if the oscillator itself is keyed, the signal on the higher frequencies is chirpy. There are well-shielded oscillators available on the commercial market, but the electrical and mechanical considerations that are necessary to reproduce such a unit are not in the possession of the average amateur.[1] A desirable system would incorporate all the features necessary for use by any of the three previously mentioned interests.

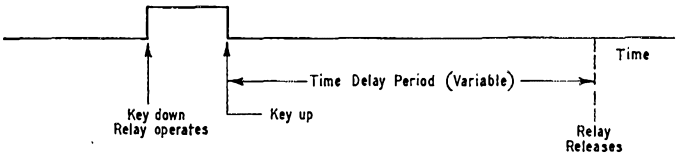


Fig. 1 — The objective of the break-in system is a relay that will close immediately when the key does, and open at some specified time after the key is opened. The oscillator, antenna, and receiver gain can then be controlled by the relay for excellent break-in performance.

Summing up the requirements for such a system, obviously it must perform three functions: (1) disable the oscillator while receiving, (2) change the antenna from transmitter to receiver, and (3) control the gain of the receiver from normal receiving conditions to the overload of intermittent transmitting.

The first method of break-in operation used at W5LVD was based on the above requirements and involved the use of a multicontact keying relay. The relay supply was a 45-volt battery.

tions. Break-in operation is especially valuable to the DXer, the contest operator, and the traffic man, but may be applied very effectively in everyday ragchewing.

The Problem

There are many variations of break-in operation in use; however, there are two basic systems. One type uses a switch or relay to control the antenna changeover relay, the oscillator, and a portion of the transmitter power supplies. The other system, which is probably most popular with the low-frequency traffic man, is one where separate antennas are used for the receiver and the transmitter; either the oscillator is left running and shielded to attenuate the backwave, or a switch or foot pedal is used to disable the oscillator while receiving.

Unfortunately, neither of these systems offers complete satisfaction, for several reasons. First, any type of switch requires physical manipulation by the operator that is annoying, fatiguing, and time-consuming. Second, and especially so for the DX man, the same antenna should be used for both transmitting and receiv-

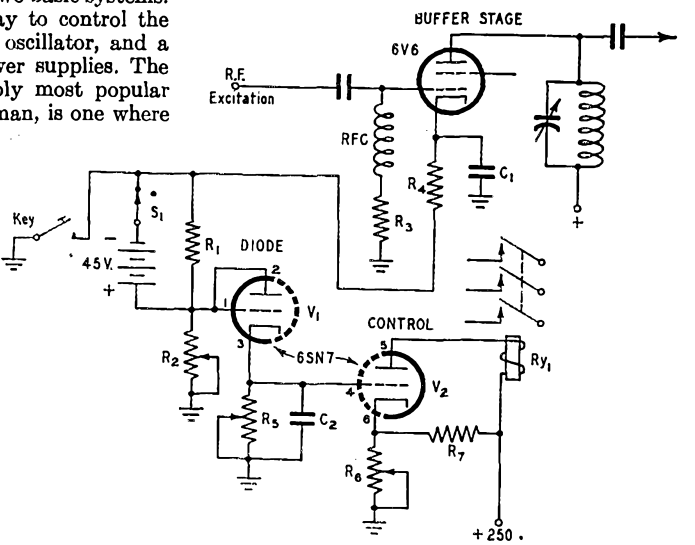


Fig. 2 — Basic diagram of the break-in circuit, with cathode keying of a 6V6 buffer stage.

C_1 — 0.006-μfd. paper or mica.
C_2 — 0.05-μfd. 400-volt paper.
R_1 — 1 megohm, ½ watt.
R_2 — 0.5-megohm potentiometer.
R_3 — 47,000 ohms, 1 watt.
R_4 — 350 ohms, 5 watts.
R_5 — 40,000-ohm potentiometer.
R_6 — 10,000-ohm potentiometer, wire-wound.
Ry_1 — 3-pole d.t. relay, 16,000-ohm coil (Advance 6013–16000).
S_1 — S.p.s.t. toggle.

* Route 8, Box 372B, San Antonio, Texas.

[1] This is not strictly so. See Smith, "A Solution to the Keyed-VFO Problem," *QST* for February, 1950. — *Ed.*

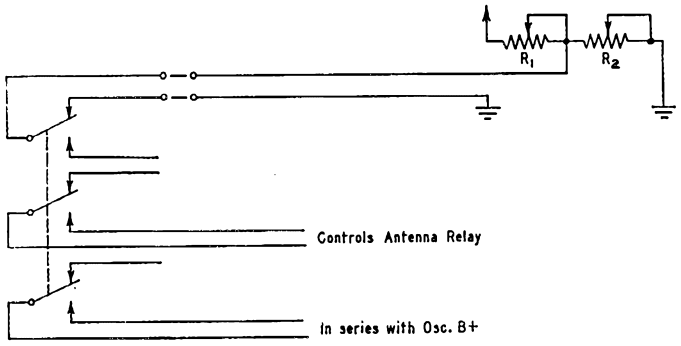


Fig. 3 — Circuits controlled by Ry_1 of Fig. 2.

By careful adjustment of the various contacts of the relay it was possible to turn the oscillator on, then the buffer, and at the same time apply a connection from the antenna to the transmitter when the key was in the "down" position. Then, when the key was released, the oscillator remained "on" until the buffer and the antenna had been disconnected. Of course, the main objection to this method was that the relay chattered vigorously while keying, and a distinct slap was produced in the headphones as the antenna changed from transmit to receive. Also, the receiver blocked when the transmitter was keyed, making it impossible to monitor.

Therefore, a means was sought to produce a highly variable time-constant circuit that would hold the multicontact relay closed while the key was down and release when the key was opened after a period of predetermined duration had elapsed. See Fig. 1.

The Solution

The basic circuit developed was an extremely simple one, as shown in Fig. 2. The principle is as follows: With the key up the cathode circuit of the keyed stage is open (practically) and the tube is inoperative. The voltage is zero at the plate of V_1 and, since the value of R_6 is adjusted so that the relay Ry_1 is open, then the oscillator is disabled and the antenna relay and the receiver muting circuits are in the normal position. As the key is closed, the keyed-stage cathode circuit is closed, and at the same time the voltage at the plate of V_1 becomes +40. V_1 conducts and applies a positive voltage to the grid of V_2, allowing plate current to flow, closing the relay and reversing the functions thereof. When the keying is completed (as in Fig. 1), the voltage is removed from the plate of V_1; however, the time constant of the R_5C_2 network maintains a positive voltage on the grid of V_2 and the relay holds closed for a period determined by the adjustment of R_5. After the circuit is once adjusted to operating conditions, R_6 may be varied slightly to provide a more positive action of Ry_1.

Many tests had been run on a similar circuit before R_6 was made adjustable; however, it was discovered that in actual practice the point at which the relay released after approximately a one-second delay is the most desirable, for at that point a critical adjustment of $\pm\frac{1}{4}$ second may be obtained by varying R_2.

Mechanical construction is simplified by the use of a 6SN7 twin triode, but separate tubes may be used. The components may be installed inside of the transmitter cabinet, or any other convenient spot. The control leads from the contacts of Ry_1 can then be cabled to their various terminations. Judicious use of shielded cable will prevent r.f. from getting into the receiver.

Fig. 3 indicates the relay connections as used at W5LVD, but others may adapt any one of many possible variations. In fact, since development of this circuit, a combination of two diodes and different time-delay circuits has been contemplated whereby one would work in the present manner and the other would be used for disabling the high voltage after the first relay had been deactivated for a given period. For special operations, such as the DX contest, a system of such design should be extremely advantageous as it would practically eliminate the use of switching.

In closing, it might be worth mentioning that the first sensation while trying out the break-in system is highly comparable to that of operating an electronic keyer for the first time. In order to master the rhythm with this type of break-in unit, a short period must be spent toward acquiring the "hang" of the gadget. Once this rhythm is mastered, the operator will find that the time and effort spent in construction was worth while.

Strays

So that he won't overlook the important business of renewing his ham ticket, W2ENM has paid up his ARRL membership to June 1954, the expiration date of his license. Says Sam, "The next time I get a renewal notice from the League I'll know it's also time to renew with FCC."

—•••—

ON4QF, who has earned himself an enviable reputation in DX circles by his operation as LX1QF, OQ5QF, and 7B4QF, will be on the air from the scene of the famed Battle of the Bulge on the anniversary dates of Dec. 22nd-23rd. The station will be located at the Mardasson American Memorial, near Bastogne. "Mick" will send a special photographic QSL to all stations worked.

—•••—

In two years of mobile operation on twenty meters, Bob Adams, W9SM, ex-W3SM, has chalked up the remarkable total of 101 countries worked. Equally impressive in Bob's log is the number of contacts, now approaching 5000.

A Practical Design for Your First Modulator

807s in a Flexible Unit for Medium- and Low-Power 'Phone

BY RICHARD M. SMITH,* W1FTX

A MODULATOR, like power supplies, can be considered as part of your long-term investment in amateur radio. The initial cost is high because iron-core transformers are involved, but they can be used for years without rebuilding if they are designed and operated properly. Your modulator, too, can be used for years, but only if it is not left behind when the rest of the station advances to higher power. It pays, therefore, to plan ahead and to build a modulator that will take care of a bit more than your immediate needs, unless you are willing to remain at the same power level indefinitely.

No, we don't suggest that you build a 500-watt audio system to modulate that single 807 rig! We do suggest that you weigh the costs carefully, however, because if you decide to build a pair of 6L6s to do the job, you may regret it when you decide to add a final amplifier to the 807. Dollar for dollar, a modulator using a pair of 807s is a much sounder investment. Here's why.

The tube handbooks tell us that a pair of 6L6s in Class AB_2 will deliver about 40 watts maximum. The plate power supply required for this output is 400 volts at about 200 ma. On the other hand, a pair of 807s is rated for 120 watts output, requiring 750 volts at 240 ma. input. A little paper work shows us that the grid-drive requirement of the 807s is just about the same as for 6L6s, so the main difference in cost remains in the plate power supply and in the modulation transformer. At current prices, a modulation transformer and a power transformer for a pair of 6L6s costs about $22. The slightly larger units required by the 807s cost about $28. Because the tubes cost about the same, and because the drive requirements are about the same, we find the principal cost differential to be tied up in the iron-core transformers mentioned above. Thus for 30 per cent more than what it costs for the transformers for the 40-watt modulator we can get the transformers for a 120-watt unit, just three times as much power!

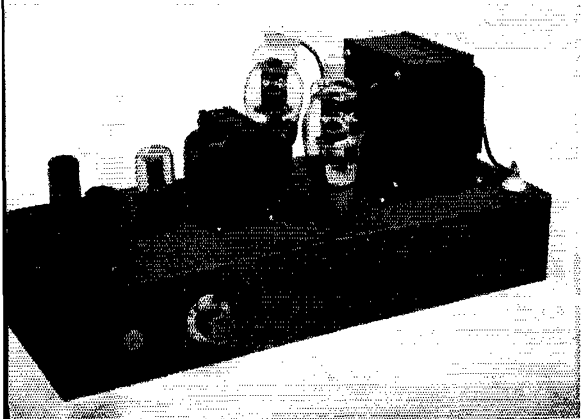
• If you are planning to build audio equipment in the near future, it will pay you to plan carefully in advance so that your outlay of dollars will bring the greatest possible utility. This article describes a modulator that can grow with your station.

There are other dividends to be obtained here, too. You have to strain more than your pocketbook to get 40 watts undistorted out of a pair of 6L6s, while a pair of 807s "coast" at that level. In addition, you'll have to discard your 6L6 modulators when you increase power, even if the increase is only to the 100-watt level, whereas you can keep the 807s even when you go up to 250 watts. You'll agree that planning ahead *can* pay dividends.

A Practical Example

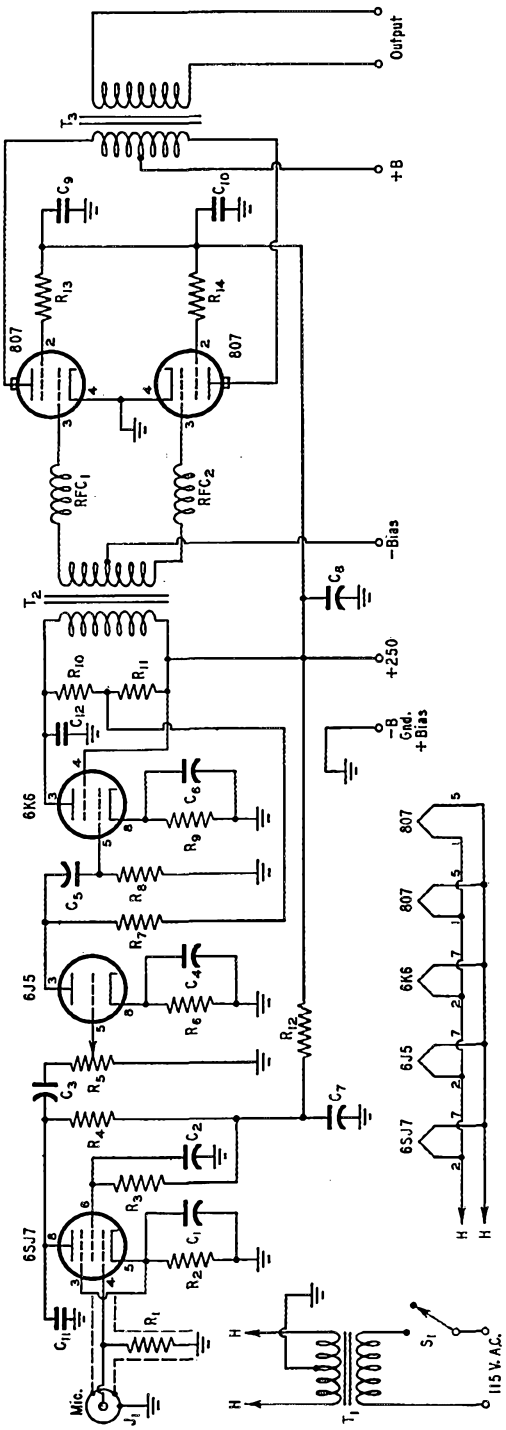
The modulator shown in the accompanying photographs and in Fig. 1 does not include some of the frills that you might like to have if you have been in the game for years. In the interests of simplicity, only the basic requirements are met. There is enough reserve space and power, however, so that some of the refinements can be added at a later time if desired. The unit is capable of 100 watts output without distortion when operated with a 750-volt plate supply, but can be operated (with corresponding decrease in power output) from any supply giving from 400 volts up to the rated maximum. The 807s are driven by a single 6K6GT through a step-down driver transformer. The first two stages are the usual resistance-coupled voltage amplifiers required to permit full output to be obtained from a crystal microphone. To improve the regulation of the

* Technical Assistant, *QST*.



Top view of the push-pull 807 modulator. The unit is built on a standard 7 × 17 × 3-inch chassis, with the microphone input connector and gain control mounted on the front, close to the 6SJ7 stage.

output of the driver stage inverse feed-back is applied by the simple expedient of placing a voltage divider across the primary of the driver transformer and then returning the plate load resistor of the 6J5 stage to the divider.

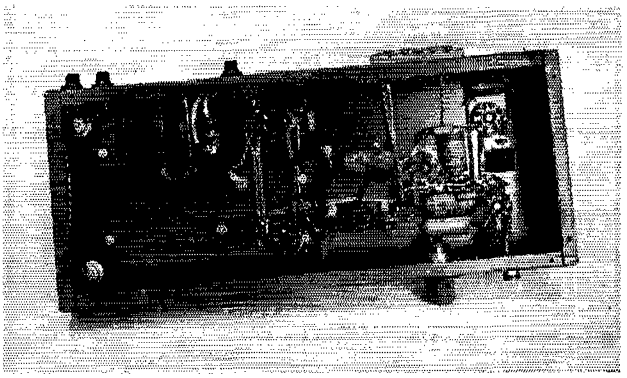


Suitable parasitic-suppressing circuits are included in the design to eliminate spurious splatter-producing output, and the over-all response of the unit is restricted to those frequencies found most useful for voice communication. Range restriction is accomplished by proper selection of the values of the interstage coupling condensers, and by appropriate by-pass condensers. The result is a response curve that cuts off below 150 cycles, and is at least 6 db. down at 3000 cycles and higher. Experience has shown that this detracts nothing from the "naturalness" of the signal, yet does away with the high-frequency components that merely make the signal sound "splashy" around the edges. Your brother hams will think of you in kinder terms for including such restrictive measures in your audio system, and you will be making more effective use of your power than if you just let everything, including the splatter, get through to the antenna.

Construction

There are few hard-and-fast rules concerning parts layout in building audio equipment. Lead length is of small importance, so the parts may be arranged to suit space considerations with much more freedom than in r.f. work. It is important, however, that precautions be taken against hum pick-up in the first two stages. These stages operate at high gain, and hum introduced in them will be amplified greatly after passing through the driver and modulator stages. Note from the bottom view the location of the filament transformer. It is placed a considerable distance away from the low-level stages, beneath the modulation transformer. Thus the a.c. field produced around the transformer is kept far away from the input stages. Shielded wire is used for all a.c. wiring associated with the heaters so that the field around the wiring will not be picked up by the exposed grid terminals of the tube sockets. In addition, the lead from the microphone connector to the grid of the first stage, and grid re-

Fig. 1 — Schematic diagram of a modulator for up to 100 watts output.
C_1, C_4 — 10-μfd. 25-volt electrolytic.
C_2 — 0.1-μfd. 400-volt paper.
C_3, C_5 — 0.0015-μfd. mica.
C_6 — 50-μfd. 50-volt electrolytic.
C_7, C_8 — 10-μfd. 450-volt electrolytic.
C_9, C_{10}, C_{12} — 0.002-μfd. mica.
C_{11} — 680-μμfd. mica.
R_1 — 2.2 megohms, ½ watt.
R_2, R_6 — 1500 ohms, ½ watt.
R_3 — 1 megohm, ½ watt.
R_4 — 0.22 megohm, ½ watt.
R_5 — 1-megohm potentiometer, audio taper.
R_7, R_8 — 0.1 megohm, ½ watt.
R_9 — 680 ohms, 1 watt.
R_{10} — 0.1 megohm, 1 watt.
R_{11} — 27,000 ohms, 1 watt.
R_{12} — 47,000 ohms, 1 watt.
R_{13}, R_{14} — 100 ohms, ½ watt.
RFC_1, RFC_2 — 0.7 microhenry (Ohmite Z-50).
J_1 — Microphone jack.
S_1 — S.p.s.t. switch (part of gain-control assembly).
T_1 — 6.3 volts a.c., 3 amp. (Stancor P-5014).
T_2 — Single plate to p.p. grids, Class AB_2 driver transformer (Stancor A-4702).
T_3 — Output transformer. (See text. Unit shown is Stancor A-3829.)



Arrangement of parts beneath the chassis is not critical provided that precautions are taken to eliminate coupling of 60-cycle hum into the high-gain stages. Tie points are mounted at convenient spots to hold most of the small parts.

sistor R_1 are also shielded. The latter is accomplished by slipping the resistor inside a short length of spaghetti tubing, which is then covered with shield braid grounded at both ends. Similar precautions should be observed in connecting the gain control R_5 to the grid of the second stage. A fairly long lead is required here, and to minimize the danger of hum pick-up, it, too, uses shielded wire.

The high-voltage lead from the center-tap of the modulation transformer primary to the input terminal on the rear of the chassis passes through the chassis in a ceramic bushing, as do both of the leads from the secondary. A ¼-inch bushing is adequate for the 750-volt lead, but ⅜-inch bushings should be used on the secondary side.

Parasitic-suppressing chokes, RFC_1 and RFC_2, should be mounted right at the grid terminals of the 807 sockets. They are visible in the photograph supported between the grid pins and a 2-terminal tie strip placed in the center of the chassis. Similar tie strips, each having four terminals, are used to support some of the resistors and condensers used in the first two stages.

The modulation transformer shown in the photographs is a multitap affair rated for 175 watts output, which is a good bit more than is actually needed. Any multitap transformer rated for 120 watts or more, and having primary impedance taps to match the 6950-ohm plate-to-plate load resistance of the 807s to the modulating impedance presented by your r.f. stage, will be suitable.

Power Supply Requirements

The first three stages and the screen grids of the modulator tubes may be operated from a common supply rated for 250 to 300 volts at about 70 ma. As in all audio equipment, the supply should be well filtered to reduce the ripple content of the output voltage to a low level. In most cases, a simple pi-section condenser-input filter will be adequate. The plates of the 807s can be operated at any voltage between 400 and 750. The filtering need not be quite as good for this supply, but it should have excellent regulation up to the maximum plate current swing of 240 ma. if maximum output is to be obtained. Thus, low-resistance chokes in a two-section filter with at least 4 μfd. for the output condenser are desirable. In general, the larger the output filter condenser the better in any equipment where the load varies as widely as it does in a modulator such as this.

In addition to the plate supplies, some fixed bias is required to limit the no-signal plate current of the 807s to a safe value. The tube manuals call for 32 volts bias with a 750-volt plate supply and 300 volts on the screens. For all practical purposes, a 22.5-volt B battery can be used instead of the recommended 32 volts if the screen voltage is limited to 250 volts. This, of course, results in slightly less power output, but it is still possible to get about 100 watts without distortion. If slightly more power output is needed, the specified bias, plate, and screen voltages must be applied, but even so, output will not ordinarily be much more than 100 watts because of losses encountered in the transformer.

The following tabulation shows the various conditions under which the 807 stage can be operated to obtain the required power output. These figures are taken from the tube handbook, and power-output figures must be discounted somewhat to allow for transformer losses. All values shown are for a screen supply of 300 volts.

E_p	*400*	*500*	*600*	*750*
Bias	−25	−29	−30	−32
I_p (*max.*)	240 ma.	240	200	240
I_p (*min.*)	90 ma.	72	60	52
Load Res.	3200	4240	6400	6950
Output	55	75	80	120

If more than 22.5 volts bias is required, it can be obtained from batteries, or from a fixed supply patterned after any of those described in recent editions of *The Radio Amateur's Handbook*. Batteries should last nearly their shelf life in the unit, because grid current flows only during a small part of each audio cycle, and then only when maximum output is called for.

December 12th of this year marks the 50th anniversary of Guglielmo Marconi's reception of the first transatlantic radio signals. It was at a point near St. John's, Newfoundland, that the famed inventor and an assistant — using a kite antenna — heard the historic "S" transmitted by the 25-kw. spark at Poldhu, Cornwall, England.

How To Build a Transmitter

Some Elements of Radio Construction

BY BYRON GOODMAN,* W1DX

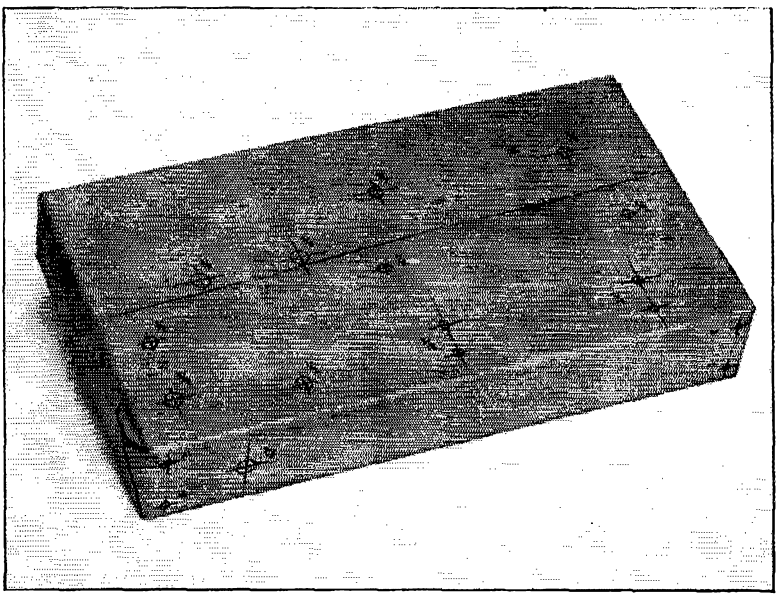
LIKE the subject of radio design, it is ridiculous to expect to cover the entire field of construction in one article, or in one book. However, there are many basic procedures and techniques that apply to practically all amateur construction, and they will be pointed out here, as a guide to builders new to amateur radio. Ingenuity and available tools play a large part in any construction work, but the average amateur doesn't have a machine shop in his basement — a survey might show he doesn't have a basement! — and we will try to hold the techniques down to those possible with ordinary hand tools. It is a hard fact, however, that the more and better tools one has the easier will become his work and the greater the possibilities, so anyone who plans to do a lot of building should give considerable thought to his investment in tools.

Chassis Materials

The large majority of amateur rigs these days are built on a steel or aluminum chassis, because it is probably the most logical type of construction. It can be made to look "professional," it lends itself well to shielding (for TVI or feedback reduction), and it is sound electrically, since the large mass of metal furnishes a good "ground" point. There was a time some 15 or 20 years ago when most construction was "breadboard" (figuratively and literally) and, while wood is a simple thing for fastening some temporary lashup to, it is usually harder to obtain a good-looking end product with wood than it is with metal. There is plenty of room for a combination of wood and metal construction — the most obvious is the use of metal for the chassis and wood for a relay rack or cabinet — so don't jump to the conclusion that metal is the only possible base material for a piece of radio gear.

Steel and aluminum chassis are available in many standard sizes, and the only home construction of chassis these days is when some special size or shape is required. The commercial ones use spot-welded construction, and the steel chassis are available in painted or plated finishes, the aluminum in natural or dipped finishes. The use of a steel chassis is generally reserved for some heavy unit where strength is important (as in a power supply) because the steel is harder to work with hand tools. It is also more difficult to make decent r.f. connections to a steel chassis, since it involves scraping paint at many places, and this again is a point in favor of reserving its use for power supplies or audio work where some degree of magnetic shielding can be obtained through the use of steel.

Since the two-tube transmitter we are using for an example in this series [1] has no heavy components on it, there is no reason for not building it on an aluminum chassis. Its only possible disadvantage in this instance is if the coils work hard



The paper covering that comes with the chassis can be used for a template.

* Assistant Technical Editor, *QST*.

[1] Goodman, "How To Lay Out a Transmitter," *QST*, July, 1951.

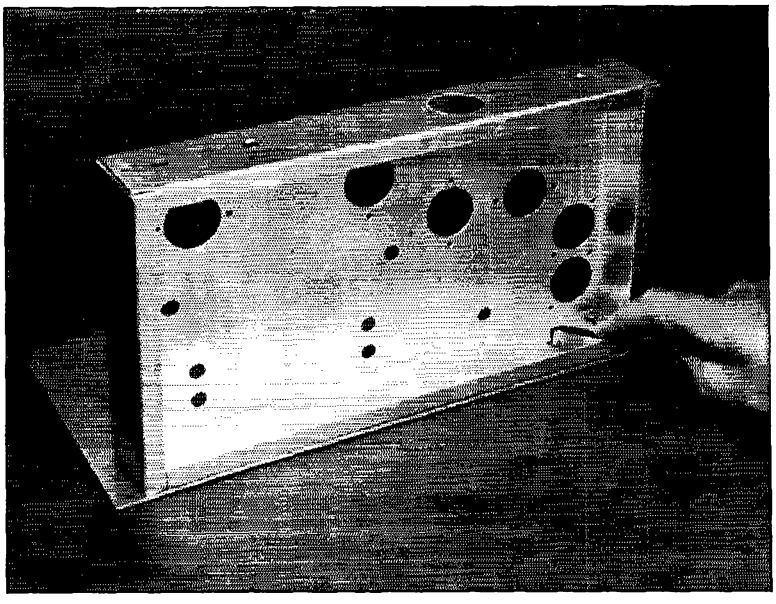
plugging in and out of their sockets, in which case the chassis may seem like a piece of limp cardboard on such occasions. There are two solutions to this: mount such sockets near the edge of the chassis (impractical in this layout), or reinforce the chassis with an aluminum channel. It is, however, a minor problem that may never require a solution in any of your rigs.

The chassis can be obtained from a radio store. Some radio stores carry small sheet aluminum for panels as well — if yours doesn't, and you can't find one in a mail-order catalog, scrounge a scrap from some sheet-metal shop that uses aluminum. The radio stores also carry full-width (19-inch) aluminum panels in various standard heights. These are made of heavier stock finished in black wrinkle lacquer, and are very useful when building a large rig. Panels of similar size and finish are also available in Presdwood, which has the advantage of being very easy to work and the disadvantage that it offers no electrical shielding.

The panel for the two-tube rig under discussion can be cut to size and shape by several methods. Since it is a flat rectangular piece with two rounded corners, and involves no fancy cutting, it can be trimmed close to size with a pair of tin snips. Scribe the desired dimensions on the panel with a scribe or ice pick, using a straightedge for a guide, but don't try to cut to the line directly with the snips. Make a series of narrow ($\frac{1}{16}$ or $\frac{1}{8}$ inch) trimming cuts until you have worked down to within $\frac{1}{16}$ inch or so of the scribed line, and then finish to the line with a file. Making large cuts with the snips will deform the aluminum in many instances. If you have a vise, you can clamp the panel in it and cut close to the dimension lines with a small saw, finishing with a file. Another way to cut aluminum, which is particularly useful with larger pieces, is to score each side heavily with a chisel or ice pick (dragging the cutting edge several times across the cutting line until a deep cut is made) and then clamp the aluminum between two boards. The edges of the boards should coincide with the scored line, and the boards can be clamped in a vise or between two "C" clamps. Then, by bending the aluminum back and forth across the scored line, it will eventually break on the line. The deeper the original cut is made (on both sides of the aluminum, of course), the easier it is to break the metal cleanly. This may sound like a haywire method, but it works well and requires only a small amount of touching up with a file. If the strip to be removed is narrow, the aluminum can be held in a door.

In any case, the edges of the aluminum should be finished with a file — if you have only a rough file, steel wool stolen from the kitchen or obtained honorably can be used to finish the edges.

In the interests of avoiding unnecessary scratches on the aluminum chassis, it is advisable to keep it covered with paper during most of the mechanical work. This works no particular hardship, since the paper covering that comes with the chassis can be used for a template, or a separate template can be made. Any sheet of plain paper heavier than tissue and large enough to cover the chassis will serve as the template. Fasten it to the chassis with cellophane Scotch tape, and then mark the centers of all holes with a pencil. A combination square (your hardware store will show you one, if you aren't familiar with the term) can be used to lay out the holes, working against a chassis edge as a reference, or the holes can be laid out by working from a center line. If you're lucky and get a chassis that has truly square corners, you can reference from several sides, but most chassis are slightly out of square and must be treated accordingly.



♦

Use the chassis as a template for marking the switch hole. If the chassis holes are larger than $\frac{1}{4}$ inch in diameter, you can locate them more accurately on the panel by drilling small guide holes in the chassis, transferring their locations to the panel as shown, and then enlarging the holes to the correct sizes.

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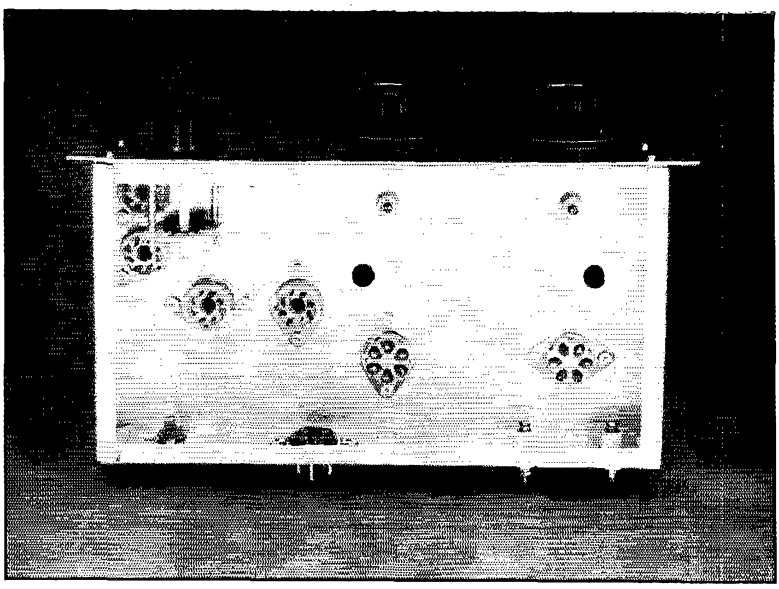


You will never see it so neat-looking again. The wiring usually messes up any rig. . . .

When all of the holes have been located on the template, their centers are transferred to the chassis with a center punch. The ice pick can be used, but it doesn't give as good a starting center as a regular center punch will. Back up the chassis with a small block of wood that is higher than the depth of the chassis when you punch the centers.

The template can be left on the chassis when you drill the holes, since it will help to keep the chassis clean just that much longer. Mark the sizes of the various holes alongside the punched centers, so that you won't have to keep a mental picture of the entire chassis with you. If you own an electric drill, you can run through the holes quite rapidly, but aluminum works easily and even an "egg beater" drill won't make a chore out of the work. Any hole larger than ⅛-inch diameter is best drilled first with a small drill, to avoid the possibility that the point of the large drill will "walk around" when you start the hole. It shouldn't be any surprise to you to learn that sharp drills work faster and neater than dull ones.

Unless you are drilling brass or duraluminum, or are using special sheet-metal drills, you will find that all of your holes have burrs on the side where the drill comes through. These can be removed from aluminum with the point of a larger drill, with a small file, or with a jackknife. In the case of steel, these burrs can be removed readily with a cold chisel laid against the burred side of the chassis and tapped a few times with a hammer. The ground face of the chisel should be held flat against the metal or the metal will be gouged, but it is no trick to feel the right position of the chisel.

Socket holes can be cut with an adjustable fly-cutter, but by far the easiest and cleanest way is to use one of the socket-hole punches now available in the radio and hardware stores. These come in many different sizes, from diameters useful for mounting coaxial fittings and miniature tube sockets all the way up to holes for mounting meters. Square ones are available, and these are useful when punching holes for transformers or other devices that require rectangular holes. Naturally, the only ones you need are those whose dimensions match your requirements, so you can take years to build up a full stable of these punches. For example, the ceramic sockets used in the two-tube transmitter we have been discussing[1] require a 1¼-inch diameter hole, as does the 5-prong cable connector at the rear of the chassis. To cut the 1¼-inch holes with the punch, first drill a ⅜-inch diameter hole and then assemble the punch on the hole with the ⅜-inch bolt furnished with the punch. Then use a wrench to tighten the bolt, and as you tighten the bolt the punch will cut a clean hole in the chassis. Or, if you have a bench vise, clamp the head of the bolt in the vise and rotate the chassis — this gives a little more leverage than a small hand wrench will, and is a good lazy-man's method. These punches are so much nicer to use with thin aluminum than a fly-cutter that we don't hesitate to recommend their use and your investing in them, although the fly-cutter is required when cutting meter holes in the heavy panels. If your drill won't handle the ⅜-inch drill necessary for the socket-hole punch, you can enlarge a ¼-inch hole with a rat-tail file held in a carpenter's brace and rotated counterclockwise, or you can use a reamer and the carpenter's brace.

The holes for the screws that hold the sockets to the chassis are best drilled after the socket holes have been punched, using the socket itself for the template while marking the holes. Pay attention to the position of the socket in the hole, so that the pins of the socket will come out the way you want them, as discussed in the earlier article. Since these holes are drilled close to an edge of the aluminum, be sure to back up the chassis with a block of wood when you are drill-

ing, to prevent "walking" of the drill toward the edge.

When all of the chassis holes have been drilled or punched (including the holes for the rubber grommets), drill the screw holes in the panel for fastening the panel to the chassis. Use these as a template for marking the corresponding chassis holes. Drill the chassis holes and fasten the panel to the chassis, and then use the chassis as a template for marking the switch hole. The centers of the condenser-shaft clearance holes can also be located at this time, by measurement. The meter hole on the panel can be cut with a fly-cutter or meter-hole punch, bought or borrowed, or you can file it out with a rat-tail file and elbow grease. The punch is a good investment, though, as mentioned earlier. Incidentally, the business of using a panel for a chassis template, and vice versa, is a dodge you will want to use frequently, unless you are a better-than-average mechanic. In many cases it is the only way you can fit things together without considerable "dragging" of holes later on.

Protective Finishes

When all of the holes have been drilled in the chassis and panel, it's time to remove the protective paper. If the panel isn't already "dipped" (has a dull finish), you can leave the aluminum plain, but many fellows don't like the shiny finish of the aluminum. However, it is not too difficult a matter to dip the chassis and panel in a lye bath that will give a dull finish. Just immerse the chassis or panel in a lye solution (¼ to ½ can household lye to one gallon of cold water) and leave it there for 15 or 20 minutes or longer, depending upon the strength of the solution and the desired finish. The lye bath can be put in an enameled pan big enough to take the chassis, but be careful in handling the solution because it can injure your skin or clothes. Bubbles will form on the aluminum and rise to the top of the solution, so place the work in the solution in such a way that the bubbles won't be trapped and mask a surface of the aluminum. The chassis or panel can be fished out with a stick or wire and washed under running water when the time is up. A dark deposit will have formed on the surface of the aluminum, but this can be wiped off with a cloth or paper towel, leaving the finished surface with a pleasing, dull appearance.

Some builders rub aluminum with fine carborundum or steel wool, to obtain a sanded finish, but it is difficult to make the finish uniform, and the chemical method just outlined is usually more satisfactory for average use.

If desired, thinned clear lacquer can be sprayed or brushed on the treated aluminum, to protect it from dirt and fingerprints.

Mounting Components

In most cases it is quite obvious how components are mounted on a chassis, but a few special hints might be in order. For example, the crystal switch for this transmitter (and a rotary switch in any other transmitter or receiver) should be mounted with the lock washer on the inside of the chassis and a smooth washer on the outside. Then, as the mounting nut is tightened, the lock washer will bite into the switch and the chassis, and prevent the switch from turning. Before the switch is installed, examine it to make sure that the adjustable "stop" is properly positioned for the number of points to be used, since this is an adjustable feature of almost all multiposition rotary switches. Most switches use the detent as one stop and an adjustable one for the other — a moment's inspection of the switch will make this clear.

The variable condensers in this particular case should be mounted on small ceramic feed-through insulators, even though one of them (C_{13}) is shown with the rotor grounded. A heavy wire is then run from one screw in the insulators supporting C_{13} and grounded at the common ground point for the amplifier tube. The reason for this is a point that is missed by many builders — if the condenser is grounded to the top of the chassis, the r.f. must find its way back to the common ground over the surface of the chassis to some large hole (probably the amplifier socket hole, in this case) and back to the underside of the chassis. As described, the screw will conduct r.f. through the dielectric hole formed by the insulator. Although it is not too important in a small transmitter of this type working at low frequencies, it is good practice to remember that *r.f. cannot pass through metal or small holes*, and that you should always provide a direct and known path for it. In multistage high-gain equipment, such as large transmitters or receivers, much trouble with feed-back can be eliminated by knowing beforehand where the r.f. is going. You can do this by providing a path, *and only one path*, for the r.f.

Once all of the large components have been mounted on the chassis, stand back and take a look at the rig — you will probably never see it so neat-looking again! It is a sad-but-true fact that the wiring usually messes up the design of any rig, but in the next article we will try to pass along a few hints on holding this messing-up process down to a minimum.

YLs . . .

Remember, the *QST* department for YL amateurs starts next month. You are invited to send news items, photographs and suggestions to YL Editor Eleanor Wilson, W1QON, 318 Fisher St., Walpole, Mass.

A Practical and Economical Approach to Medium Power

Some Thoughts on Station Design

BY WILLIAM H. PRETTY,* W5SCX

• Here is how one General Class amateur graduated to a medium-powered rig without too much financial strain. The station leaves room for future expansion without waste, and it is a good illustration of how anyone can modify and combine existing designs for his own use. It is also a good lesson in how to get the most out of available surplus material. You won't duplicate the complete set-up, but we believe you can find some good ideas here.

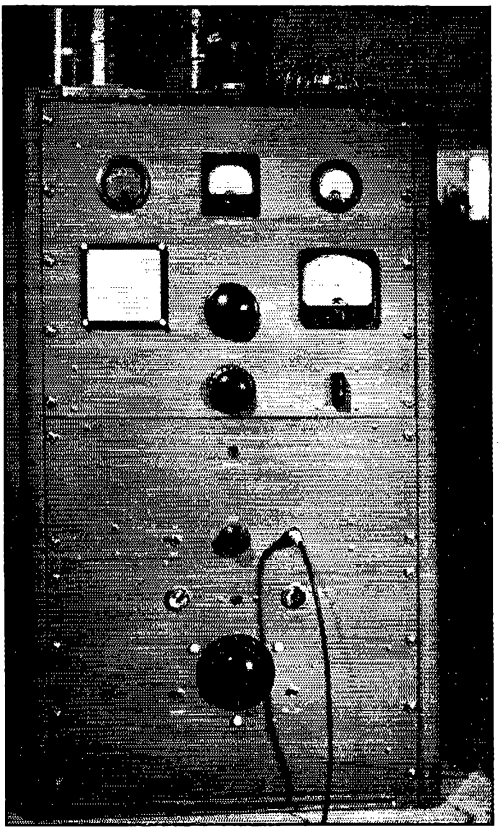
THIS is primarily for the General Class ham (formerly called Class B) who, having cut his teeth on a clattering Command set with its limited power, is having growing pains and is becoming interested in a sound, practical and economical approach to medium power. The rig described here has an input of from 0 to 450 watts, 80 through 10 meters, and utilizes controlled-carrier modulation for that fling at 10-meter 'phone. The material presented here is not necessarily new or original, and represents modifications of circuits appearing in current radio publications. However, the effort was aided and guided by the older and bandwise hams of W5PGI.**

The station has five component parts: the receiver, the control panel, the final amplifier with its power supply and modulator, the band-switching VFO-exciter, and the antenna coupler. As in any station, their design is somewhat interdependent, but each will be discussed separately.

The Control Panel

Since the choice of the receiver is up to the individual, only its connections into the rest of the station will be considered. The control panel of the station is designed to take care of present and future operating and was made from a choice bit of surplus available for a few dollars. It originally contained half a dozen multiple-contact switches and a wire-wound potentiometer, all on a bakelite panel. A box was built to fit the panel and serve as a support for the receiver, and the potentiometer was removed and a pilot lamp used to fill the hole.

The wiring diagram of the control panel is shown in Fig. 1. The original wiring was removed, and a 16-volt doorbell transformer, a 1-ampere copper-oxide rectifier and a 50-μfd. 50-volt condenser were mounted inside the box. This supplies sufficient d.c. power for the various relays, and the control of the entire station is always right at the finger tips. "Send" and "Receive" are controlled by one convenient lever, a definite "must" for any easy-operating station. The d.c. relays operate smoothly and positively at this voltage using 6-, 12-, and even 28-volt relays (with the windings in parallel). The switches were moved from their holes and inverted so that the "up" position is "ON," in keeping with the rest of the switches in the station.



The final amplifier (top), modulator and power supply (bottom) are housed in a 35-inch-high cabinet. The controls, from top to bottom, are plate tuning, grid tuning, audio volume and plate voltage. The 'phone-c.w. switch is to the right of the grid tuning knob.

* 1610 5th St., S.W., Ardmore, Okla.
** Ardmore Amateur Radio Club.

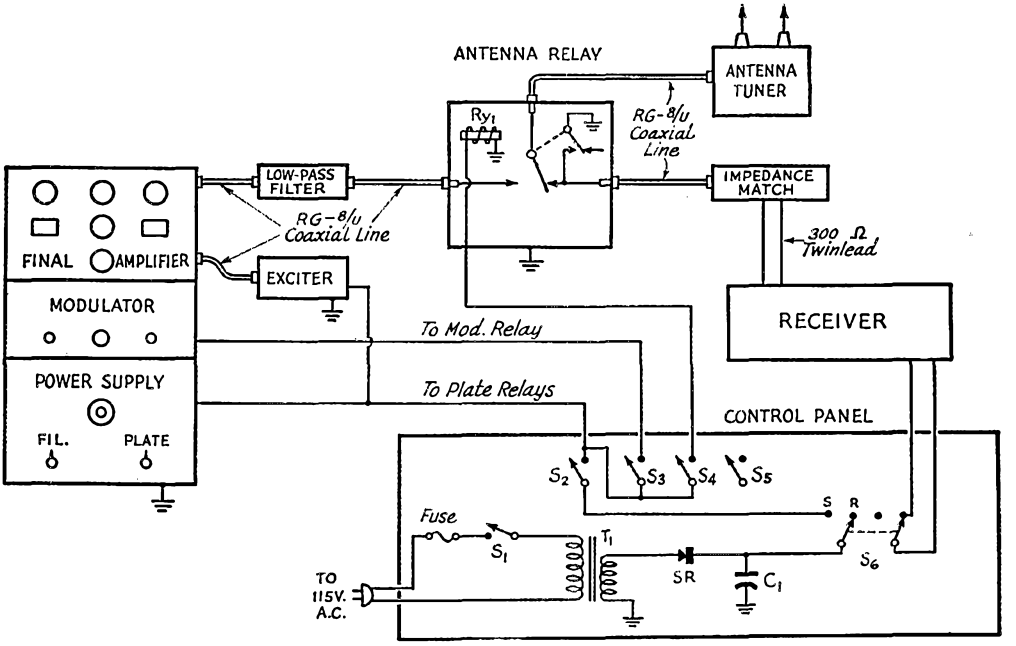


Fig. 1 — Wiring diagram of the control circuits and control panel.

C_1 — 50-μfd. 50-volt electrolytic.
Ry_1 — D.p.d.t. relay, made from Command set relay.
S_1 — Control-panel toggle switch, s.p.s.t.
S_2 — Plate supplies toggle switch, s.p.s.t.
S_3 — Modulator on-off toggle switch, s.p.s.t.
S_4 — Antenna relay toggle switch, s.p.s.t.
S_5 — Spare toggle switch, s.p.s.t.
S_6 — Lever-type send-receive switch, d.p.d.t.
SR — Selenium or copper-oxide rectifier, 1 amp.
T_1 — 16-volt doorbell transformer.

The Final Amplifier

After looking over the available tubes, it was decided to use a pair of 814s in the final. They are inexpensive in the surplus market, and they can be screen-modulated. Thus the "constant-modulation" system of W8YIHR could be used as a start, but the later addition of plate modulation (for increased power) would require a minimum of reconversion and loss of material. If and when plate modulation is used, the constant-modulation modulator can be converted into a driver stage for a higher-powered modulator.

The wiring diagram of the final amplifier is shown in Fig. 2. It uses standard circuits and techniques throughout. Although only moderate TVI precautions were included, excellent results have been obtained in this "outer fringe of the fringe area," where a very weak TV signal makes the problem more difficult than in a stronger-signal area.

The circuit is an adaptation of the push-pull 800-watt rig in the *Handbook*, modified to use 814s and a screen-dropping resistor instead of a separate supply. Oversize components give a comfortable margin of safety and detract not at all from the efficiency. The output tank coils, L_1, are 500-watt units found in surplus and purchased for $1.50 each. These coils have internal rotating links that, once set for proper loading, need not be disturbed. The grid circuit uses a

The complete station layout at W5SCX, minus the final amplifier and power supply. The home-made antenna relay can be seen on the wall next to the clock, with the low-pass filter above and the receiver coupler to the right. The receiver in the center rests on the station control panel, and the antenna tuner is on the shelf at the right. The VFO-exciter is to the left of the receiver.

National MB-40 tuner for all-band tuning without plug-in coils or switching. Two VR-150s in series prevent the screen voltage from rising above 300 with no excitation. When switching to 'phone the VR tubes draw some current, but it is not excessive and only acts as a little heavier bleed for the power supply. The screen " 'Phone-C.W." switch, and the grid tuning dial, were removed from a surplus TU-10B unit. Grid bias for the 814s is obtained from the grid leak, R_3, and the bias supply. The bias supply bleeder resistor, R_2, was adjusted until the bias supply gave 80 volts output when the grid current was 20 ma., and thus the operating bias is 125 volts. For safety, the plate meter is in the filament center-tap circuit, where it reads the total grid, screen and plate current. The grid and screen currents must be subtracted from this reading to get the plate current.

The final amplifier is built on a 13 × 17 × 3-inch chassis and fronted by a 15-inch standard panel. It is the top unit in the photograph of the transmitter cabinet. The photograph of the amplifier proper shows the arrangement of parts. The large resistor mounted on the top of the chassis is the screen-dropping resistor, R_4, mounted above the chassis for better ventilation. The sockets for the 814s are mounted in the bottoms of small cans which in turn are submounted and soldered to the holes in the chassis. This arrangement allows very short leads to the plate tuning condenser. All meters are of the surplus variety, and one low-range milliammeter was converted to a plate voltmeter by adding the proper series resistor to make it read 2000 volts full scale.

Modulation

The controlled-carrier modulation is obtained by the W8YHR method as described for an 813,[1] except that negative insert voltage was found to be unnecessary. The slight residual carrier without speech makes for ease of tuning by the receiving station and, if loaded sufficiently, you still may have a satisfactory percentage of modulation. Tune-up for 'phone operation is done at low plate voltage and with the screen switch in the c.w. position, because the resonance dip can be more accurately set under these conditions. The plate voltage is then increased, after switching to the 'phone position. This type of 'phone operation (screen modulation) seems more satis-

[1] Lippert, "'Constant Modulation' of the 813," QST, Nov., 1950.

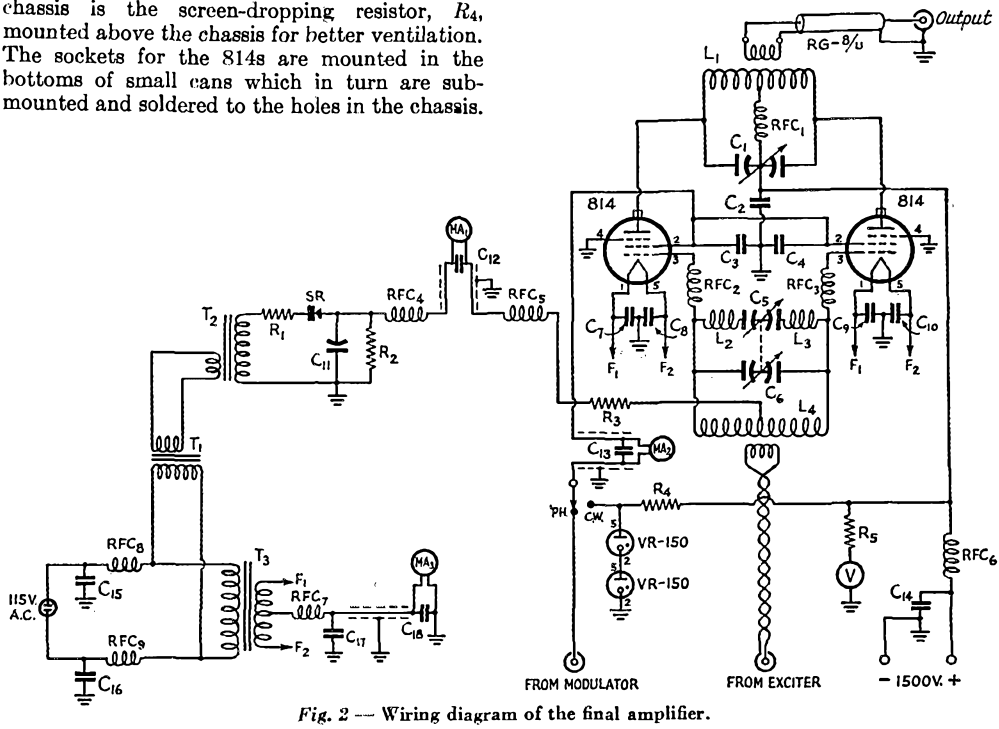


Fig. 2 — Wiring diagram of the final amplifier.

C_1 — 100-$\mu\mu$fd. per section, 0.078-inch spacing.
C_2 — 0.001-μfd. 5000-volt mica.
C_3, C_4 — 0.002-μfd. 1000-volt mica.
C_5, C_6 — Part of National MB-40 multiband tank.
C_7, C_8, C_9, C_{10} — 0.004-μfd. 300-volt mica.
C_{11} — 50-μfd. 150-volt electrolytic.
C_{12}, C_{13}, C_{15}, C_{16}, C_{17}, C_{18} — 470-$\mu\mu$fd. 500-volt mica.
C_{14} — 400-$\mu\mu$fd. 2500-volt mica.
R_1 — 47 ohms, 1 watt.
R_2 — 2000 ohms, 5 watts.
R_3 — 2250 ohms, 10 watts.
R_4 — 30,000 ohms, 100 watts.
R_5 — Voltmeter multiplier, as needed.
L_1 — 500-watt coil for band in use.
L_2, L_3, L_4 — Part of National MB-40 multiband tank.
MA_1 — 0–25 milliammeter.
MA_2 — 0–100 milliammeter.
MA_3 — 0–750 milliammeter
V — 0–2000 voltmeter.
RFC_1 — 1-mh. 600-ma. r.f. choke.
RFC_2, RFC_3 — 14 turns No. 18 enam., ¼-inch diam.
RFC_4, RFC_6–RFC_9 — 7-μh. (Ohmite Z-50).
RFC_5 — 2.5-mh. r.f. choke.
SR — 75-ma. selenium rectifier.
T_1, T_2 — 6.3-volt 1-ampere transformer.
T_3 — 10-volt 8-ampere filament transformer.

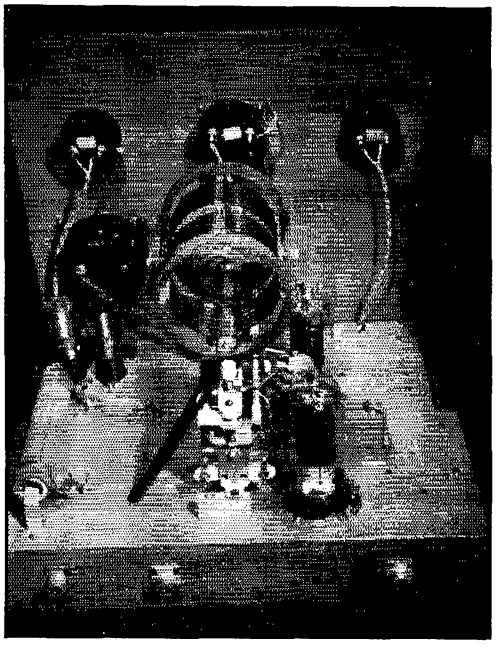
factory and the modulation percentage greater when the loading is heavier than would be used for c.w.

The modulator is similar to the 20-watt unit described in the *Handbook*,[2] except that a Merit A3104 modulation transformer is used and a 6X5 rectifier is added, as per the Lippert article. The modulator has its own power supply, and the power supply is turned off by opening the transformer center tap with a relay. The entire modulator is disabled (for c.w. work) by a switch in the power transformer primary. The modulator and its power supply are built on a 10 × 15 × 2-inch chassis, with a 7-inch panel, and it occupies the middle portion of the transmitter cabinet. A short length of coaxial line is used to carry the audio from the modulator to the screen switch in the r.f. amplifier.

No undue construction precautions were found to be necessary in the modulator, except that the microphone jack and the grid lead to the 6SJ7 were shielded, and the power supply was mounted as far as possible from the input circuit of the amplifier.

Quality reports with the modulator have been satisfactory, and some DX has reported the controlled carrier as being easy to read in heavy QRM. In any event, it holds its own on 10 meters, and the 6L6 modulator loafs along with a half-open volume control.

[2] Fig. 9-15, page 263, *The Radio Amateur's Handbook*, 1951 edition.



A top view of the final amplifier shows the 814s (with r.f. choke and plate blocking condenser in between), the heavy-duty plate coil, and the screen-dropping resistor. Shielded wires are run to each meter, and each meter is by-passed.

Power Supply

The power supply for the amplifier occupies the bottom of the cabinet, and is built on a 13 × 17 × 3-inch chassis, with a 12½-inch panel. The supply is built around the 1500-volt supply available in kit form (Eldico), with a 7.5-ampere 116U Powerstat added in the primary of the power transformer so that the plate voltage can be set to anything from 0 to 1500 volts. By not using more power than is needed at any time, the life of the equipment is extended. Maximum power is seldom required, so our contribution to needless QRM is held to a minimum.

The line voltage is filtered at the entry point into the cabinet by two surplus 130-volt 10-ampere line filters that are available for slightly over a dollar. The filament switch is on the line side, so all filaments and biases come on at the same time. The high-voltage switch simply sets up for relay control, being in series with the relay contacts, and activates the output of the Powerstat when the relay is "on." The a.c. lines for the amplifier and the modulator plug into outlets on the power-supply chassis that are energized by the filament switch.

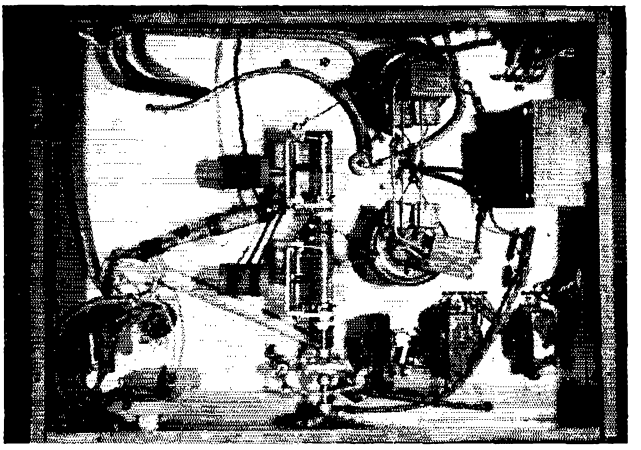
Antenna Tuner

The diagram of the antenna tuner is shown in Fig. 3. The unit offers series or parallel tuning or pi-network operation, and thus it can be used with practically any kind of antenna system. It is built in an 8 × 11 × 12-inch top-opening utility box, and it is coupled to the antenna relay through a 6-foot length of RG-8/U. The antenna relay is the antenna relay taken from a Command transmitter, with the coils connected in parallel for lower-voltage operation. The relay is housed in a little aluminum box, and a coaxial receptacle on the side wall takes either the plug leading to the antenna tuner or the RG-8/U line leading to the gamma-matched 10-meter beam. Thus changing from Zepp to the beam involves changing one coaxial fitting — the one not in use rests on a wire hook next to the relay box. There was considerable skepticism as to how long the little antenna relay would last before going up in smoke, but after six months of hard use the contacts are still clean.

In the receive position the 50-ohm line will allow the receiver to work fairly well on 80 and 40 meters, but it is a different story on 20 and 10. The input impedance of most receivers is in the order of 300 or 400 ohms, so on these higher-frequency bands a gain of a couple of S units was obtained by using a little impedance-matching device. This particular one is in the *Handbook*.[3] Once set for the band it seldom needs changing unless going to the extreme ends.

Getting back to the antenna tuner, surplus parts were used. The coils are 500-watt fixed-link affairs bought for less than a dollar each, and the two 100-$\mu\mu$fd. variable condensers are from TU-10B tuning units. The stand-offs and feed-

[3] Fig. 5-46, page 128, *The Radio Amateur's Handbook*, 1951 edition.



This view under the amplifier shows the individual by-passes on the tubes, and the multiband grid-circuit tuner.

throughs are from Command sets or TU-10B units, and the two r.f. meters and their thermocouples are from the BC-442 antenna relay units.

The series- and parallel-tuning connections are used with the 40-meter Zepp on 7 Mc. and higher — on 80 meters the two feeder wires are tied together and the pi-network connection is used.

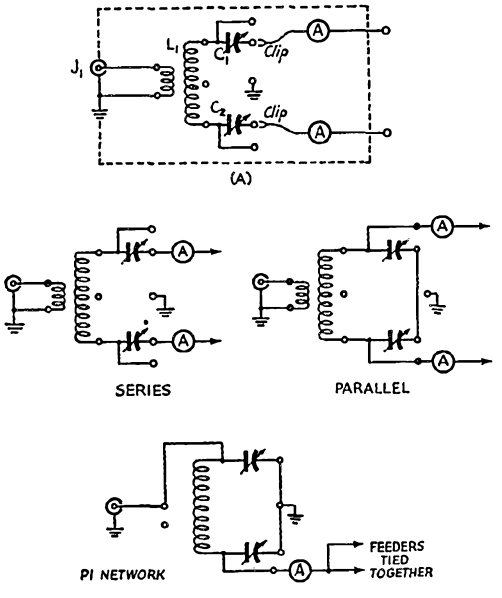


Fig. 3 — Wiring diagram of the antenna tuner (A), and the connections for series, parallel or pi-network operation.

C_1, C_2 — 100-$\mu\mu$fd. 1500-volt variable (from TU-10B surplus).

L_1 — 500-watt fixed-link coil.

A — 0–10 r.f. ammeter with external thermocouple (from BC-442).

J_1 — Coaxial-cable connector.

Ammeter thermocouples are shunted with short lengths of No. 18 wire — wire length adjusted to hold maximum reading on scale. Start with doubled or tripled short lengths, and adjust by using longer lengths of wires.

The Driver

A Command set (with a low-voltage power supply) may readily be used to drive the final amplifier, or a commercial exciter delivering 8 to 10 watts will be quite adequate. A homemade band-switching VFO-exciter (the fifth attempt) with a 2E26 output stage is used at W5SCX. The oscillator alone is switched on for frequency spotting, to set the transmitter on frequency without "swishing" the band with the entire transmitter.

General

Old-timers could make many improvements in this station and, I am sure, find many faults in it. But this isn't intended to be the Utopia of medium power, to be duplicated in detail. It is only presented as a starting point, to be modified to suit the individual requirements and desires of the average General Class op who wants a medium-powered rig while sweating out his Advanced Class ticket. Depending upon the amount of surplus and junk-box gear available, the cost runs around 30 to 40 cents per watt, and that isn't too bad in this day and age.

Strays

The 1949 and 1950 issues of *QST* are available on microfilm, and the current year's issues will be available shortly. The cost is comparable with that of binding the same material in a conventional library binding, assuming an edition of 30 or more. Sales are limited to those subscribing to the paper edition. Interested parties should write University Microfilms, 313 N. First St., Ann Arbor, Mich.

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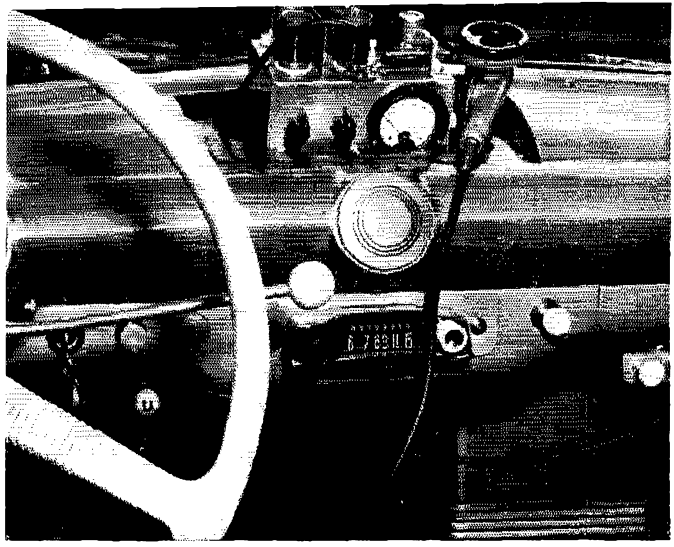
There continue to be vacancies at the Naval Research Laboratory in Washington, D. C., in physical sciences and engineering fields. Page 45 of January *QST* illustrates the type of openings, now paying between $3100 and $8800 per year depending on the position and qualifications of the applicant. Write Personnel Division, Naval Research Laboratory, Washington 25, D. C., for additional data and application blanks.



"Mighty Mo" sits in a well on the dash of W1GAC's car. Since its largest dimension is six inches, it can be fitted in almost anywhere.

"Mighty Mo"

A Midget Mobile for 75, 20 and 10

SMALL, but its performance is out of proportion to its size. That's why George Mouridian, W1GAC, calls his three-band mobile transmitter the "Mighty Mo." The accompanying photographs just about tell the story of its construction.

The r.f. end has a 6C4 crystal oscillator driving a 2E26 as an amplifier on 4 and 14 Mc. and as a doubler on 28 Mc., using 14-Mc. crystals for the last two bands. The amplifier is coupled into a length of 75-ohm coax feeding the bottom of a 7½-foot whip which is appropriately loaded to be resonant when working on the lower two bands.

The modulator section has a 9003 speech amplifier driving a 6K6 pentode modulator. Microphone current is obtained from the cathode circuit of the 6K6.

All this is on a 3 by 4 by 6 chassis.

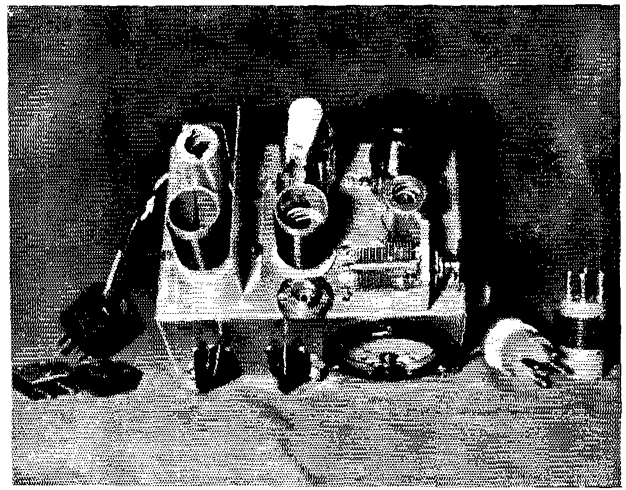
The power supply used with "Mighty Mo" is a vibrator unit having nominal ratings of 300 volts and 100 ma. Under full load the voltage runs between 250 and 270. The 2E26 is driven to about 4 ma. grid current, and the plate circuit loading is adjusted to make the plate current 50 to 55 ma. Off resonance it runs about 60 ma. and without load it dips to 6 ma. The total modulator current, plate and screen, is 30 ma.

Loading on the amplifier is adjusted by means of the coil at the base of the antenna. This is a Master Mount 75-meter coil, turns being removed until the amplifier draws the proper plate current at the operating frequency in this band. On 14 Mc. the loading inductance is adjusted, by shorting out turns from the bottom, until the 2E26 takes the proper plate current. The tap point should be about ⅛ the way up from the bottom of the coil. On 28 Mc. the entire loading coil is shorted out.

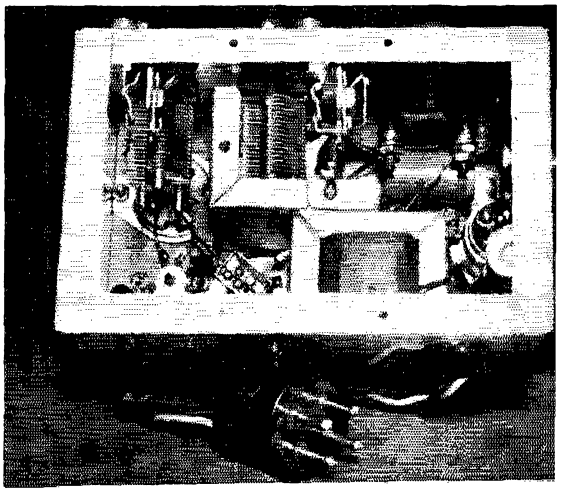
The transmitter output goes through a length of coaxial cable to a change-over relay, not a part of the transmitter itself, and thence to the antenna.

Many enjoyable contacts have been achieved with "Mighty Mo," including a 100 per cent QSO with W1CND, Northampton, Mass., while W1GAC was mobile in the White Mountains of New Hampshire.

The speech tubes are along the right-hand edge of the chassis. Plug-in coils permit operation on three 'phone bands. The crystal-oscillator section is at the left. The variable condenser is C_8, for varying the loading. One corner should be bent over so that the condenser is short-circuited at full capacitance, this being the optimum condition at 4 Mc.



A shield folded from aluminum separates the oscillator and amplifier sections. Power leads come out to a tube-base plug. Although the tuning condensers in this view are 140-$\mu\mu$fd. units, 100-$\mu\mu$fd. condensers will be large enough with the coils specified. The unwired jack in the upper left was installed for possible future use as a keying jack.



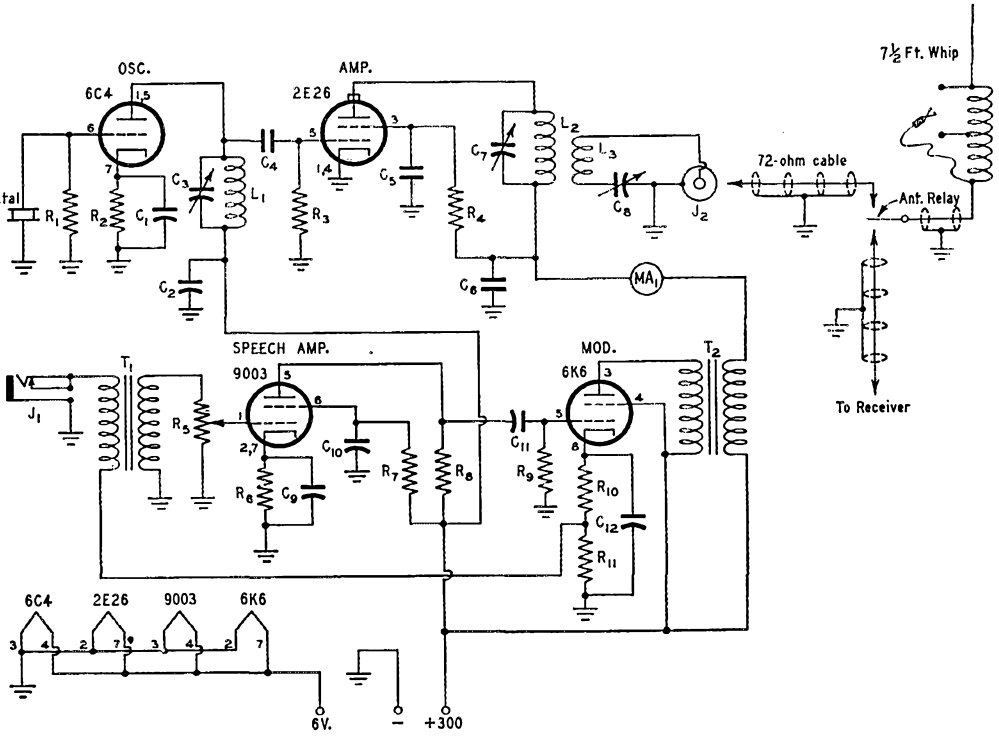


Fig. 1 — Circuit diagram of the "Mighty Mo." The antenna circuit connections shown at the upper right, not part of the transmitter unit, are described separately in the text.

C_1, C_2, C_{10}, C_{11} — 0.01-μfd. paper, 400 volts.
C_3, C_7 — 140-μμfd. midget variable.
C_4 — 100-μμfd. mica.
C_5, C_6 — 0.002-μfd. mica.
C_8 — 100-μμfd. midget variable.
C_9, C_{12} — 20-μfd. electrolytic, 25 volts.
R_1 — 30,000 ohms, ½ watt.
R_2, R_{10}, R_{11} — 400 ohms, ½ watt.
R_3 — 40,000 ohms, ½ watt.
R_4 — 12,000 ohms, ½ watt.
R_5 — 0.5-megohm volume control.
R_6 — 1500 ohms, ¼ watt.
R_7, R_9 — 0.25 megohm, ¼ watt.
R_8 — 0.15 megohm, ¼ watt.

L_1, L_2 — 4 Mc.: 35 turns No. 28 enam. on 1-inch form.
14 Mc.: 10 turns No. 22 d.c.c. on 1-inch form.
28 Mc.: 6 turns No. 22 d.c.c. on 1-inch form (L_2 only).
L_3 — 4 Mc.: 4 turns No. 24 d.c.c. inside L_2 form.
14 Mc.: 2 turns No. 24 d.c.c. inside L_2 form.
28 Mc.: 2 turns No. 24 d.c.c. inside L_2 form.
NOTE: The 14-Mc. oscillator coil, L_1, is used for both 14 and 28 Mc., 14-Mc. crystals being used in both cases.
J_1 — Closed-circuit jack.
J_2 — Coax connector, chassis type.
MA_1 — 0–100 d.c. milliammeter.
T_1 — Midget microphone transformer.
T_2 — Midget output transformer, 1 to 1 ratio.

The antenna used with "Mighty Mo." The loading coil is used in its entirety on 4 Mc., has part of the turns shorted out for 14 Mc., and is jumpered for 28-Mc. work.

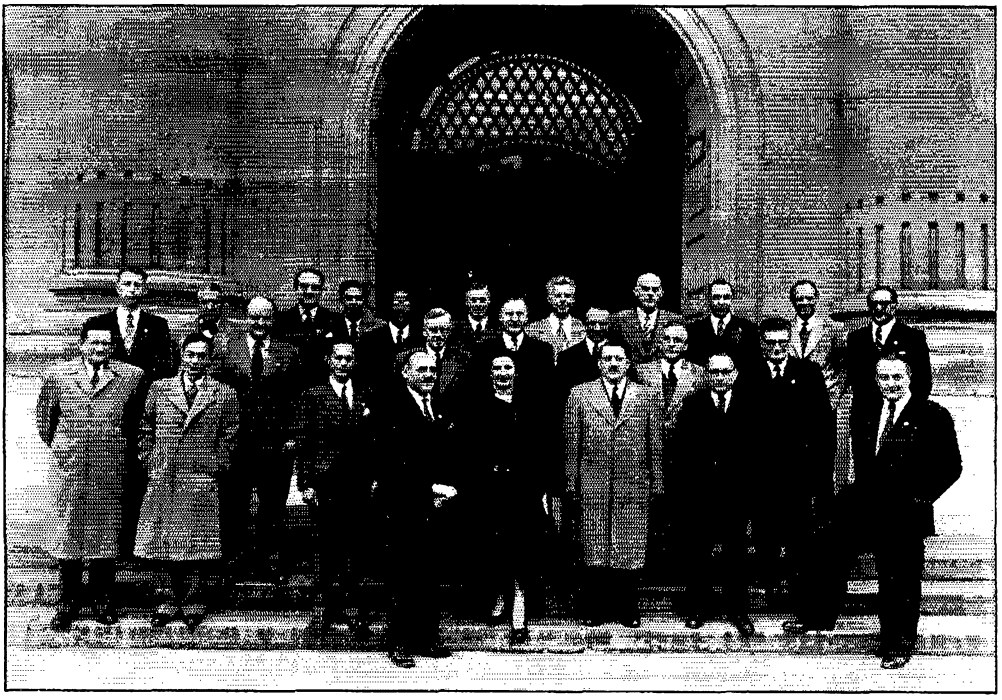
Happenings of the Month

PRIORITIES FOR AMATEURS

In October the National Production Authority issued its Order M-85, authorizing amateurs to use certain self-rated priorities, up to $100 yearly, in obtaining hard-to-get parts and equipment. Since the intent is to encourage an expansion in the number of amateur stations participating in defense and security activities, a double quota or $200 is authorized active members of one or more of the following groups:

National Emergency Net (ARRL)
National Traffic System (ARRL)
Amateur Radio Emergency Corps (ARRL)
Military Amateur Radio System (U. S. Army)
Military Amateur Radio System (U. S. A. F.)
Radio Amateur Civil Emergency Service (Federal Civil Defense Admin.)
Flood Emergency Network of Radio Amateurs (U. S. Weather Bureau)
Civil Air Patrol (U. S. Air Force)
U. S. N. R. Communications Network

The procedure is straightforward. If you need parts or equipment not easily obtainable because of shortages, you simply place a written order with your supplier and mark thereon the symbol "DO-MRO" (just plain "MRO" for bulk steel, copper and aluminum). Write also on the order the statement, "Certified under NPA Order M-85 for amateur radio station use only," and sign your name and call letters. Keep for at least two years records of any orders you may place using such priority. For the purpose of the quota, the year begins and ends each August 31st, and of course you may not exceed the amount authorized. You may, however, pool your quota; for example, if you need a $400 unit and are a member of one of the above nets with a $200 quota, you can perhaps get another member of the net to assign his quota to you by adding his signature to the delivery order. Of course, any gear available in the open market need not be covered by priorities.



Among the many hams in attendance at the Extraordinary Administrative Radio Conference in Geneva this fall were those pictured above. Reading from *left to right: 1st row:* W2OGK, Eugene Price; ex-XU2RT, Yu-Yueh Mao; DU1MC, Miguel Contreras; ZP6AB, Salvador Guanes; ZP5AA, Mme Maria Guanes; LU5AQ, Antonio Navatta; HB9DB, Albert Guldimann; DL1XF, W. Slawyk. *2nd row:* OK1WI, Miroslav Joachim; ET3R, Chas Reynolds; W3KO, John Russ; VK3OP, John Kosseck; VE3AC, Chas. Acton; VK3MT, Joe Dobbyn. *3rd row:* W3ZM, Al McIntosh; HB9IA, G. Gross; YO3AA, Ernest Gross; PK2SX, Des Alwi; ET3X, Gabriel Tedros; ZL2KD, Dave Shepherd; W1BUD, Arthur Budlong; ZL2AZ, Tom Clarkson; ZL2IQ, Rex Cassey; G3IC, Bob Chalk; VU2MD, Dady Major. Also present at the conference but not available for the photograph were: PY1AX, OH2NA, DL4UR, PAØRG, ex-HBAG, XE1K, AP2B, ZS6B, G5WU, CX4BN, W3RF, W4LKE, and W6AFJ.

MANEUVERS BOUQUETS

The military has formally conveyed through appropriate Government channels its appreciation for the coöperation of amateurs in keeping 3700–3900 kc. clear during the August maneuvers as requested in a FCC Public Notice. The communications chiefs of each service have also taken time out to write ARRL's President Bailey letters which we reproduce below:

DEPARTMENT OF THE ARMY
Office of the Chief Signal Officer
Washington 25, D. C.

Dear Mr. Bailey:

I would like to take this opportunity to thank you and the ARRL organization as a whole for the assistance provided the military in establishing and maintaining amateur radio silence during the Southern Pines Military Maneuvers 6 August through 7 September 1951.

The excellent spirit of cooperation demonstrated by amateur radio operators throughout the nation, by voluntarily keeping the amateur frequencies 3700 to 3900 kc clear of amateur operation, is in keeping with the high standards of close relationship and mutual understanding which are so vital between the U. S. amateur and the military.

Knowing your close, personal association with amateurs everywhere, I would appreciate your relaying, through the medium of the magazine *QST*, my sincere thanks to each and every amateur who participated in volunteering radio silence during the maneuvers period. This, again, is indicative of a fine spirit of fellowship so well known throughout communication elements of the nation.

Sincerely yours,
George I. Back
Major General, USA
Chief Signal Officer

DEPARTMENT OF THE AIR FORCE
Office of the Director of Communications
Washington 25, D. C.

Dear Mr. Bailey:

The cooperation displayed by amateur radio operators in maintaining radio silence between 3700 kcs and 3900 kcs during the recent military maneuvers was outstanding. Such cooperation reflects favorably on the true amateur spirit as supported and inspired by the American Radio Relay League.

The military recognizes the value of the radio amateur to the national welfare and is cognizant of the many valuable contributions to the entire electronics field he is making. This is evidenced by the growing numbers of amateur operators in all facets of the military establishment and the rapid expansion of the Military Amateur Radio System.

MARS is constantly coordinating practices and procedures of amateur radio operations with those of military radio communications, and I am certain that the fine spirit of amateur radio will continue as it has in the past.

Sincerely,
R. C. Maude
Major General, USAF
Director of Communications

This very fine tribute to the usefulness of amateur radio in time of national stress was born in the industry advisory committee of the electronics division of NPA, and largely spark-plugged by Bil Harrison, W2AVA. Throughout the summer he was intensely busy gathering data from the League, military and government officials and departments, and other sources. Donald S. Parris, W4NSP, deputy director of the electronics division, and Messrs. Nelson Miller and Irving Zuckerman of NPA, joined with amateurs on the committee, W6KM, ex-6AJK, and ex-W8CCT, with the support of the Attack Warning and Communications Division of the Federal Civil Defense Administration, to carry the project through and explain to some of the others why critical electronics material should be made available to amateurs.

Copies of the order and additional data may be obtained from any Department of Commerce field office.

FOREIGN QSO BAN — A REMINDER

A list of countries with which U. S. amateurs were forbidden to communicate was issued by FCC in a Public Notice on December 21, 1950. This notice was duly published in *QST*, on page 23 of the February, 1951, issue. Since publication of this notice FCC has served warning that it will cite amateurs heard in violation.

To refresh your memory, U. S. hams are forbidden to work amateurs in Indonesia (this restriction does not include Netherlands New Guinea), Indo-China, Iran, Lebanon, Netherlands Antilles, and Thailand (Siam). QSOs are also forbidden with Austrian nationals but permitted with members of the occupying forces.

There is considerable hope that the situation will be improved in the not-too-distant future. We expect that the governments of Netherlands Antilles and Lebanon will relax their ban on amateur radio fairly soon. In Austria, Indo-China, and Thailand there are, however, political difficulties which make any relaxation of the restriction difficult.

LICENSING MATTERS

A couple of items as reminders:

If you apply for renewal of your license and FCC is delayed in processing and returning it, you don't have to go off the air at expiration date; you may continue operating under the privileges of the license being renewed until you do hear from FCC. The staff, loaded with new license applications, has put aside some of the renewals and so we must expect their processing to be slower than normal. Don't worry, therefore, if a few extra weeks goes by, nor even if your expiration date is passed. Don't write FCC, because it will simply add to their headaches. Make

a note in your log as to the date on which you submitted your renewal application, and you're all set until the renewed license comes back.

Some of the fellows are rushing to get their Advanced Class (old Class A) tickets this year, in the belief that since the Amateur Extra Class license becomes newly available the first of the year, the Advanced Class license dies simultaneously. Not so. Advanced Class examinations will be given throughout 1952, the final date under present regulations being December 31, 1952.

F.C.C. PROPOSAL AND ANNOUNCEMENT

On October 31st the Federal Communications Commission took action in two amateur matters.

First, FCC serves notice of its intention to amend the amateur rules to adopt the recommendation of the League to open the entire 75- and 20-meter voice bands to narrow-band frequency or phase modulation. N.f.m. for 1800–2000 kc. amateur segments was not found feasible in view of the possible problems in connection with the priority of the loran system of radionavigation in this band. Note this is not yet a change in regulations, but only a notice of intent to change; any comment must be filed by January 2nd. The text appears below.

Second, FCC recounts that it has received several requests for changes in or expansion of privileges available in the 7-Mc. band, indicates that they might well be considered together, but says it wants more information and data before taking action. Again the final date for comment is January 2nd. Further details will be apparent from the text, also reproduced below. The Executive Committee of the League is currently examining the issues in order to take such steps as are necessary to determine the League's position.

Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C.

In the Matter of Amendment of Section 12.111 of Part 12, "Rules Governing Amateur Radio Service."	Docket No. 10073

NOTICE OF RULE MAKING PROCEEDINGS

1. The Commission is in receipt of two petitions which request amendment of Section 12.111 of the Rules Governing Amateur Radio Service to permit additional types of emission to be used by licensed amateur radio stations in the amateur frequency band 7000–7300 kc, where at present only continuous wave telegraphy (type A-1 emission) is permitted. One petition filed by the American Radio Relay League asks that this band be open to permit frequency shift keying (type F-1 emission) for radio printer operation on frequencies from 7250–7300 kc. The other petition filed by the National Amateur Radio Council requests that any 100 kc segment of that frequency band be opened to permit use of amplitude modulated radiotelephony (type A-3 emission). The Commission is in receipt of a third petition filed by an individual amateur, Mr. Robert H. Weitbrecht, which requests that frequency shift keying (type F-1 emission) be authorized on all amateur frequencies below 27 Mc for radio printer and similar operation. The commission is of the opinion that these petitions should be considered concurrently.

2. Accordingly, notice is hereby given of rule-making proceedings on the subjects of a possible subdivision of the amateur frequency band 7000–7300 kc for the purposes suggested in the above-described petitions and of providing for frequency shift keying in one or more of the lower frequency amateur bands. Issues which appear to be involved are set forth in the appendix attached hereto.

3. Interested persons may file with the Secretary, Federal Communications Commission, Washington 25, D. C., not later than January 2, 1952, written statements or briefs relating to the above-described subjects or issues. Within fifteen days from the last day for filing of the original comments or briefs, comments or briefs in reply thereto may be filed. The Commission will consider such comments before taking action in this matter. If any comments appear to warrant the holding of an oral argument or hearing, notice of the time and place therefor will be given. An original and two copies of all statements, briefs or comments shall be furnished.

4. The three petitions described above are accepted as comments in the above-entitled proceeding.

5. The Commission's authority to issue rules in this matter is contained in Section 303(a), (b), (c) and (r) of the Communications Act of 1934, as amended.

FEDERAL COMMUNICATIONS COMMISSION
T. J. Slowie
Secretary

Adopted: 10–31–51
Released: 11–1–51

APPENDIX

LIST OF ISSUES

1. Which amateur frequency band or bands, in whole or in part, below 27 Mc. would be the most appropriate, in the light of technical and other considerations including those of the greatest public interest, convenience, and necessity, in which to permit the use of frequency-shift keying (type F-1 emission) for amateur radio-teleprinter and other similar purposes?

2. Would normal amateur activity, as now being practiced in the amateur frequency band 7000–7300 kc., be adversely affected if frequency-shift keying (Type F-1 emission) were permitted to be used in that band, and, if so, to what extent?

3. If frequency-shift keying (Type F-1 emission) were to be authorized to be used in the amateur frequency band 7000–7300 kc., what portion of that band should be made available for that type of operation?

4. Would normal amateur activity, as now being practiced in the amateur frequency band 7000–7300 kc., be adversely affected if amplitude-modulated telephony (Type A-3 emission) were permitted to be used in that band, and, if so, to what extent?

5. If amplitude-modulated telephony (Type A-3 emission) were to be authorized to be used in the amateur frequency band 7000–7300 kc., what portion of that band should be made available for that type of operation?

6. Would simultaneous authorization for the use of frequency-shift keying type F-1 emission) and amplitude-modulated telephony Type A-3 emission) in the same segment or segments of the amateur frequency band 7000–7300 kc., adversely affect the use of either, and, if so, to what extent?

7. In consideration of possible changes in the types of emission authorized to be used in the amateur frequency band 7000–7300 kc., should all or part of the operation using any of the authorized types of emission be limited to holders of at least Advanced Class licenses, or General and Conditional Class licenses?

FEDERAL COMMUNICATIONS COMMISSION
Washington 25, D. C.

In the Matter of Amendment of Section 12.111 of Part 12, "Rules Governing Amateur Radio Service", to provide for use of narrow-band frequency or phase modulation for telephony on certain amateur frequencies now available for telephony.	Docket No. 10077

NOTICE OF PROPOSED RULE MAKING

1. Notice is hereby given of proposed rule making in the above-entitled matter.

2. The Commission is in receipt of a petition, filed on behalf of the American Radio Relay League, which requests amendment of Section 12.111 of the Commission's Rules

(*Continued on page 110*)

Calibrating V.H.F. Receivers from Commercial Signals

Accurate Frequency Checks Without a Signal Generator

BY RICHARD J. BUCHAN,* WØTJF

With all the articles that are written on the building of ham-band converters, few suggest any means for calibrating them without the use of some sort of signal generator. The method used recently at WØTJF to calibrate a 50-Mc. converter makes use of its image response, first to find the band, and then to calibrate the tuning range of the converter with a high degree of accuracy.

An intermediate frequency of 10 Mc. is used, with the oscillator on the high side of the signal frequency, or 60 to 64 Mc. for the 6-meter band. The image response is then twice the i.f. above the signal frequency, or 70 to 74 Mc. This makes it possible to use the sound frequency of TV Channel 4 as a calibrating signal. Since there is seldom anything particularly sacred about the intermediate frequency to be used in the converter it can often be chosen so as to make use of this method in setting up and calibrating the tuning range of converters for other bands, using various commercial signals of known frequency.

There is also no particular reason, ordinarily, for use of the high side or low side of the signal frequency for the tuning range of the oscillator. If selective circuits are used in the r.f. and mixer the image response will be well down in strength from the fundamental, but this can be altered temporarily by tuning the padder capacitors to the image. In the example cited this is 71.75 Mc. If the r.f. circuits will not tune that far an antenna may be coupled directly to the mixer grid circuit. If the test signal has a strength of a few microvolts or more it will be possible to pick it up in this way. If you are close to the signal source the signal will probably ride through without any retuning of the trimmers. We used the signal of WTCN-TV, located 105 miles away, as follows:

With the receiver with which the converter is to be used set at 10 Mc., the Channel 4 sound was picked up (as an image) at 51.75 Mc., the first oscillator calibration point. Next the receiver is set at 10.25 Mc. and the sound tuned in again on the converter. The oscillator is then at 71.75 minus 10.25, or 61.5 Mc. When the receiver is reset to the proper i.f. the converter will then receive a fundamental frequency of 51.5 Mc., the second calibration point. For the third calibration point the receiver is set on 9.75 Mc. When the sound is tuned in the oscillator is then on 62 Mc., or in position to receive on 52 Mc. when the selected i.f. of 10 Mc. is used.

Table I shows the frequencies involved for calibration of the converter across the entire 50 to 54 Mc. using this method.

The accuracy of calibration obtained is far better than that of the receiver with which the converter is used. Suppose the receiver calibration can be set within 20 kc. at 10 Mc., or plus

TABLE I

Frequencies used to calibrate a 6-meter converter using a mixer output frequency of 10 Mc. and the sound carrier frequency of TV Channel 4

Intermediate Freq. (Receiver Setting)	*TV Sound Freq.*	*Converter Osc. Freq.*	*Converter Freq. (with 10-Mc I.F.)*
10.00 Mc.	71.75 Mc.	61.75 Mc.	51.75 Mc.
10.25	"	61.50	51.50
10.50	"	61.25	51.25
10.75	"	61.00	51.00
11.00	"	60.75	50.75
11.25	"	60.50	50.50
11.50	"	60.25	50.25
11.75	"	60.00	50.00
9.75	"	62.00	52.00
9.50	"	62.25	52.25
9.25	"	62.50	52.50
9.00	"	62.75	52.75
8.75	"	63.00	53.00
8.50	"	63.25	53.25
8.25	"	63.50	53.50
8.00	"	63.75	53.75
7.75	"	64.00	54.00

or minus 0.2 per cent. The frequency of the TV sound (with no modulation) will be within 0.05 per cent, or 35.875 kc. The converter error will then be

$$\frac{35.875 + 20.0 \times 100}{51.75 \times 10^6}$$

or 0.01 per cent.

This accuracy, better than could be obtained with the average v.h.f. signal generator, results only if the following precautions are observed:

1) Warm up both receiver and converter thoroughly.

2) Peak the converter trimmers for maximum response at the first calibration point (51.75 Mc. in the example) with the receiver set at the chosen i.f. (10 Mc.).

3) Do not retune any trimmers (mixer particularly) during the calibration process or after. Mixer pulling may shift the oscillator frequency. If it is necessary to peak the trimmers on the r.f. or mixer stages to bring in the test signal, the oscillator frequency will shift slightly when the

(*Continued on page 112*)

* Main St., Bricelyn, Minn.

Improved Coax Feed for Low-Frequency Mobile Antennas

A Shunt-Fed System That Permits Matching the Line

BY THOMAS W. SWAFFORD, JR.,* W5HGU

Most mobile antennas for low frequencies consist of a resonant "quarter wave" working against a ground plane. Since an antenna an actual quarter wavelength long at 4 Mc. is physically impracticable on a car, an electrical quarter wave is obtained by employing lumped constants in conjunction with a short linear element such as a whip. The lumped constants may consist of an inductance, a top-loading capacitance, or a combination of both, and the ground plane is the car body.

Because the part of the system that does the radiating is such a small fraction of a wavelength long, the radiation resistance is extremely small. When the system is loaded to resonance the reactances, both inductive and capacitive, are very high, so the ratio of reactance to resistance is large. In other words, the Q of the antenna is high. This means that the ratio of energy stored to energy dissipated in radiation is very high, so comparatively little error will be introduced by considering the system to be essentially a lumped-constant resonant circuit such as is shown in Fig. 1.

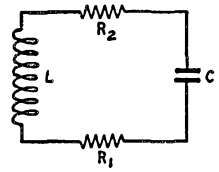


Fig. 1 — Because such a small part of the total energy supplied to a short whip antenna is radiated, it can be considered to be practically equivalent to an ordinary LC circuit. In this diagram R_1 represents the loss resistance in the coil and dielectrics, and R_2 is the radiation resistance.

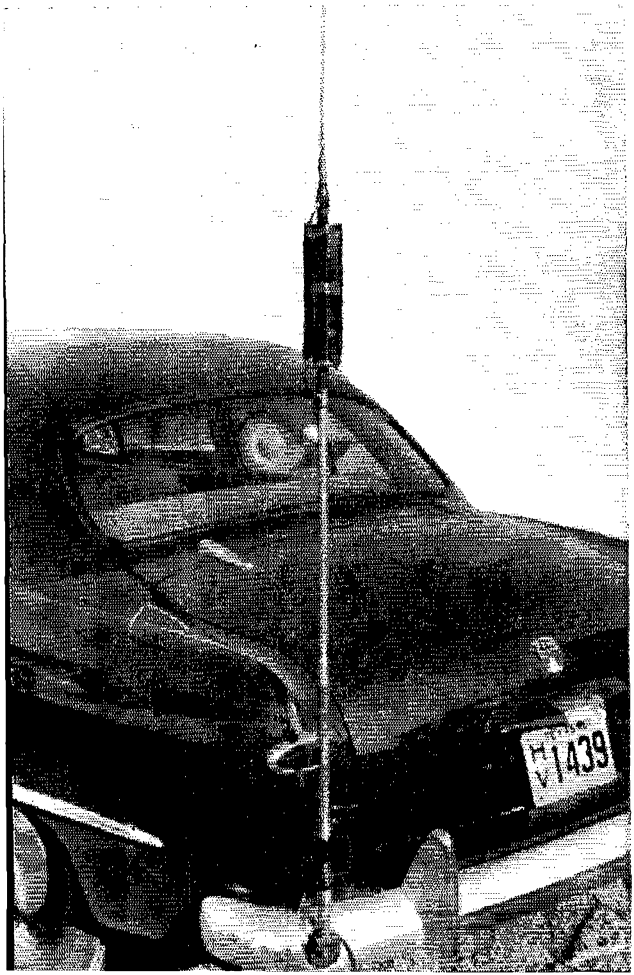
In this figure R_1 represents the resistance of the loading coil and other loss-producing factors such as dielectrics in the field, while R_2 represents the radiation resistance. Only R_2 is useful in producing a signal at a distance, but unfortunately, R_2 usually is smaller than R_1, with the result that the power lost as heat in the antenna conductor and loading coil generally exceeds the amount radiated.

Input Impedance

When the system is properly resonated the input impedance seen by the source of power is a simple resistance of magnitude E^2/P, where P is the power supplied by the generator and E is the voltage at which it is supplied. If E is large for a given P the resistance is high, and if E is small the resistance is low.

Fig. 2 shows various combinations of input impedance levels for common forms of center-loaded antennas. From this group it is possible to select the method most suited to matching the power source. Any practical design should, for the reasons given earlier, have as high radiation re-

*559 Chestnut St., North Tonawanda, N. Y.



The installation on the author's car. End bells with screw fittings are provided for mounting the center loading coil coaxially with the whip. The coil for matching to the line is at the bottom end, near where the assembly is fastened to the bumper.

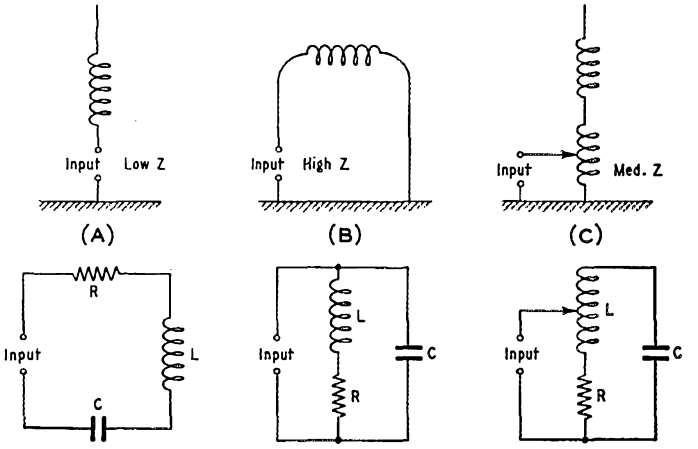


Fig. 2 — Three methods of feeding center-loaded whip antennas. Efficient feed is hard to obtain in either A or B because in one case the impedance is extremely low and in the other is extremely high. The arrangement at C provides an input impedance of the same order as the characteristic impedance of coax cable. Approximate equivalent circuits are given below each antenna drawing.

sistance as possible, and the coil Q also should be high. To improve radiation it is well to have the high-current parts of the system as much in the clear as possible. Mechanical limitations should be the only restriction on this point.

After careful consideration of design limitations the center-loaded 8-foot whip appears to the writer to be the most practical approach. It has been shown that a simple whip of such dimensions presents at the input terminals a capacitive reactance of approximately 2000 ohms[1] and a radiation resistance of 1.5 ohms. It has also been shown that a loading coil having the required series inductive reactance to bring about resonance (2000 ohms or 80 μh., at 4 Mc.) can be constructed with a Q of 300.[2] Since the reactances cancel at resonance, the input impedance of a series-fed arrangement (Fig. 2A) is simply the sum of the coil and radiation resistances. The coil resistance is

$$R = \frac{X_L}{Q} = \frac{2000}{300} = 6.8 \text{ ohms}$$

so the input impedance is 6.8 + 1.5 = 8.3 ohms. This very low value of resistance must dissipate

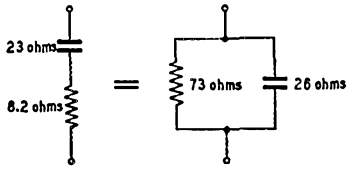


Fig. 3 — Series resistance and reactance at the input terminals of the loaded whip have a parallel equivalent as shown at the right. Actual values of resistance and reactance depend on the resistances, loss and radiation, and the amount of detuning.

[1] Oberlies, "Installing a Practical 75-Meter Mobile Antenna," *QST*, December, 1949.

[2] Brown, "High-Efficiency Loading Coil for Mobile Antennas," *CQ*, January, 1951.

the power furnished by the transmitter. It is very difficult to feed such a low resistance because of the internal resistance of the output amplifier, even with a very carefully designed tank circuit.

One method of overcoming the difficulty would be to voltage-feed the antenna (Fig. 2B) but when we consider the losses caused by leakage through the feed-point insulator and surrounding objects (the r.f. voltage is in the kilovolt range even with low power), together with the fact that it is equally hard to feed a very high-resistance load (nearly a half megohm in this case, neglecting dielectric losses) this method becomes less attractive.

Shunt-Fed Antenna

The use of coax feed is very effective in reducing local noise in reception, but the characteristic impedance of coax is not suitable either for the series-fed or voltage-fed arrangements. It therefore appears necessary to employ some method

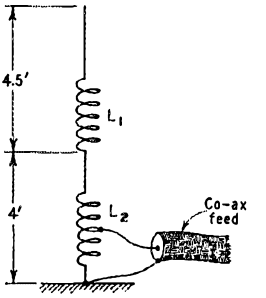


Fig. 4 — Electrical circuit of the antenna. L_1 consists of 80 turns of No. 12, 11 inches long, 3 inches in diameter (made from commercial coil stock). L_2 has 15 turns of No. 16, close-wound on a 1-inch form and tapped 3 turns from the ground end. Both coils mount coaxially with the whip.

that will give an intermediate value of resistance at the feed point. Fig. 2C shows a shunt-fed antenna the input impedance of which can be adjusted over the range from zero to several hundred ohms. By properly locating the tap it is possible to raise the input impedance to a value that is readily matched for maximum power transfer, or that will properly terminate a coax line.

Impedance transformation is obtained by adding inductance in shunt with the coax transmission line and resonating the system by means of the center coil. For example, let's take the above values for a resonant center-loaded 8-foot whip and remove sufficient turns from the center coil to make the input impedance become somewhat capacitive — having, say, 8.2 ohms resistance and 23 ohms capacitive reactance. This can be represented by an equivalent parallel circuit, Fig. 3, having a resistance of 73 ohms and a capacitive reactance of 26 ohms. In order to re-

(*Continued on page 112*)

Compact Automatic Key Design

More On Electronic Bug Construction

BY F. A. BARTLETT,* W6OWP

THE increased use of self-completing automatic keys, coupled with the "perfectionist" complex with which these instruments tend to endue their owners, has given rise to clearly defined standards for the ideal sending device of this type.

From a performance standpoint, the list includes:

1) Equalized spacing characteristic. The majority of circuits in use today tend to produce different spacing between dots than between dashes.

2) Maintenance of correct dot-to-dash ratio without need for readjustment as speed is changed.

3) No interaction between speed and spacing controls.

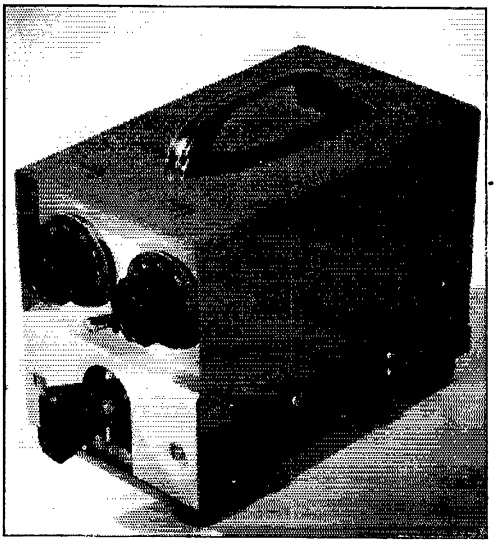
To this listing should be added the mechanical features of stable key lever action and quiet operation, as well as practical size and weight.

Circuit Considerations

The circuit shown in Fig. 1 was worked out to meet the above performance requirements. A siphon recorder, in conjunction with Wheatstone tape apparatus, was used as a standard for checking accuracy and determining distortion. With a well-matched pair of telephone relays, it is possible to achieve a distortion figure not exceeding 10 per cent in the range from 15 to 40 w.p.m. This covers both distortion of the dot-to-dash ratio and character spacing.[1]

To those familiar with electronic key development, the circuit at first glance closely resembles the original version of the relay-operated key.[2] However, a significant change in operation has been effected through lowering of the series grid resistance, R_4. This introduces a small amount of grid-blocking action — a condition held undesirable in the original circuit. The purpose of this change is to gain a better equalization of the spacing characteristic that in the former arrangement tended to emphasize spacing between dashes, particularly at higher speeds.

As a result of the grid-blocking action — which occurs only on dot cycles (R_3 prevents blocking on dashes) — a decrease in bias applied to V_2 is necessary to "firm up" the dots. This results in a simultaneous tightening of the dash-space characteristic that accomplishes the desired objective.



Here is a compact electronic bug that leaves little or nothing to be desired. The controls adjust speed and spacing, and the toggle switch closes the keying relay for test purposes. An a.c. line switch is part of the speed control.

The foregoing is not without effect on the timing-circuit values. The original circuit used a 3-to-1 capacity ratio. This has been replaced by a 2-to-1 division, using values as specified in Fig. 1.

A second common fault with all of the less complex relay-controlled keys is a tendency for the dot-to-dash ratio to change with changes in speed. The divided-capacity type timer[3] lends itself readily to automatic compensation for this type of distortion. This is accomplished by the simple expedient of connecting a fixed resistor from the junction of the two timing capacitors to the speed control. This resistor, R_6, acts in conjunction with R_1 to change dash speed at a rate slightly faster than the change in dot speed. This directly counteracts a normal tendency to function in just the reverse manner. The value of R_6 may vary with different keys, but the 0.22-megohm resistance shown represents the average value required.

Because there is good isolation between the timing circuit and the relays, together with the fact that only a single value of positive voltage feeds the complete key, interaction between

* 2210 Cipriani Blvd., Belmont, Calif.

[1] The 10 per cent figure is higher than could be attained using the highly-accurate cathode follower keyer circuit developed by Roy Brann, W6DPU ("In Search of the Ideal Electronic Key," *QST*, Feb., 1951). The author, in this article, however, is primarily concerned with a small accessory-type key accurate within sufficiently close limits to meet most operating requirements.

[2] "Further Advances in Electronic Key Design," F. A. Bartlett, *QST*, October, 1948.

[3] U. S. Patent No. 2,437,497.

• As you no doubt know if you have been following the literature, these electronic bug specialists never quit in their search for improved performance. Here is a modified design pointed toward those who want something high in performance and low in cost. It is a neat unit that would enhance any operating position. Even if you aren't planning to build a new bug today or tomorrow, we think you will be interested in this, if for nothing more than the ingenious method for keeping the relay contacts bright and shiny.

spacing and speed controls is negligible. (This presupposes the use of correct relays with well-matched characteristics.) No need has been found for voltage regulation in the power supply.

It must be borne in mind that all circuits of this type are essentially relay-operated devices. Individual relay characteristics have a marked influence on performance. It is unfortunate but true that no single foolproof formula can be written covering circuit values. The best suggestion is to follow published data as closely as possible.

Standard short telephone 3500-ohm s.p.d.t. relays, factory set for nominal 6-ma. operation, are recommended for general service. Relays of this type manufactured by Clare, Guardian and Potter and Brumfield have been used successfully with the circuit values shown. Orders to most relay companies require a priority and considerable delay, but the surplus market still offers many suitable relays. One source is Wells Sales Co., 833 W. Chicago Ave., Chicago 22, Ill. Their stock No. R-110 was used in this model.

For the operator interested chiefly in sustained high-speed work, special relays equipped with light armature assemblies show a faster response time than the above units. However, relays of this type are expensive and not readily available. One such relay is the Western Electric type D-168479. Cut-and-try changes in the timing circuit of Fig. 1 are necessary to use this relay, but its performance should satisfy the most critical operator.

Optional "Reset" Circuit

All relay-controlled keys (except those using hermetically-sealed relays) are subject to erratic operation or even abrupt failure when a particle of dust becomes trapped in the pulse-relay con-

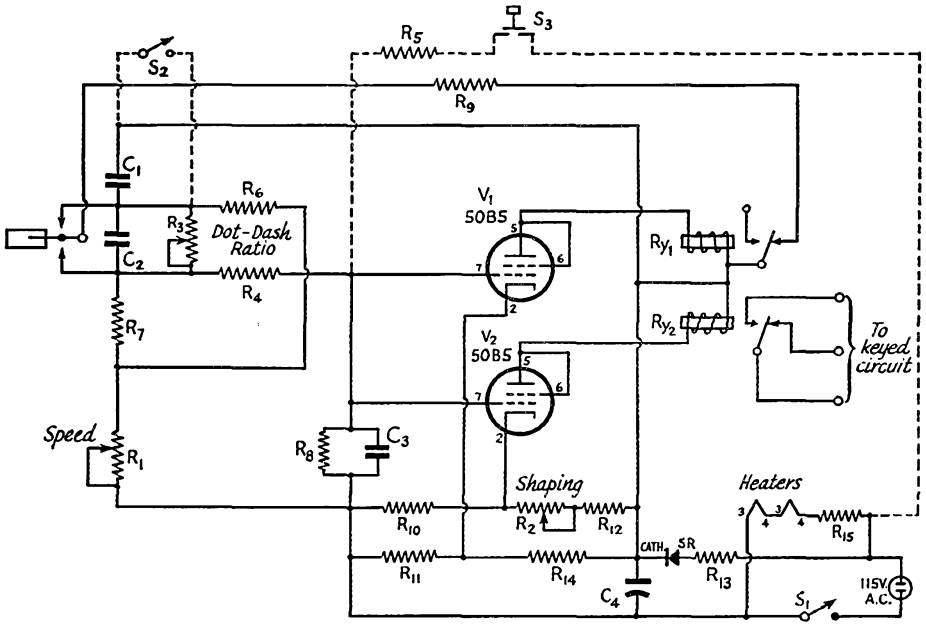


Fig. 1 — Circuit diagram of the electronic key. The reset circuit is shown by the dotted lines.

C1 — 0.1 μfd., 600 w.v., high-quality molded plastic.
C2 — 0.05 μfd., 600 w.v., high-quality molded plastic.
C3 — 0.02 μfd., 600 w.v., high-quality molded plastic.
C4 — 40-μfd. 150-volt electrolytic.
S1 — a.c. off-on switch, part of speed control.
S2 — SPST Bat handle toggle switch.
S3 — Momentary type push-button switch.
SR — 100 ma. selenium rectifier.
Ry1, Ry2 — 3500-ohm s.p.d.t. short telephone type relays. Good quality, accurately matched. See text.

R1 — 2-megohm variable.
R2 — 5000-ohm variable.
R3 — 0.5-megohm variable.
R4, R5 — 0.12 megohm, ½ watt.
R6, R7 — 0.22 megohm, ½ watt.
R8 — 3.9 megohm, ½ watt.
R9 — 470 ohms, ½ watt.
R10, R11 — 2200 ohms, 1 watt.
R12 — 5600 ohms, 1 watt.
R13 — 39 ohms, 1 watt.
R14 — 10,000 ohms, 2 watts.
R15 — 130–150 ohms, 10 watts.

tacts. To cope with this difficulty, the novel arrangement shown above the dotted line in the schematic diagram is well worth considering.

This so-called "reset" functions in two steps. The switch S_2 overcomes negative bias on the tube grids and closes both relays. This switch ordinarily will be used in place of a parallel key for holding the transmitter "on" for test purposes.

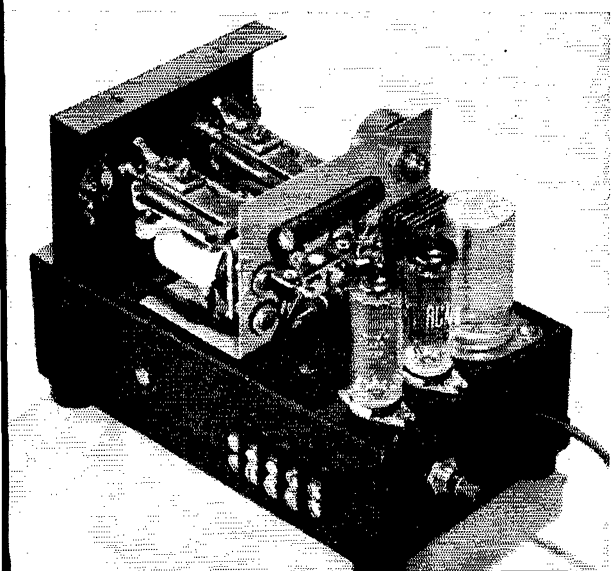
The second step is through push-button switch S_3. Depressing the button while S_2 is closed places sufficient a.c. voltage on the tube grids to cause the relays to vibrate at 60 c.p.s. Since telephone relays have inherent self-wiping action, the result is a speedy burnishing job that is sure-fire. Only a few seconds time is required to restore normal operation under circumstances which otherwise might dictate manual cleaning of relay contacts.

The Key Lever

The most accurate automatic key sending involves a technique quite different from that used in the operation of a conventional "bug." Little true rhythm of finger or wrist can be utilized since repetitive sequences are furnished by the keyer itself. Essentially what is done is to manipulate a s.p.d.t. switch — the key lever — to trigger the electrical circuit producing dots and dashes. In practice, this manipulation is tied to a "thinking ahead" process which makes use of the self-completing feature to insure accuracy of letter formation.

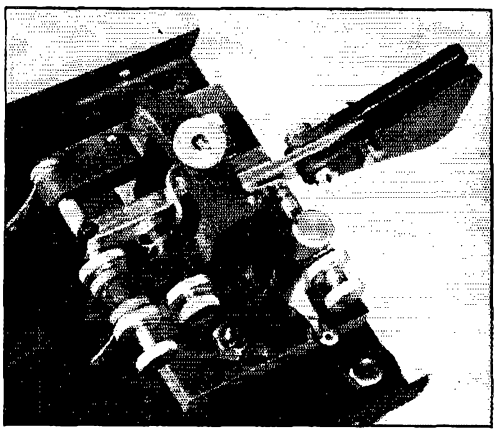
A proficient automatic user in making the letter "N," for example, will initiate the first dash and immediately swing the key to the dot position. The dash completes, character space is inserted and dot starts. Whereupon the operator allows the lever to return to neutral setting.

To facilitate this technique, close spacing (by semiautomatic standards) of key lever contacts is usually employed. Excess movement of the trunion or pivot shaft will be emphasized and should be eliminated in the interest of smooth operation. This fact should not be overlooked when building a lever assembly or reworking a semiautomatic key.



A top view of the keyer with the dust cover removed. The push-button switch is for the reset circuit discussed in the text.

The latter procedure is most common practice. A photograph shows a typical reworked "bug" assembly as used in the key illustrating this article. The vibrating spring has been removed and a contact fixed to the movable arm. The mating contact is installed in the former stop-screw mounting hole, which was first drilled out to ¼-inch diameter to accommodate extruded washers insulating the contact from the frame.



The reworked bug-key lever and contacts used in the electronic bug

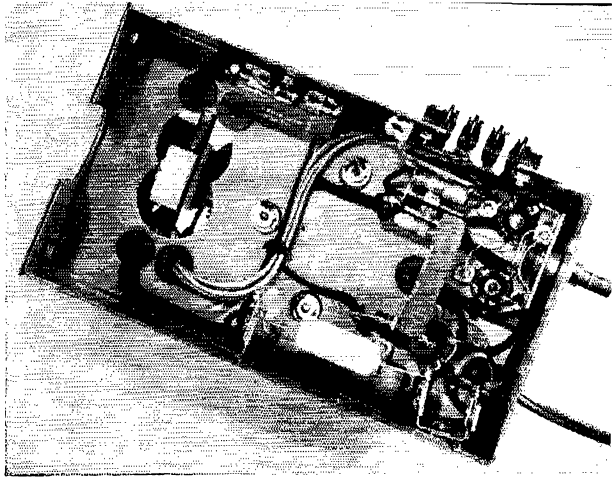
Judicious use of a center punch on the trunion adjacent to the pivot hole was necessary to reduce clearance and eliminate vertical play

Allied closely with the mechanical action of the lever is the "touch characteristic" it will exhibit when installed in the keyer. Ideal condition is the vibrationless feel of a semiautomatic key mounted on a heavy metal base.

The automatic key, being essentially a piece of electronic apparatus, is usually built on a sheet-metal chassis. Direct mounting of a lever is far from satisfactory. Vibration is prone to be set up which imparts a "tinny" sensation when operating the key.

Rubber mounting proves the solution to this problem. A suggested arrangement is to assemble the lever on a small section of ¼-inch Micarta, as shown in the photograph. Three mounting holes, to clear 6-32 machine screws, are drilled in a triangular pattern in this base. Matching 5/16-inch holes in the keyer base plate are drilled to accommodate rubber grommets of this size. These have a snug center clearance for 6-32 screws. Using 7/16-inch o.d. flat washers to separate the screw heads from the grommets, a firm yet fully insulated mounting of the lever is obtained. Plastic cement is used to prevent loosening of the nuts, since lockwashers would be impractical.

◆



Generous use of tie points results in a neat wiring job under the chassis of the electronic bug.

Chassis Assembly and Quieter Relay Operation

With evolution of the automatic key from gadget to recognized operating accessory, attention to such refinements as quietness of operation, pleasing appearance and all-round utility is receiving more and more emphasis.

In designing the key illustrated, the objective was not ultimate compactness. Instead, the space traditionally allotted in both amateur and commercial work for the operator's sending instrument was taken as a starting point for design work. Chassis and case dimensions were then developed that would accommodate the desired circuit without crowding of components and still meet the limitations on over-all size.

The dimensions of the combination when assembled are 4 inches wide, 4¾-inches high and 7 inches front to back. The control portion of the panel is recessed ½ inch, to allow adequate clearance for the key lever as well as to improve appearance. A sketch showing the measurements of each section appears in Fig. 2.

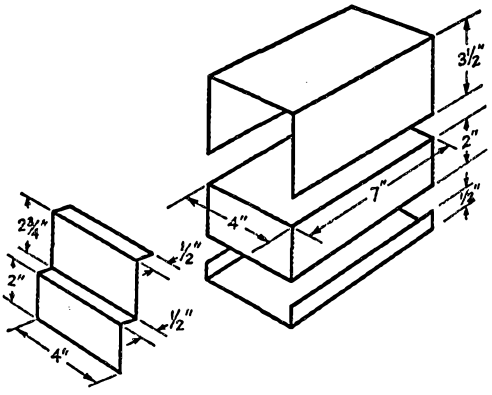


Fig. 2 — Dimensions of the chassis, panel and covers.

Relay noise is dealt with at three points. First, mounting of the relays to a special bracket is by 5/16-inch rubber grommets and 6-32 machine screws, as was done in attaching the key lever. Secondly, the bracket itself is similarly mounted to the chassis. As a third step, a 3/16-inch-thick sponge rubber strip is cemented to the top cover, to fit as a gasket around the exposed edges of the relay bracket when the unit is fully assembled.

Step three, in addition to its acoustic benefits, effectively divides the top portion of the key into two compartments, one housing the relays and controls while the rear area contains the tubes, filter condenser, selenium rectifier and filament-dropping resistor. The latter two items and the dot-dash ratio control are supported on the relay bracket.

The back of the rear section is left open. This assures adequate ventilation and favorable operating temperature at all times.

The top and bottom photographs show the layout in detail. The relay mounting bracket is 3¾ inches high, with a 2-inch base.

Wiring and Ratio Adjustment

The principal precaution in wiring is to avoid any electrical connection to the chassis. In this way, hazard from the half-wave power supply is avoided. All wiring passing between the upper and lower sections is through rubber grommets.

To assure proper control sense, the key is wired so that clockwise rotation of the speed control *decreases* resistance, and the spacing control resistance is *increased* with clockwise movement.

If the minimum speed is too fast with the relays used, it is best to change the two bias resistors, R_{10} and R_{11}, rather than to disturb the grid-circuit values. Lowering the bias resistance reduces the speed — one or two hundred ohms change is usually sufficient. The opposite holds true for increasing the maximum speed.

Setting of ratio control R_3 is done with the key connected to a monitor. Using a slow sending speed, the ratio control is advanced from zero resistance until a point is reached where no distortion of the first dot of a series is noted. This is the low limit of the keyer's range. The high limit occurs where the first dots of a series are too fast.

An aural determination of setting within this range is usual practice. However, for greater accuracy, one may use W6DPU's suggestion for counting the dots within a given time interval and setting the ratio to give just one-half the number of dashes in the same period. It should be noted, however, that in this circuit, change in the ratio control affects both dot and dash length so adjustment as above will require alternate dot and dash counts to arrive at a final setting. Comparison with commercial tape transmitters keyed with a call or CQ belt is another possibility for arriving at close ratio adjustment.

(*Continued on page 114*)

• Technical Topics —

Supergain Antennas

ONE of the perennial dreams of most hams is a high-gain antenna occupying practically no space — something that will give lots and lots of decibels but be no more cumbersome than a weathervane. During the past several years the theory of such antennas has been pretty well worked out, and it is now established *theoretically* that any desired degree of directivity can be obtained in an antenna array less than a half wavelength long. Antennas of this sort have been termed "supergain" arrays.

No one has built such an antenna. Furthermore, it appears that no one ever will. The painful practical fact is that, considering an array of given small over-all dimensions, increasing the directivity and gain decreases the radiation resistance at a tremendous rate so that the antenna efficiency goes down very much faster than the gain goes up. In addition, the spacing between elements and the phasing and amplitude distribution of the currents in them becomes impossibly critical.

A recent paper in the *Proceedings of the I.R.E.*[1] treats quantitatively a particular type of array, one having a number of halfwave elements in broadside with the array length limited to one-quarter wavelength, and comes out with some astonishing answers. With the proper current distribution between elements in each case, the power gain over a single element is almost the same as the number of elements — e.g., with five elements the power gain is approximately 5, with 9 elements the gain is nearly 9, etc., and presumably would continue to increase in the same fashion beyond the nine elements which represent the limit of the author's curves. These gains are not especially high as compared with larger antennas, but it should be noted that the broadside case considered is probably not the most favorable one for small dimensions.

From the practical standpoint, the significant thing is that the author's analysis shows each element of a 9-element array would have to carry a current of about *14 million amperes* in order to produce a field strength, at a distant point, in the most favorable direction, equal to the field produced by a current of *19.5 milliamperes* in one element alone! Practically speaking, of course, such a tremendous current would be an absurdity. Further data are given based on the calculated ohmic losses in copper elements having a diameter of 1 centimeter and operating at 10 Mc., and it is shown that the efficiency (ratio of power radiated to power supplied) of the 9-element array would be vanishingly small — something like one billionth of a millionth of one per cent.

The calculation also shows that the efficiency is pretty close to 100 per cent, using the same type of element, when three elements or less are used. With four, it drops to a few per cent and decreases rapidly thereafter.

Although somewhat different numerical results are to be expected in the case of the end-fire array, which is a much more common type in amateur circles, the results mentioned above nevertheless typify the trend as an attempt is made to get more and more gain from more and more elements in a given small space. There is, it appears, no substitute for size if gain is to be secured under practical conditions. For receiving, too, the "effective area" of the antenna must be considered; this depends pretty largely on the physical size and an antenna must be big in order to intercept much of the energy of an incoming wave. As someone once expressed it, the antenna has to be big enough to "get a good grip on the ether."

— *G. G.*

[1] N. Yaru, "A Note on Super-Gain Antenna Arrays," *Proceedings of the I.R.E.*, Vol. 39, No. 9, September, 1951.

Old Sol Is the Villain

WHAT'S happening to our DX bands these days? Grousing over poor "conditions" on 14 and 28 Mc. seems to be universal — and with good reason, if by "conditions" we mean a comparison between what went on on those bands a few years ago and what is occurring now.

But from another viewpoint propagation conditions on those two bands are just about normal. They are, in other words, just what is to be expected in view of the present status of Mr. Sun's spots. What we have to do is reorient ourselves on this matter of what constitutes "good" and "bad" conditions. Conditions should be rated "good" when communication can be maintained between given distant points at the time of day and on the operating frequency that is normally expected to be "open" at that particular part of the sunspot cycle. Conditions are "poor" only when the normally expected times and frequencies do not work, or work with signals much weaker than we ordinarily get.

To put it another way, the sunspot cycle establishes a norm of propagation conditions which considered objectively is neither good nor bad. It simply requires that the proper frequency and time of day be selected to maintain communication over a given path. It so happens that we amateurs are not free to select the optimum frequency at any particular time; nor, as a practical matter, are we always free to operate at the time at which the frequencies we do have available will do the job we want. Right now both

factors appear to be unfavorable, and the worst of it is that there is no relief in sight for a number of years; in this respect things will continue to get worse for quite a while before they begin to get better. The turn will come when we pass through the minimum of the sunspot cycle, which is forecast for the period 1954–1955.

To a lot of us, this part of the sunspot cycle is a brand-new experience. The last minimum was around 1943–44, right in the middle of the war, and by the time we got back on the air we were well up on the ladder. The one before that was about 1933, so those of us who operated through that one no doubt can qualify for Old Timers Club certificates.

It is impossible to do much more in the way of general forecasting, at least not in a few words, than to say that during the next few years the 10-meter band is scheduled to pass out completely as a DX band except possibly to the south, and that 20 can be expected to be about useless at night during all except the summer months. Anything more detailed than that requires talking about specific transmission paths, and they are all different. This isn't a bad time, as a matter of fact, to get acquainted with the CRPL prediction service [1] and work out for yourself the probabilities for the paths in which you happen to be most interested. It's a good time, too, to drop down to 7 Mc., as many did last year, and even to 3.5. These will be good night DX bands in the winter months from now on, not only because of the sunspot cycle but also because the blackouts on the higher bands will drive everybody down.

But let's not get the idea that conditions are "poor" just because the stuff isn't there waiting for us on the high-frequency bands every time we turn on our receivers. It's just that we happen to be at the wrong place at the wrong time. There are plenty of times when conditions really are "poor," heaven knows, but those times are tied up with temporary disturbances in the ionosphere that soak up the power in the signal so that little or none gets reflected back to earth.

— *G. G.*

[1] *CRPL-D Basic Radio Propagation Predictions*, available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 10 cents per copy or on subscription at $1.00 per year.

A reports that **B**'s 'phone signal makes the S-meter kick up several S points during modulation, and **B** thanks him for the good report, saying that he is glad to know his clamp-tube modulation is working right. **A** then says that the S-meter kick shows something is wrong with **B**'s rig, but **B** argues that one of the features of clamp-tube modulation is the additional power under modulation. Which operator knows what he's talking about?

(*Please turn to page 134 for the answer*)

M. A. R. S.

Novices and Technicians are eligible for MARS membership under a recent ruling by the Chief Signal Officer, Army, and the Director of Communications, Air Force.

The authorization was announced by representatives of the Chiefs, MARS, at the ARRL Central Division Convention, 20 October 1951. Objectives are to build networks of Novices and/or Technicians to:

1) assist in building up operating skills by on-the-air network participation;

2) develop proficiency in the proper usage of military communication procedures (JANAP);

3) coördinate military methods with normal amateur practices to insure rapid and effective liaison in the event of peacetime disaster or national emergency.

Operation for MARS Novice and Technicians will be limited to the frequency 3497.5 kc. A maximum power of 75 watts to the final stage of the transmitter is allowable. Operation will be crystal-controlled, A-1 emission.

Except for operating limitations, Novices and Technicians are entitled to all training advantages and privileges enjoyed by General and Advanced Class amateurs who are MARS members.

Applicants who are not members of one of the armed services or their reserves must be at least 21 years of age and possess the necessary equipment to operate on the MARS 75-meter band.

Interested Novices and Technicians are invited to write their nearest Army or Air Force commander for additional information and application forms. Since Army and Air Force MARS have separate operating networks, prospective applicants should indicate with which service they desire to affiliate.

MARS Advisory Committee at the Pentagon, 9 October 1951: *L to r:* Col. William D. Hamlin, SC; Lieut. Col. Bruce W. Caron, SC; Capt. Walter S. Browne, jr., AF; Cmdr. Everett L. Battey, NR; Robert H. Myers, American National Red Cross; Lieut. Col. H. H. Moreland (vice chairman), AF; A. R. Rasmussen, SC; Capt. Lester A. Peterson (secretary), SC; C. Phyll Horne, Federal Civil Defense Administration; Maj. George J. Watts, AF; Maj. Charles C. Mack, AF; Communications Manager F. E. Handy, ARRL. Present but not shown was Maj. Robert A. Wood, USA, from the Office of the Secretary of Defense.

The End-Fed Hertz

An Effective and Simple Antenna

BY HOLLAND M. CARTER,* W4ADE

THERE are times when most hams yearn for a simple and effective antenna that can be erected and coupled to their transmitters with a minimum of trouble and effort. What with all the many and varied recommendations for using the folded dipole, the Zepp, rhombic, end-fire arrays, and others, it seems that the simple end-fed Hertz antenna[1] has long since been forgotten by most of us. Certainly the gain and directivity of the fancier arrays is often desirable, but the end-fed Hertz can't be beat for sheer simplicity and good results.

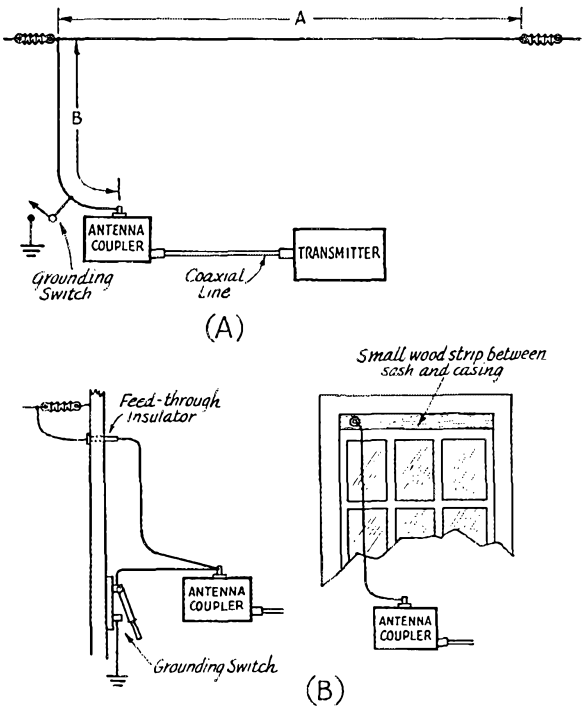


Fig. 1 — The general arrangement of an end-fed Hertz is shown at (A). The total length, $A + B$, should be made equal to the length given in Table I for the lowest-frequency band. The length A should be made as long and high as possible consistent with the room available. Details of one possible type of lead-in arrangement are shown in (B).

The grounding switch should be closed when the rig is not in use. Static charges will drain off, and the lightning hazard will be greatly reduced.

A Hertz antenna is simply an ungrounded antenna (a grounded antenna is called a "Marconi"), and the end-fed Hertz is, therefore, an end-fed ungrounded antenna. When the r.f. is fed in at the end through a two-wire transmission line, the antenna is generally called a "Zepp," but the antenna discussed in this article is the simpler version where no transmission line is used. As a Hertz, its lowest operating frequency is that where the length is a half wavelength or, stated another way, it should be at least a half wavelength long on the lowest frequency band.

Let's examine the more important features of the antenna:

1) Simplicity — a single piece of wire cut to proper length.

2) Ease of erecting — no wide-open spaces required for feeders.

3) Economy — basic cost can be kept down to almost nothing, depending on the wire used, where you get it, and the type of insulators.

4) Multiband — this antenna can be operated on all of its higher harmonics with good efficiency, and it can also be used well at half frequency as a quarter-wave Marconi.

Want to give it a whirl? Table I indicates antenna lengths for three ham bands in popular usage. The lengths indicated are calculated for the center of each band, and allowance is made for end effects of the antenna. A 1 per cent increase in length is included to compensate for the bend at the insulator on the fed end. If you put extra bends into it anywhere except at the center, add another 1 to 2 per cent, although the length isn't really critical. Your best and strongest radiation direction will be broadside to the antenna. If possible, get most of the antenna up at least 35 feet high. If you just can't do that, then keep it at least 15 feet above ground. The higher your antenna is, the better it will radiate.

In measuring the length of the antenna, remember that it includes *all* the wire from your coupler coil to the far end. Fig. 1A illustrates the measurement of the antenna. It is easy to lay out the antenna on the ground, allowing about 4 inches for looping and tying in each insulator — a total of 8 inches extra. Then install the transmitter end of the antenna before fastening the far end. Bring the fed end into the shack through a tubular ceramic insulator such as electricians use in house wiring. Keep the wire well insulated at all points. Annealed copper wire is soft and will stretch, so if you use it for your antenna, it is better to stretch it a bit

* % Colleton County Health Dept., 115 Benson St., Walterboro, S. C.

[1] Europeans often call it the "Fuchs antenna." — *Ed.*

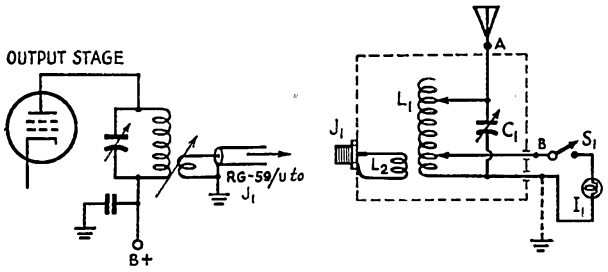


Fig. 2 — Wiring diagram of the antenna coupler for use with an end-fed Hertz. A Marconi antenna can be connected at point *B*. The ground connection is not used with a Hertz.

C_1 — 250-$\mu\mu$fd. variable, spacing equal to or greater than output stage tuning condenser.
L_1 — 30 turns No. 16 bare wire wound on 2-inch diam. ceramic form. Turns spaced ⅛ inch, tapped every two or three turns. Approximate turns for the various bands: 3.5 Mc.: 20–30; 7 Mc.: 14–22; 14 Mc.: 9–14. (Wound on coil form from surplus BC-375).
L_2 — 3 turns No. 14 wire, space-wound ⅛ inch, 1-inch diam.
I_1 — Dummy load (115-volt lamp of wattage similar to transmitter).
J_1 — Coaxial-line connector (Amphenol 83-1R).
S_1 — Knife switch, if dummy load is used.

first between a tree and a car bumper. "Copperweld" or hard-drawn copper won't stretch.

Coupling to the Transmitter

The antenna coupler circuit is shown in Fig. 2. It is easy to make and tune, and it will cost you very little. Provision is included for tune-up with a lamp dummy antenna, for testing the transmitter, after which the lamp is disconnected and the antenna connected. The antenna will be connected to terminal *A* on any band where the wire length is greater than a half wavelength, and to terminal *B* when the antenna is a quarter wavelength. For example, if the antenna is 66 feet long, it is a half wavelength on 7 Mc., and it would be connected to terminal *A* for 7-, 14- and 28-Mc. operation. For operation on 3.5 Mc., it would be connected to *B*, and a short ground lead should be connected to the coupler. For operating convenience, and to provide a wider choice in its location, the antenna coupler is "link coupled" to the transmitter.

Link coupling is a short length of transmission line used to couple between two tuned circuits. Its proper use allows the tuned circuits to be separated by almost any desired distance, but the normal use around an average ham shack involves link runs of perhaps 5 or 10 feet. The link coils or windings are usually a few turns at each tuned circuit, mounted at the "cold" point of the coil. This is the ground end in single-ended amplifiers, and the center in push-pull circuits. With transmitters ranging in power up to 100 watts or so, small RG-58/U or RG-59/U coaxial line can be used for the link. Above this power level, it is generally better to use the larger RG-8/U or RG-11/U cable.

TABLE I
Hertz Antenna Lengths

Frequency	*Length if Straight*	*1% Added for Bend*
3750 kc.	125 ft.	126 ft. 3 in.
7150 kc.	65 ft. 6 in.	66 ft. 2 in.
14,200 kc.	33 ft.	33 ft. 4 in.

Adjusting the Coupler

The dummy load is useful in testing the transmitter but it is not absolutely essential. Assuming that one is used, however, S_1 in Fig. 2 should be closed and the antenna disconnected. Set the tap on L_1 to the range given under Fig. 2. With the transmitter tuned to resonance and the key pressed, tune C_1 for maximum brilliancy of the lamp. This will be the approximate setting of C_1 for that particular tap on L_1.

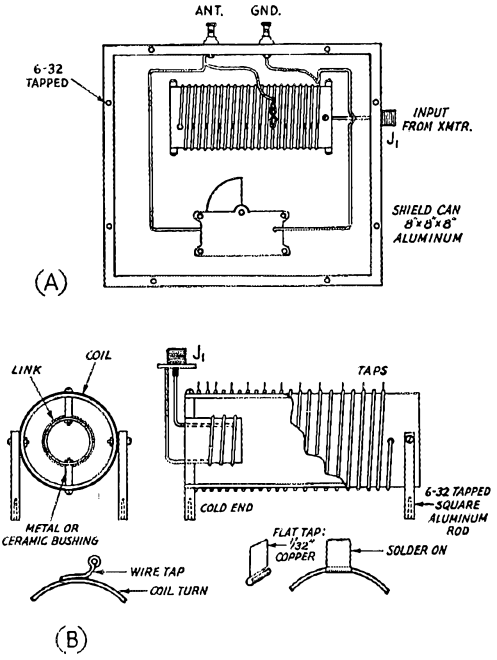


Fig. 3 — A suggested method of coupler construction would house the unit in an 8 × 8 × 8-inch aluminum shield can. The lamp dummy antenna is not shown — if used, the lamp and switch should be mounted on the top of the shield can. The coil and condenser are mounted on the front panel.

Constructional details of the coil are shown at (B), with two methods of making the taps.

After testing with the lamp, or if none is used, open S_1 and connect the antenna to the binding post. Press the transmitter key and tune C_1 for maximum loading of the r.f. amplifier. Check the tuning of the final amplifier tank condenser, to make sure that it hasn't been "pulled" too much.

It may be necessary to vary the tap on L_1 (this will change the setting of C_1) to find a condition where tuning the antenna coupler doesn't pull the tuning too much on the final amplifier. With

(Continued on page 114)

Announcing 10-Meter WAS Contest

CONTEST PERIODS

Time	*Start* *Dec. 7th and 14th*	*End* *Dec. 9th and 16th*
EST	6:00 P.M.	6:00 P.M.
CST	5:00 P.M.	5:00 P.M.
MST	4:00 P.M.	4:00 P.M.
PST	3:00 P.M.	3:00 P.M.

THE League is pleased to announce the Third 10-Meter WAS Contest If you like ten meters and have been wishing for a little more activity, here is the chance you have been waiting for. Maybe you only operate ten occasionally, but you won't want to miss this party. Here is an activity tailored for the ten-meter gang and an opportunity to fill out that WAS.

If you are located anywhere in the League's field-organization territory (see page 6, any *QST*), you are cordially invited to take part in this operating activity. Contest reporting forms will be sent to all amateurs who request them but it is not necessary to use these forms if the sample form shown is followed. Total available operating time is 96 hours. C.w. to c.w., 'phone to c.w./c.w. to 'phone, or 'phone to 'phone may be used.

Tune up those rigs and antennas and get right in the swing of things with a "CQ WAS Contest." You'll find that it will bring results.

10-METER WAS CONTEST REPORT

Station..... *Location*.....

Date and Time	*Station*	*Report Sent*	*Report Received*	*Location*	*Number of Each New State as Worked*
Dec. 7					
6:01 P.M.	W9MIR	57	58	Ill.	1
6:03	W5DEW	56	57	Texas	2
6:06	W5OQT	45	46	Okla.	3
6:10	WØICW	58	59	Mo.	4
3:13	VE4AB	579	57	Man.	-
6:18	W9RBI	57	56	Wis.	5
6:21	W9YMF	58	599	Ill.	-
Dec. 8					
3:00 P.M.	W4NFY	57	57	Fla.	6
3:06	W6TT	59	59	Cal.	7
3:10	W9CFT	589	579	Wis.	-
3:13	W6AM	569	589	Cal.	-
3:17	KP4AB	59	59	P. R.	-

Number different stations worked 12
Number different states worked 7
Claimed score: 12 points × 7 states = 84

I have observed all WAS Contest rules as well as all regulations established for amateur radio in my country. My report is correct and true to the best of my knowledge.

Signature.....

Address.....

Rules

1) *Eligibility:* The contest is open to all radio amateurs in the sections listed on page 6 of this issue of *QST*.

2) *Times:* All contacts must be made during the contest periods listed elsewhere in this announcement.

3) *QSOs:* Contacts must include report received and sent, location of station worked.

4) *Scoring:* One point is allowed for each contact and one multiplier point for each new state worked. The same station may be worked but once during the contest for credit. The final score equals the total contact points multiplied by the total number of different states worked.

5) *Reporting:* Contest work must be reported as shown in the sample form. Closing date of entries is January 15th, 1952.

6) *Awards:* A certificate will be given the highest scorer in each section.

SINCE the war many countries of the world have set up currency restrictions which either prohibit the sending of money outside their boundaries or make it practically impossible. This has meant that hundreds of amateurs in other lands do not normally have the opportunity to renew their ARRL memberships and receive *QST* regularly. The situation is made more acute by the devaluation of many foreign currencies, for many of those who formerly were just barely able to get together the necessary American dollars now find it utterly impossible to do so. Yet to them *QST* is the lifeline of contact with American and world-wide amateur radio.

At the end of the war ARRL did in numerous instances grant membership and *QST* to prewar members overseas on a credit basis, but of course we couldn't carry membership-subscriptions on that basis indefinitely and, in practically all cases, we have been regretfully obliged to discontinue these arrangements. It occurs to us that perhaps American amateurs and club groups might wish this year to make a "care" package gift in the form of *QST* for Christmas, as many did last year. If it's something you'd like to do, we'll be glad to make necessary arrangements. The foreign membership dues are $5. If you have a particular DX buddy in mind, give us his name — *and complete address*. If you have no special name, we can arrange to apply your remittance to a membership-subscription for a foreign amateur who cannot send his own money but wishes to renew. We'll let you know what amateur we select. And of course we'll send the recipient of your gift an appropriate note to tell him who his American patron is. Address ARRL, 38 La Salle Road, West Hartford 7, Connecticut.

IN the October column we wondered out loud if perhaps there wasn't too much emphasis put on carrier suppression, pointing out that with a little carrier one could readily zero beat or get his YRS-1 *to lock in*. The s.s.b. gang picked us up on it, hashed it out over the air, and **W3ASW** was kind enough to forward the consensus.

". . . we are not quite ready for [less carrier suppression] yet, and the main reason is that not enough fellows have gotten around to the stability of their oscillators. Quite a few of the boys do not have very good carrier suppression, and when they drift their birdies are very annoying. When you have been listening to a station on a certain frequency and another fellow takes over (in the voice-controlled round table) who is 200 to 400 or more cycles away, everyone has to grab for the tuning to clean him up. It may be a coincidence, but the ones who have the best carrier suppression also have the cleanest signals and are most tolerant of tuning. **W2JN, W3KPP** and **W9OHM** are good examples.

". . . quite a few owners of YRS-1 adapters say they have disabled the lock-in because near-by interfering signals take control and louse things up in general. **W2SHN** and **W8CJG** apparently have not performed this disabling surgery because they have the devil's own time to zero into a round table. The adapter will give give them a false indication of zero beat when they are trying to set up on us, because it is pulled in by the signal as it approaches the frequency.

"The other evening I was talking to **W4OLL** about this carrier business and he brought up another instance that makes us against it. We were having our own private QSO on 3999.5 and another couple of fellows were having theirs 875 cycles lower than us. That is too far away for pulling a YRS-1 *but* it falls in the passband of any adapter, and we had a darned birdie to listen to every time this one fellow came on. The other fellow was clean, and the gibberish from his sideband wasn't nearly as annoying as his carrier.

"At any rate, until such time as all fellows have hit upon a simple means for stabilizing frequency and/or removing sufficient distortion and having the correct ratio of highs to lows so that their signals are tolerant of some mistuning, we should continue to suppress carriers as much as we can suppress them!"

And there you have the case of maximum carrier suppression. We'll bring the subject up again when everyone has the frequency-stability control licked.

—*B. G.*

U. S. N. R.

Code Practice

Naval District Reserve Master Control Stations conduct automatic transmissions on regular schedules. These transmissions provide good code practice.

Sta.	*Location*	*W.P.M.*	*Kc.*	*Times & Days*
NDA	Hingham, Mass.	12	5865	1930–2030 EST, Mon.–Thurs.
NDB	Brooklyn	10	2952	2000–2030 EST, Mon.–Thurs.
NDC	Norfolk	16/6	3490, 7385	2000–2100 EST, Mon.–Thurs. (2nd ½ hr., 6 w.p.m.)
NDF	New Orleans	15	2854, 4525, 4105	2000–2030 CST, Tues., Wed., Thurs.
		10	8000	2030–2110 CST, Tues., Wed., Thurs.
NDG	Charleston, S. C.	12	4170	2100–2130 EST, Mon.–Thurs.
NDM1	Washington, D. C.	15	3415	2000 EST, Mon.
NDQ	Philadelphia	12	2884	1945–2015 & 2130–2200 EST, Mon.–Thurs.
NDS	Chicago	10/15	2656, 4075, 7495	1930–2130 CST, Mon.–Thurs. (1st 45 mins., 10 w.p.m.)
NDW	San Francisco	15	2656, 8150	1400 PST, Mon.–Fri., & 2000–2030 PST, Tues., Wed., Thurs.
NPD	Seattle		5295, 434	Mon.–Thurs.
		10		2000–2045 PST
		14		2100–2130 PST
		18		2130–2200 PST
NQG	San Diego	10	2792	2000 PST, Mon.–Thurs.
NSZ	Oahu, T. H.	10	5295	1930–2000 HST, Wed.

Here & There

Emergency mobile radio equipment from the Naval & Marine Corps Reserve Training Center, Boston (K1NRB), was on display at the 1951 ARRL Vermont State Hamfest held in Brattleboro. A message to the Hamfest from Rear Admiral Hewlett Thebaud, USN, commandant, First Naval District, read in part: "We in the Navy are particularly conscious of the truly great work amateur radio operators have performed in coming to the aid of their country, not only in time of war, but also in times of emergency and disaster. . . . Your members and associates through the world, in rendering unselfish service to mankind, have set a shining example for others to follow."

Naval Reserve activities coöperated with the Air Rescue Service in H.F. Radio Beacon tests during July, August, and September. Training Centers, Electronics Facilities, and Electronics Stations were requested to monitor 9335 kc. for test signals from a simulated Crash Locator Beacon (approximately 3 watts) set up at Dayton, Ohio, and at other locations. Reports were submitted by 123 activities. The beacon was heard at 70 activities in 31 states. . . . A direct teletype circuit for use in communication emergencies has been established in New Orleans between the Eighth Naval District Reserve Master Control Station (W5USN), the Red Cross Disaster Center in City Hall, and Red Cross Headquarters, New Orleans. . . . A Naval Reserve exhibit was set up at the Cleveland County Fair by personnel of Naval Reserve Training Center, Norman, Okla. A station was operated under the Center's ham call, K5NAY.

DX Century Club

The following list contains the call letters and countries totals of all holders of the Postwar DX Century Club award as of October 15, 1951. The calls of new members as well as those receiving endorsement credit during the period September 15 through October 15, 1951, are included in this listing.

242
W1FH

239
W8HGW

235
W3BES

234
W6VFR

233
W6ENV
WØYXO

232
G2PL

230
W2BXA

228
W3CPV

227
W3GHD
W3JTC

226
W6GRL
W6SN

225
PAØUN

224
W3KT
W6EBG
G6ZO

223
W2QKS
W6AM

222
W3EVW
W8NBK

221
W6MEK

220
W4BPD
W6ADP
G6RH

217
W6TT
W9KOK

216
W1ME
WITW

215
PY1AJ

214
W3DPA
W9RBI
PY1DH

213
W3GAU
W6MX

212
W2NSZ
W3JNN
W8BTI
LU6DJX

211
W2DS
W6DZZ
ZL2GX

210
W6SYG
W6ZCY
W7AMX
CE3AG

209
W5FNA
W8JIN
WØNUC

PY2CK
ZL1HY

208
W4AIT

207
W2AGW
W2AQW
VE7HC

206
W3EPV

205
W1ENE
W2QHH
W6TS

204
W3IYE
W4MR
W5ASG
F8BS

202
W6NNV
W8BRA
W9ANT
CX1FY

201
W1BIH
W1JYH
W2WZ
W6PQT
WØPNQ
KH6BA
VK2DI
ZS2X

200
W1CLX
W2AGO
W3OCU
W6CUQ
W6GAL
W6MJB
W6MVQ
PY1GJ
VE3QD
VE4RO
VK2ACX

199
W2IYO
W6SAI

198
W2HHF

197
W1CH

195
WØDAE

194
W1ADM
WØUOX
G8IG
VK2NS

193
W3GRF

192
W4PN
W5KC
W6BPD

191
ON4QF
VE7ZM

190
W1GKK
W1HX
W2HZY
W2IOP
W3OP
W5JC
W6ANN
W6DI
W6GFE
W6OMC
W6PB
W6RBQ
W6TI
W6UCX
W8DX

W8SYC
HB9J
KH6IJ
PY1AHL

189
W3DKT

188
W2CWE
W2CYS

187
VO6EP

186
KV4AA

185
W9IOD

184
W2HMJ
W3BXE
W7GUI
W9FKC
W9MXX
SM5KP

183
W2EMW
W6TZD
G6QB

182
W6QJU
W6SRU

181
W2UFT
W8DMD
G8KP

180
W2TXB
W3KDP
W4OM
W5EGK
W5GEL
W6RM
W7GUV
W8HFE
W9LNM
G2EC
KP4KD
LA7Y
ON4JW
VE7VO
ZL1BY

179
W2CSO
W2GWE
W3JKO
W8WZ

178
W2COK
W2YW
W4CYU
VK3BZ

176
W2GUM
W3QJV
W9AEH

175
W1LOP
W1ZL
W2JVU
W8UDR
G3DO
KH6QH

174
W8CVU
W8RDZ
W9TJ
G2MI

173
W3KQF
W5BGP
HB9X
OK1FF
ZS6BW

172
W2DSB
W3DRD

W8BKP
VE3IJ

171
W1AB
W2ALO
W2PWP
W3JTK
W4LZF
W6EHV
W7PGS
HB9CX
HB9EU

170
W2DKF
W2IMU
W5KUC
W6EYR
W6KUT
W6VE
W8EWS
W8SDR
W9AND
W9TQL
WØAIW
CE3DZ
I1KN
KH6CD
LU7CD

169
W1IAS
W2PUD
WØEYR
I1AY

168
W8UAS

167
W5ADZ
PY1BG

166
W1AXA
G4CP

165
W2BJ
W3LBG

164
W9VND

163
W3HRD
W3LPF
G6YQ

162
W2CNT
W3NOH
G2AJ

161
W1DQH
W1FTX
W2RDK
W2RWE
W4CYY
W4HA
W4VE
W6EPZ
W6GHU
W6WKU
W8FJN
W8KPL
HB9DO
I1OJ
KP4CC
OK1LM
VE3AAZ

160
W1MB
W2TQC
W4RBQ
W6BVM
W6CLS
W6CTL
W6IBD
W6JK
W7KTN
F8PQ
G2FSR
G3YF
GM3CSM
I1AIV
I1IR
PY2OE

PY4IE
SM5WI

159
W2LJR
W2RGV
W3ALX
W4BRB
W4JFE
W5ENE
W5LXY
W6PZ
W9ABA
GW3ZV
OK1HI
OK1VW
PAØGN
PY1HX

158
W4DKA

157
W1DX
WØTJ

156
W1JLT
W2SAI
W6KEV
WØLLN

154
W1CUX
W2QCP
KH6LG

153
W1DEP
W2GVZ
W7DL
KH6VP
VE3ZW

152
W1MUN
W6JZP

151
W2OST
W4AZK
W5CGC
W6MHB
W6NTR
W8AJW
W8MPW
W9YNB
4X4RE
GM3AVA
KZ5CP
ON4TA
VK3JE
VK6SA
ZL3BJ
ZS6A

150
W1KFV
W2CTO
W2LSX
W3ADZ
W5CEW
W5LGS
W6EAK
W6EAY
W6LDD
W7DET
W7ENW
W8DAW
W9CIA
W9HUZ
W9IN
G2IO
G2VD
HK3CK
KH6MI
ON4AZ
OZ7EU
VK4EL
ZL3GU
ZL4GA

149
W1HA
W2IWM
W2UEI
W3WU
W4FVR
W6BZE
W8DEN
PAØIF
ZL2QM

148
W1BFT
W7FZA
W8WWU
ZL4AW

147
W5JUF
G5RV

146
W3RCQ
W4NNH
W6LV
CP5EK

145
W3FGB
W6RW
W9BQE
G3DCU

144
W1ATE
W2ADT
W2REF

143
W5ACL
W5CKY
W9PSR
LU3DH
NY4CM

142
W1LZE
W1NW
W1TX
W4GMA
W4HVQ
W5LVD
W7BE
W8ACE
EI4Q
G3COJ
G4JZ
G6RC
KZ5IP
SM6HU
SM7MS

141
W4ZD

140
W1AH
W2BRV
W2GFW
W2GTP
W2OMS
W2PRN
W2ZA
W3CGS
W3IXN
W3LVJ
W4IWO
W5IGJ
W5LGG
W6ATO
W6DUB
W6LVN
W6WWQ
W7GBW
W8FJL
W8GLK
W9GRV
WØGKS
WØOUH
G2AKQ
G3AKU
G5YV
G6GH
IS1AHK
JA2KG
LA6U
ZL3CC
ZS2AG
ZS2CR

139
W2GUR
W3FUF
W4DHZ
W8ZZU
G5FA
OK1CX
OZ7CC
TA3GVU

138
W6FSJ

EI5F
I1XK
ZL3LR

137
W1RY
W5MIS
W7HIA
W8BWC
W8EYE
OH2NB

136
W4IUO
W8IB
W8TJM
WØNTA
G3AH

135
W1BAV
WØCU

134
W1IKE
W1QF
W3LNE
W4CYC
W5CPI
W5MPG
G3BI
KZ5WZ
ZE2JN
ZS5YF

133
W1PKL
W2AW
W2MEL]
W6KYG
W9CYU
W9FJB
G3AIM
G5SR
MI3AB

132
W1BGW
W2PJM
W2WC
W3ALB
W3FYS]
W3KZQ
W3LMM
W4AIS
W6CEM
EA2CA
G6LX
HA4SA
I1AMU
SM5LL
VK5KO
VK5RX

131
W2DSU
W2QKJ
W5NMA
W6MHH
W6NGA
W6RLQ
W8CKX
SM5VW
I1IZ
KH6PY
PY7WS

130
W2CZO
W2GNQ
W2GTL
W2ICO
W2LTP
W2TJF
W3ARK
W3HOX
W3MLW
W5KUJ
W5MET
W5NW
W6LER
W6OBD
W6PBI
W9UIG
G2BQC
G3AWP
G5LH
G5OO
G8FW
G8KU
GM3DHD
HP1BR

I1LT
OH2PK
VK4FJ
VQ2DH

129
W1BLF
W1ODU
W1OJM
W4BGO
W4IYT
W6NIG
W8OCA
W8ZMC
DL1AU
OK1SV
ZL1MR

128
G6BB
I1UA
PAØJQ
VK4RF

127
W1JNV
W4FIJ
W6ID
G5PP
ON4GC

126
W1BDS
W2AZS
W5GZ
W6DE
W6LMZ
W6RDR
W7AHX
WØMKF
VP6CDI
ZC1CL
ZS6LW

125
W2BLS
W2LPE
W3EYF
W9CYT
I1BEY
OK1WX
ZS2AT
ZS5CU

124
W1CJK
W3KQU
W6BAM
W6CEO
W6KYT
CE7AA
G2BXP
G5VU
OK1SK
PAØRC

123
W1EOB
W1NLM
W4AAU
W4ITR
W6UZX
W9UX
G8VB
PAØMZ
SM5WJ
SM6AKC
VE2BV
ZS6GI

122
W1KWD
W2FBA
W2LV
W5FXN
W6EAE
W6IFW
W6WO
W9FKH
W9NDA
DL4TL
EA5BE
F9AH
GM3CIX
I1ZZ
OZ3Y

SM5DZ
VE5JV

121
W1WK
W2AFU
W2QCF
W3DGM
W3GHS
W3JYS
W4AAW
W4ML
W6GPB
W6KYV
W6ZBY
W7ATJ
W7KWC
W9AHP
W9BRD
W9NZZ
WØAZT
WØDU
G3DOG
G4ZU
G5VQ
I1IT
KG6AI
PAØLR
SM5KX
VP5FR
4X4BX

120
W1BOD
W1HRI
W1MRP
W1RWS
W2ABS
W2ATE
W2RQH
W2WPJ
W3EVT/1
W3MZE
W4DCW
W4EPA
W4LQN
W6BIL
W6ETJ
W6YZU
W7AC
W7GPP
W7RT
W8DFQ
W8LAV
W8NJC
W9RQM
W9UXO
WØGUV
WØQVZ
CX1BZ
F8SK
G2HNO
G3BQ
G3CBN
G3LP
G3TK
G6XX
G8PL
HB9FE
I1UR
I6IFIC
KL7IT
OH2RY
OK1AW
OK1RW
PAØLB
VE3AGC
VK3NC
ZL1MB

119
DL7AB
G8GB
G8ON
KG6DI
SV1RX

118
W6LDJ
W6PH
W6QDE
G6RB
VE4XO

117
W2PQJ
W4GOG
W6LS
W6SR
W9NRB
G2AJF
VE5QZ

VE7ZZ
ZS2EC

116
W1LQO
W2AGU
W2AUH
W2ITD
W3TIF
W7BD
G8UG
ON4NC
VE1PA

115
W2NFR
W3RNQ
W9LNH
LA5S
PAØCP
VE3ADV
ZS6OB

114
W4NKQ
W6MEL
W8MFB
W9ELA
W9LVR
VK4RC
ZS6HO

113
W2TUD
W4EV
W6BJU
F8TM
G8OJ
ON4SS
OX3MG
TF3EA
VE3ACS
VQ3HJP
ZS5BS

112
W1APA
W2MYY
W2UWD
W3BEN
W3MNO
W6AUT
DL1CS
G2CDI
G4FN
G6BS
G6QX
G6XA
GI6TK
LA2B
PAØVB
VK5FM
ZL3AB

111
W1JMT
W1QXQ
W2MA
W2UAT
W3DYU
W3ZN
W4CKB
W4LIM
W5FFW
W7JYZ
W8EKK
W8PNT
W8TTS
W9DUR
W9ERU
WØSBE
G2IM
G4AR
PAØDA
PY2NX
SM3ARE
SM7QY
VE3SR

110
W1BIL
W2BUY
W2CGJ
W3KEW
W3VZD
W4KWC
W4LVV
W4QT
W5BNO
W5KWY
W5LHP
W5RX

W6AAO
W6AOD
W6AX
W6MUB
W6UYX
W6WJX
W6ZUI
W7BTH
W7PEY
W8CED
W8ERA
W8FGX
W9DGA
W9EXY
W9HLR
W9MXP
WØDST
WØRIA
WØSRX
DL1QT
F3RA
G2AJB

107

G3CCO
G3CDG
G3CMB/A
G5CW
G8IL
HB9FI
I1ADW
I1VS
LA5Q
ON4JD
ZS1M

109

W2AYJ
WØAIH
WØMCF/C1
CO6AJ
FA8CF
G2DC
G2DHR
G3AMM
G8GP
G8TH
HB9BN
LU8EN
ON4FL
PAØPN
VP7NM
VS7NX
ZL2CU
ZS1BK
ZS6DW
ZS6KK
9S4AX

108

W1EZ
W3FLH
W3HER
W6LGD
W6LN
W6PUZ
W6YMD
W9TLT
DL1LD
EA9AI
G2BOZ
G5GK
G6KS
GI4RY
KZ5KS
OK2DD
PAØOK
SM5PA
VE6GD
VE8AW
ZL4BO

107

W1KLY
W1PDF
W1ZD
W6CUL
W6DBP
W6PWR
W8BNA
W9CKP
DL1FK
G8IP
G8OZ
JA3AA
ON4PZ
PY4RJ
VE1EP
VE3BBR
VO3X
VO2GW
ZS2IW

106

W1KQY
W2DPS
W2JB
W4CS
W4DXI
W4FPK
W4NNN
W4TM
W5NUT
DL1SC
EA4BH
G2CBA
G2HFO
G2ZF
G3BKF
G3DDK
G3ETU
G3OD
G8TD
OK1CG
OK3SP
SM6DN
VE2WW
VE3AHV
VK5BO
VO1B
VO2HW
ZB1AJX
ZE1JI
ZS5FS

105

W1CDX
W1LQ
W1VG
W2KJZ
W4COC
W4DYM
W6BUD
W6DFY
W6DOT
W6KPC
W7AJS
W7HJC
W9ABB
W9DUY
W9LI
DL7AA
G3JW
G6CB
G6IC
G8OW
GM6MS
HB9P
HZ1KE
MI3ZJ
OH6NZ
OK2OS
OK2XF
ON4MS
PAØALO
SM5FL
VE3KE
VE6AO
VE7KC
VK2APV
VK6DX
ZL1RD
ZS5JZ
ZS6SB

104

W1AFB
W1DF
W2MLO
W2OC1
W2PBG
W2TSL
W3IBT
W4AWS
W4IPR
W4TP
W6DTP
W6KRI
W6LRU
W6MUC
W6RRG
W7KEM
W7KVU
W8JRG
W8MKY
W8UPN
W9GA
W9KA
W9TFU
W9UZS
WØBAF
WØDSO
WØSQO
CR7BC
F8WK
G2CLL
G2FQP
G3AZ
G3COF
G3FJ
G6FB
G8PW
HB9IM
OK1NS
OK1OP
OK1PN
OQ5RA
PAØLB
ZL3GQ
ZL3HC
ZS1FD
ZS5U

103

W1BLO
W1IAP
W2JJC
W2PIN
W2PXR
W2UPH
W3AFU
W3EIV
W3KMS
W3LTW
W4KVX
W4LYV
W5MMD
W6APH
W6BAX
W6GHG
W6JWL
W6LMV
W6MLY
W6VDG
W6WB
W7DXZ
W8CLM
W9YFV
WØCFB
WØRBA
CM2SW
CN8MZ
CT1SQ
DL1GU
DL4FS
DL7AH
FA8RJ
G2FYT
G2HKU
G3DAH
G8RC
GC4LI
GM3AWW
GM6MD
HB9HC
I1AFM
I1ARA
I1NU
I1PG
I1UV
KH6PM
KP4HU
MD1D
MD5KW
OH2TM
OK2SO
SM6AWE
YV5AE
ZB1AH

102

W2HY
W2JA
W3AFW
W3AZG
W3HUV
W4INL
W4JXM
W4KKX
W5BDI
W5DGV
W6CYI
W6JU
W6MUF
W6NZ
W6TCH
W6UHA
W8AE
W8AVB
W8CEI
W8LYQ
W8VLK
W8YJE
W9VW
WØCDP
WØDGH
WØERI
WØFET
WØZDM
CN8EJ
DL1AT
DL7AP
EI6G
EI9J
FA9RW
G2YS
G3ABG
G3AJP
G3ATU
G3CFK
G3CVG
G3EYN
G3HK
G4JB
G4QK
G5CI
G6VQ
G6XS
G8WF
GM2FHH
GM3EST
GM3RL
GM8CH
GW3AHN
I1ALU
KG6GC
KG6GD
KS4AI
KZ5AU
OE1AD
OE1ZZ
OK2EL
OK2MA
OK3AL
OK3DG
ON4FQ
OZ2LX
PAØRU
PAØSU
SM5TQ
SM6ID
TA3FAS
VE1BV
VE1HG
VE3RM
VE6FK
VK2YC
YU1CAG
ZL1QW
ZL2BH
4X4CZ

101

W1EFQ
W1FPS
W1FTJ
W1MLT
W1NAV
W1NMP
W1ODY
W2CDP
W2IYG
W2KXK
W2PZM
W2QKE
W2ROM
W2TNA
W2UVE
W3AYS
W3KAT
W3MDE
W3OPM
W3TXQ
W4DIA
W4GHP
W4IKL
W4JV
W4LHQ
W5IIP
W6AMA
W6AYZ
W6CG
W6KEK
W6POZ
W6RCC
W6SC
W6TEU
W6UJ
W6YK
W7CNM
W7ETK
W7KSA
W7LYL
W8CJ
W8FJX
W8HRV
W8PM
W8TAJ
W8WSL
W8YHO
W9FNR
W9GDI
W9HQF
W9TWC
WØCWW
WØGBJ
WØTKX
WØVDC
CE3AX
DL1DA
DL1YQ
FE8AB
G2DM
G3BQR
G3CSE
G3VA
G4GI
G4GJ
G4LP
G5RM
G5UF
G6XY
G8NV
GW4CX
HB9BX
I1ADX
I1AFQ
I1FO
KH6EL
KH6LF
OE3CC
OH4NF
OZ1W
OZ7SN
PK6HA
VE1EK
VE1OK
VE3HB
VE6MZ
VK5MF
ZS6CT
ZS7C

100

W1BBN
W1BUX
W1CEC
W1COM
W1EQ
W1EYP
W1IOZ
W1NS
W1PEG
W1PPZ
W2EGG
W2EQS
W2GSN
W2HZN
W2JJI
W2LRW
W2QJM
W2SGK
W2TJK
W2TTH
W3AFM
W3ETD
W3FJU
W3GRS
W3HA
W3JLJ
W3KHU
W3KJJ
W3ORU
W3RBF
W4DPE
W4GXB
W4IZR
W4JDR
W4JUJ
W4KCQ
W4KFC
W4KIT
W4OG
W4POF
W5BK
W5CD
W5LV
W5RS
W6BUY
W6CAE
W6CGP
W6DUC
W6EKC
W6FUF
W6ITH
W6MI
W6VBY
W6VOE
W6YX
W6ZTW
W6ZZ
W7AH
W7HXG
W7ONG
W8HRC
W8HSW
W8JM
W8LCN
W8LYP
W8RVU
W9HUV
W9JNB
W9KXK
W9MZP
W9QLW
W9TMU
W9UAZ
W9VIN
WØBBS
WØBFY
WØBMO
WØDIB
WØFFV
CE4AD
CO2BM
CR9AC
DL1DC
F3SM
G2AO
G2BJY
G2FFO
G3AAE
G3AAG
G3ACC
G3BNE
G3BXN
G3FXB
G3RB
G5CR
G5WC
G8JR
G8UK
GI3BXG
GI4NU
GW8UH
HB9DH
HC7KD
I1IV
I1PL
KL7PJ
KL7UM
OA4AK
OE1CD
OE1FF
OK1GT
OK1MB
OK1WF
OH2QQ
ON4PA
OZ4PA
PAØBK
PK4KS
SM5IZ
SM7ACO
SM7IA
VE1EA
VE1NE
VE1PQ
VE2ADQ
VE3ADM
VE3QB
VE3TB
VE7AAD
VE7CN
VE7SB
ZS3K
ZS6IH
ZS6QW
4X4CJ

RADIOTELEPHONE

210

W1FH

203

PY2CK
VQ4ERR
XE1AC

202

LU6AJ

197

W8HGW

186

W2BXA
W9RBI

185

W1JCX

183

W1NWO
W3LTU

181

W6DI

176

G2PL

175

W3BES
SM5KP

174

W2AFQ

171

W6AM

170

W5BGP

169

W4EWY

166

W1MCW
ZL1HY

165

HC2JR

164

ZS6BW

163

G8IG

162

PK4DA

161

W9ROQ
G2ZB

160

W1MB
W8BF
G6RH

158

W4CYU

157

I1SM

156

W4HA

155

W3JNN
W8REU

151

W1ENE
W2QF
W3DHM
W7MBX
ZL2GX

150

W1LMB
W4AZD
G3DO
ZS6Q

147

W1ADM
W1HKK

145

CE3AB

144

W1ATE

143

LU4MG
TI2RC

142

W1BEQ
W8AJW

141

W2APU
W8KML
G6AY
GM3AVA

140

W2AEB
W2AKX
W3GHD
W4ESP
W6KQY
W7HIA
W9RNX
WØPRZ
F9HE
I1YJ
LU8CW

139

W5ASG

136

W6TT

135

W2ZKG
W3EVW
LU4DD
TI2HP

134

W3BET
HB9J
I1RM

133

AR8AB

132

W1EKU
W2EOH
W2RGV
W5EFC
W6MBD
W9IOD

131

W2ZW
W3KT

W6CHV
W9HP
W9UUN
EA2CA

130

W1GOU
W2NHZ
W2ZX
W4HRR
W4MKB
W5JUF
W5NMA
W6VFR
W6WNH
W9BZB
WØPUE
CN8BA
I1AMU
I1ASM
I1AXD
OZ7TS
VE7ZM
YV5AB

129

WØVSK

128

W1FFO
W4DCR
CE3AE

127

W1MMV
W4OM
I1UA

126

CX2CO

125

W5KC
G8KP
PY1FR

124

W1KJU
W8NXF
G2MI
TI2TG

123

W1GKK

W4FBH
W6NIG
W8AUP
W9TJ
WØNCG

122

WØEYR
G2ALN
VE7VO
ZS1DO

121

W1CLX
W4BOC
W4JCK
CE1AH
CT1PK
EA2CQ
G2BXP

120

W1HX
W2QKJ
W2SGX
W2ZVS
W3MAC
W4AAW
W4AQR
W4DCQ
W4IYM
W4MB
W6IKQ
W6MJB
W8BIQ
W9JJF
WØANF
HC2OT
I1BIC
VE3BNQ
ZS6FU

119

LU3DH
VK3BZ

118

W2VQM
WØTJ
ON4PJ

117

G4ZU

116

W1CJK
WØAIW
F3WV
F8SK
G8QX

115

W3RIS
W7EMP
W8HRV
WØGUV

114

W6TZD
W8ZMC
GM2UU
TI2EV

113

W2JY
W2PBI
W3MMH
W8BKP
G5PP
VE1CR

112

W3GHS
W4MRA
W5CEW
W5JJA
W6GVM
G3COJ
G4JZ
GM3DHD

111

W2PRF
W8TJM
W9CZC
CM9AA
G5RV
GC2RS
ON4AR
VE7MS
YK1AC

110

W2IUV
W2VWN
W2YTL
W3BYL
W3DKT
W3FGB
W6YI
W8AJH
W8DMD
W8DMJ
W8QAD
EI4Q
F9HF
G3YM
G6LX
HB9DY
I1RC
I1VS
ZS1GG

109

W7EKA
DL4TL
VE3BDB

108

W1BAV
W3KTF
W3MWP
W4LIM
DL1LH
ZS5CU
ZS5GU

107

W2RUI
W4LZM
W5KUC
W7HLB
W7PEY
G4MS
HB9JZ
PY4RJ
ZS6DW

106

W1FZ
W1HRI
W9NLP
DL1FK
TI2OA
VE3KF
VK3JE

105

W2JJI
W2ONV
W6AED
W6UYX
SM5WJ
SU1HF

104

W1BPH
W2PPS
W4AHF
W8ACP
W8SDR
W9FHZ
W9LXQ
F3QX
F8MY
G2AJF
G5QO
G6TA
G8QW
G8UG
HB9CX
LX1SI
ZD4AH
ZS6LW

103

W1JYQ
W1PDF
W2DPS
W2IZS
W2NQR
W2QWS
W3NA
W5ALA
W8MKY
WØUQD
G2AKR
IS1AYN
KH6OR
LA7Y
VP9G
VQ4SC
3V8BB

102

W2DYR
W2MFS
W2QCP
W4BA
W4CWV
W4KYB
W5JWM
W6PWR
W6SHW
W7HTB
W8IWI
W9WXT
WØSQO
WØSUG
WØWSH
CO7GM
DL3DO
G2DP
G3CCO
HB9HM
I1AUH
KP4ES
PAØMDW
PY2JU
TA3GVU
VK2DI
VS9AH
XZ2SY
ZL3LR
ZS5G

101

W1KWD
W2RTX
W2UAT
W2UTH
W2WME
W3HUV
W3SFK
W5HFQ
W5ZS
W6KPC
W8BFQ
W8CYL
W8NML
W8ZOK
W9BVX
W9LO
W9VND
WØJRY
WØMKF
WØNWW
F8XP
G6WX
G8VB
I1NK
I1RB
I1ZV
KP4EZ
OH2OV
PY4VX
VE3AIU
VE3BQP
VS1AY
YS2AG
4X4AD

100

W1CUX
W1FQX
W2MA
W2OR
W2PRN
W3BUX
W4DYM
W4ECE
W4GIO
W4GLR
W4LGG
W4LPT
W5ALB
W5ERY
W5GZ
W6CHY
W6ITH
W6OZE
W6UZX
W6YX
W7ADH
W8ACL
W8DXO
W8FJX
W8LJ
W9CKP
W9FDX
W9GZK
W9HMG
W9NDA
W9UJ
WØFUH
WØGSW
WØHX
CT1NT
F9RM
G2HIF
G2VJ
KP4HZ
OE5YL
PY1AQT
PAØQJ
VP5AR
VP5FR
VQ5PBD
ZS2IW
ZS3G

How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

How:

The sharpness of the eyes of W9HUZ may only be exceeded by the keenness of his ears. Van volunteers information of particular significance to those cloudy souls who lament that TI9 is about the only good rare DX spot in this hemisphere for that future Oft-Dreamed-Of Super Ham Expedition.

Attempting to make an interesting tale shorter and yet still interesting, let us briefly examine the activities of certain Messrs. Savoy and Arundel, who for years attended the International Tuna Tournament off Wedgeport, Nova Scotia. Time and again on their angling excursions the weather blew so bad for these gentlemen that they put into the lee of a friendly island about 14 miles off Wedgeport, said isle known locally as Outer Baldy. The handy haven, encompassing some 130 acres, was invariably observed to be deserted.

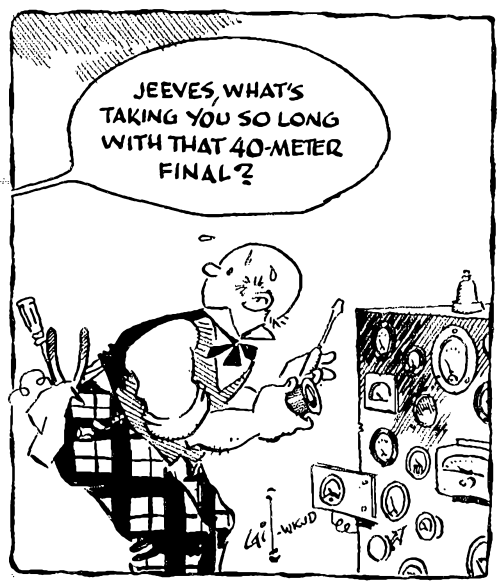
Our two seafarers learned subsequently that ownership of this Shangri-La was sliced up among a dozen or more heirs of long-forgotten owners scattered over the U. S. A. and Canada. Much title-searching and sleuthing later, the twosome was in complete possession of Outer Baldy, lock, stock, bore and barrel.

Then Mr. Savoy and Mr. Arundel discovered that our country and Canada were in disagreement as to which domain the island was properly affixed to, and that this dispute had never been satisfactorily settled. They promptly solved the problem to their own satisfaction by renaming Outer Baldy Outer Baldonia and proclaiming it to be an independent country. Now this was over two years ago and so far, to our knowledge, neither the government of the United States nor the government of Canada has challenged them.

Thus while this may be a fairly fishy story in parts, O readers, 'tis no gag. In Washington you might chance to communicate with Mr. Savoy himself who will inform you solemnly that he is Prince Regent of the Principality of Outer Baldonia, an independent state with its own constitution, flag and seal.

Take heart and man your battery chargers, would-be Columbuses and Captain Cooks of the amateur bands! The last frontier may still be far away.

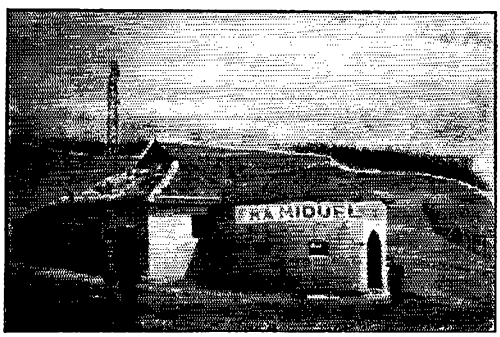
* Please mail all reports of DX activity to DX Editor Newkirk's new QTH, 5833 North Kenmore Ave., Chicago, Ill.



What:

Twenty has resumed its after-dark cantankerousness but the day shift continues to make hay. The past few weeks have featured the appearance of numerous goodies in the French possessions as well as in Oceania. Even the 200-country lads have been finding new ones. FB8BB of Madagascar (14,040) is one such juicy item worked by many. W3JYS raised him as well as FF8AF (075), MI3US (040), CR7CR (062), KR6CR (085), VK1BS (002), VQ3BNU (070), VU2NB (120), LB8CH of Jan Mayen (020), EA6AM (075), OQ5AA (095), ZE3JO (062) and 4X4BX (040) ._._._ A two-hour WAC with breakfast included made W8UPN happy. Newt also encountered EAØAB (030), EA6AF (078), GC5OU (093), KR6HC (085), LX1JW (060), OQ5CP (050), VK9XK (071), VS6s AE (081) CG (070), ZS7C (070), MD2DW (040), FQ8AE (070), FO8AC (033) and 4X4RE (020). He was still hot after FD8AA (and who wasn't?) ._._._ ZD6DU (014), ZD2DCP (003), SVØWY (022), F3AT/FF8 (080), FQ8AG (052), EA9AP (004), VP1AA (001), VP8AO (026), VQ2AB (002), VQ2GW (022), VR2CD (080), VS7NG (082), HR2AD (079), ST2GL (020), KT1LM (012), TG9CR (080), CP1JB (060), CR7CD (095), KW6AR (082), YN1OC (005), ZB1GKU (026), ZS3Q (072), YO2BF (005), OQ5VN (080), VP5BF on the Caicos (036), SP1JF (047), YU1AG (014), IS1FIC (036), HA5BD (074), IT1SEM (058) and 9S4AX (014) all had chats with W9HUZ. Hard to believe possible, but Van says he has just purchased an even better QTH! ._._._ W5MPG is skeptical about one FL8BB (045) and thinks better of his contacts with GD3UB (033), C3AB (080), CR4AD (075), SP5AB (125), ST2MN (070), FB8ZZ (025) and VR2CG (015). Rex has 130 confirmed out of 165 worked ._._._ WØPQS ran across GC2FZC (030), IS1AHK (030) and a VS6 for new ones while W1ONV is curious about one 4R2AB (110). Could be VR2AB? ._._._ VE3CCK kept busy with EAØAC (100), HZ1HZ (000 t7), VS6HR (025), VQ4CM (021 t8), FF8AB (012), KT1LU (036), HR1KS (097) and TF3AR (077) ._._._ Arrival of W2QHH's 205th 40-watt country confirmation found Howy busy knocking off ZS3R (095), VP8AI (041), VS6BA (097), SP6XA (111), KT1OC (001) and a bogus 3A2 ._._._ WØDEA/KG6 opened up his new DX log with VQ8CB (102) who runs 30 watts to an 807 on Chagos ._._._ 217 countries now rest in the W2TXB log and Al got back on the air in time to nab the previously mentioned FF8s, FQ8s and HZ1HZ ._._._ KH6WW continues to peck away at his DXCC and his latest are TI2PZ (030), ZE3s JL (015) JQ (110), DU1AP (040), C3MY on Formosa (045), VP7NU (060), VS1DU (090) and CE3DC (015) ._._._ FB8BB was number 203 for W8SYC; Clint also collected YI3BES (040), VP8AO and FF8AG (047) ._._._ W8YJE reached 117 with FY7YB and W6ALQ made it 109 on CR7AG and FK8AC. Max was irked to hear a wise

ruy signing OZ7, LX1 and ON4 calls with the same QRI one morning .-.-.- YS1O is up to 136 worked after YK1AC, YU3FLA, ZC4HV, FF8JC, MP4BAF, CR6AQ, VR1C and VP5BH in the Caymans .-.-.- YI3ECU, LZ1RS, MI3GG and FKS8AK put DL9GN on the trail of his DXCC while W8NOH tried out his new 751Cs on VR2AS (092) and VP9OO (010) .-.-.- The *DXer* of the No. Calif. DX Club recommends ZD1SD (112 t7), FB7BD (052), FB8XX (050), MI3UF (040), YK1AH (070), KM6AW/KS6 (020), OY4T (060), UJ8KAA (036) heard mornings, UM8KAA (033) and VR7AA on Nauru (037) who bats a very zippy bug .-.-.- The West Gulf Div. DX Club donates a flock of nifties: (mornings) YI3EFE (044), HS1UN (158), VQ4HJP (131), VU2EJ (020), ZD1s AA (022) AN (030), SU1s RX (015) XZ (025), CR9AG, CT3AA (025), ET3Q (050) and XZ2EM (044-094-106); (evenings) CR8EB (075), SVØWO (032), EAØAD (085), OY3IGO (080), KM6AX (060), FY7YC (022), FD8AA (030), FE8AC (050), FF8GP (060), FK8AA (080), FQ8AA (080), FO8AE (080 t7), ST2GL (022), ZC4OP (035), ZP1BB (060), ZS7D (045), VP8s AK (012) AU (000), YS1FM (030 t7), HR1DF (010), HE9LAA (040), VT1AB (040), UP5A (022), TF3s SF (058) OS (020) and LA4QC/-Antarctica (120).



This abandoned roadhouse, just inside the Andorran frontier and atop the mountain on the main pass from France to Andorra, was the site of PX1AR, operated in late August by Al Hix (F7AR-3A2AC-7B4QF-W8PQQ) and Warren Snyder (F7AT-3A2AG-WØHZA). From this lofty location F7AR found the radio path to W-land much better than from the valley QTH of 7B4QF (see "Operation Andorra," Oct. *QST*), with Ws accounting for about two-thirds of the 532 contacts made.

XE1AC likes *twenty 'phone* because of HC8MM (351), VP5BF of the Caicos (145), EA9AR (316), FQ8AI (308) and CT3AN (115). FN8AD came through to Al with a nice QSL .-.-.- HI6EC (180) and MI3RH (195) answered W8UPN while VE3CCK finds ELs 2X (210) and 5A (335) quite active from the rubber country .-.-.- W1EYP needed only 20 watts to snag CN8FB and CS3AB while VQ5AU and YU3AC brought W3DKT up to 203 countries .-.-.- In case you think all DX is on c.w., W5KUC and the West Gulf gang have been hearing and working CR4AD (040), CR8EB (345), VQ4RF (350), VQ5s CB (155) BVF (160), LA4QC/Antarctica (300), KT1BB (325), EA9AR (220), FB8BB (165), ZP4BB (305), ZS8A (312) and KC6WC (235) during the evenings and KX6AE (220), VU2JU (245) and ZD6RD (170) of a morning.

Santa Claus has brought *forty* back into the DX fold. W8KPL found VQ4HJP (7020), FA8DA (060), ZS6OW and VP5BH available .-.-.- MD2JB (025), VP4CQ (005), HK5DH (035), YO2BF (010), YU2DGI (004) and 9S4AT (020) were welcomed at W2ETT's fifty-watter .-.-.- ON4RM clicked with VP8s AO AP and VS7NG while DL9GN reports SP5AB hitting the band regularly .-.-.- W3JYS stuck around for HH2LD (045), those VP8s just mentioned, CT2BO (001), MD2FM (011), VP1AA (012) and SU1GB (028) .-.-.- HK5CR (043), YV5AL (068), OA4J (030) and LA7Y (020) are added by W9HUZ.

Even *ten 'phone* has been suffering a bit of DXitis. Take a look at the stuff W9KAS has been accumulating: VQs 3PBD 4SGC, ZPs 3AW 4BB, ZS3G, ZD4BG, ZE1JM, PZ1RM, EL1ØA, EA8AW, CP5EX, OQ5s BW VJ, and KB6AR. Glen also heard MP4KAG and an AR8 boiling through .-.-.- Eighty watts got CRs 6CC 7IV, VQs 2C 4ASC, FA3KC, MI3ZX, ZS7C, OQ5GA and VK/ZLs for W4DOU .-.-.- YL W4TAV is heading for DX from Paducah with her new ticket; VQ3PBD was country No. 14 .-.-.- MD2GC, MI3AB, ZB1AJX and ZE1JE worked YS1O and here is what has been keeping WØCKC occupied: OQ5CJ, TDRK in Guatemala, CP5EO, CT1CL, ZE2KH and a dozen ZS fellows .-.-.- ZS8F (28,100), VQs 2PL (420) 4RF (120), MP4KAG (230), OQ5CC (300), ZP1BB (490), CR7AD and KG4AD (400) are specified by the West Gulf Div. DX Club Memorandum.

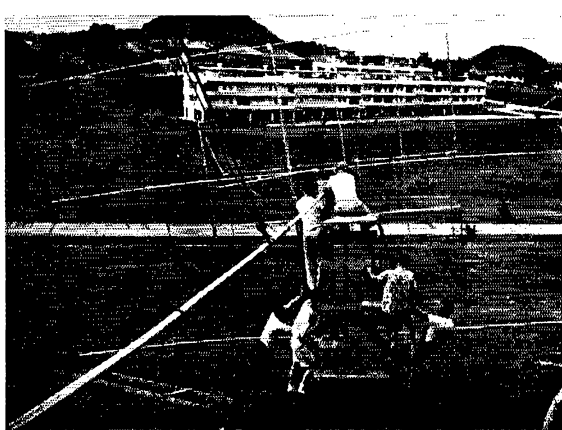
Eighty is just coming to life at this writing and VE1JD opened the season by working the following, all between 3504 and 3533 kc.: EK1CW, CT1PM, F7AT, EA4CR, OK1HI, ZL1BY, DLs 1VU 2RO 3HZ, PAØs KD NG, Gs 2BJY 5JU 5WP 6TD and 8AX. This activity was around midnight EST but the band will open earlier as the season progresses .-.-.- W9BQM warmed up his QRP on ZLs 1BY 1CI 3GQ 4IE, KH6PL/KH6 and KZ5RF. DX common on the h.f. bands often becomes quite rare on 80 due to zonal atmospherics at the DX end .-.-.- On *seventy-five 'phone*, KZ5PC has 200 watts and a folded dipole working WØBBL, W8WDH/8, W5s FQI GQ, W4s IYC MZH and PZT. Jerry writes, "I intend to be active on 75 during the coming DX season and also I will be happy to set up schedules so that all may confirm KZ5-land."

W9CVQ and W1BB wasted no time in breaking the ice on *one-sixty*. Both have received word that their c.w. was heard in mid-October at ZL1AH. The three stations are making tests on 1900 kc. at frequent intervals and a two-way contact shouldn't be far away .-.-.- W4NNN/Ø and ZL1BY are another pair running tests on the low band .-.-.- Details of the annual 160-Meter Tests will be found on page 98 of November *QST*.

Where:

As of December, C. E. Salton, Postal Services Dept., Malaya, takes over the VS1/VS2 QSL Bureau .-.-.- The Northern Rhodesia bureau is now handled by H. G. L. Windsor, VQ2HW, P. O. Box 332, Kitwe .-.-.- The VOA boys using KT1 calls in the Tangier Zone may all be reached care of Voice of America, Tangier. Other KT1s sometimes specify the American Legation address. As previously noted, EK1 is now a passé prefix there and CN2 calls are henceforth to be used by resident native amateurs.

EA8JR	J. Ramos, J. DeLeon y Joven, 16, Las Palmas, Canary Islands
EL1ØA	Box 32, Harbel, Liberia
FD8AA	Box 185, Lome, Togoland, Africa
FI8RO	(QSL via ARRL)
FM8BAA	(QSL via F9BO)
FM8BAB	(QSL via F9BO)
FQ8AI	Capt. H. Frecciro, Bangui, French Equatorial Africa
HR2AD	% Tropical Radio, La Lima, Honduras
HZ1AR	(QSL via W9CFT)
ex-KM6AA	(QSL via KH6QY)
KM6AZ	Navy 3080, Box 2, FPO, San Francisco, Calif.
KT1LM	% U. S. Legation, Tangier Zone
LU7UH	Barrio Melitar To Ay, La Pampa, Argentina
MI3RH	APO 843, % PM, New York, N. Y.



♦

The boys help KZ5TB (ex-W5KDA-J5AK-J9AAK-W4MVD-W9FOU) raise a new 10-over-6-over-20 rotary at Albrook in the Canal Zone. *L. to r.*: KZ5s VE TB MM PC NP AU WG.

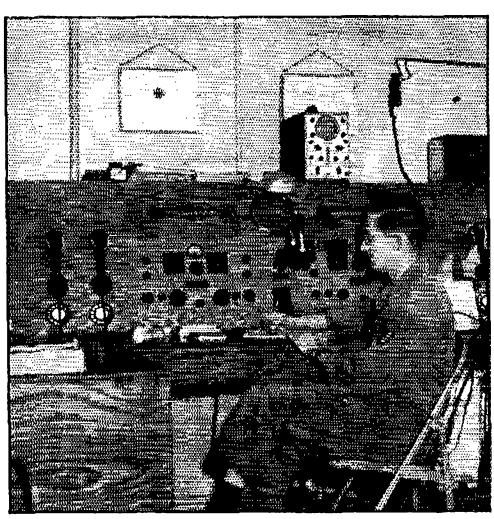
December 1951

MI3UF	APO 843, % PM, New York, N. Y.
OX5EL	Fredericksdahl, Greenland
SU1AD	(QSL via W3BHD)
VQ5BVF	Box 231, Kampala, Uganda, Africa
VS6CG	Box 541, Hong Kong, Asia
ZB1IF	(ex-G4IF) E. A. Heaton, 21 Luzio St., Sliema, Malta
ZC6DH	% U. S. Consulate, Jerusalem, Palestine
ZD1SD	Royal Signals, Freetown, Sierra Leone
ZD4BG	(QSL via ZD4AU)
ZD6DU	Box 72, Zomba, Nyassaland
ZP4BB	P. Tirado, Sulsona, % American Embassy, Asuncion, Paraguay
3A2AD	(QSL via USKA)

Contributors W1s EYP MD ODW, W2s KZE TXB ZVS, W5FXN, W6ALQ, W8s NOH UPN, W9s CFT HUZ KAS, WØTKX, the No. Calif. DX Club *DXer* and W5KUC (West Gulf Div. DX Club) came through for the preceding aggregation.

Tidbits:

U. S. and Canadian amateurs who are interested in obtaining the DUF award issued by the French amateur radio society are advised to write directly to R. E. F. (DUF), 72 rue Marceau, Montreuil, Seine, France, for complete information on the latest rules and regulations. Cards and applications should also be sent direct to the REF . _ . _ . _ Further on awards, latest advice indicates that the WAVE certificate is no longer being issued . _ . _ . _ Andy Cooper, main stem in the operation of JA2KW, will soon be heard from his home QTH at W6KQK. Operators remaining intend to keep JA2KW active in DX circles . _ . _ . _ A Class A license in Germany (nationals, that is) is for the beginner, whose transmitter is allowed 20 watts plate dissipation on the final. Class B, obtainable after a year of Class A operation, allows 50 watts dissipation. This from Chas. of W1AW . _ . _ . _ VQ4RF and W5HBM have been making arrangements to operate in Zanzibar, hears W5FXN. The call may be VQ1AA and they anticipate hitting the ether around the end of this year to provide the first VQ1 activity in quite a spell . _ . _ . _ YS1O, the El Salvador QSL manager, just amassed enough cards for his DXCC and LABRE sheepskins. Oscar is also one of the few fortunate eligibles for the Colombian WAHC diploma, having worked all call areas there except the third and seventh. WAC, WAS, WBE and WACE awards may also be found on the YS1O walls . _ . _ . _ VP9s AAA and YY have closed down for transfer and DXer W9WEN has been seeing how the bands feel as DL4EN in Wiesbaden . _ . _ . _ DL9GN of the same town would like to hear from former



T/Sgt. Ed Means at the console of the elaborate layout of JA2OM, Haneda Air Base, Tokyo. Twenty and ten, c.w. and 'phone, are employed. Ed carries out his duties as president of the FEARL when not pushing traffic or working DX at JA2OM.

OH3NA has one of the most outstanding signals to hit the States over the north polar path and is widely worked on 14-Mc. c.w.

D4s AAM ATR and AWJ whom he hasn't heard from since 1948. Karl's 30 watts radiates regularly on 14,100 kc. . _ . _ . _ With all the moaning about poor sportsmanship on the bands it's dandy to receive a pat on the back for Ws from the gang at MI3US in Asmara. "From the time the States first start coming in until they go out some hours later, we can hear them calling us about 20 or 30 deep. We pick out a station whose call can be read above all the heterodynes and general QRM and when he comes back, almost without exception he will be the only one on the channel. This despite the fact that a lot of the boys stated they had been trying for three and even four hours to raise us. That's really fine business operating for our money. We all feel that the W boys deserve the title of the World's Most Courteous Operators." MI3s JV SL and RR do most of the MI3US brasspounding and the members do their best to keep the QSL backlog at a minimum . _ . _ . _ W4CKB received the gratifying news that GD3UB is now making special effort to catch up with his QSL problems. Vic will be assisted in his mammoth task by the XYL. GD3UB now has 203 countries confirmed and his project this winter will be the working of Oceania on 160 meters . _ . _ . _ W5NPX and WØFID hear that KJ6AI is QRT and headed Stateside. Here was one piece of DX who was fast with a QSL . _ . _ . _ W8SYC was pleased to run into old stand-by ex-FE8AB at the key of FF8AG. Ivan has already given many of the fraternity contacts with other rare French possessions. Clint of W8SYC also hears that VK1BS is seeking radio literature with which to pass the time down that way. Same may be shipped to Bill Storer, MacQuarrie Island via Australia . _ . _ . _ 1342 QSOs with 51 countries were rolled up by HB9MA and HE9RDX while operating 3A2AD in Monaco during late August and early September. Because of poor conditions prevailing only 170 of these were with stations outside the Continent. There were 744 contacts on 20, 553 on 40 and 45 on 80 meters. All gear used was built and furnished by ex-HB9IK and this featured an 807s-at-80-watts rig for all bands, an 8-tube regenerative-i.f. superhet and a pi-section coupler for the 150-foot single-wire antenna. "Every incoming card will be answered immediately. If IRCs are enclosed, reply will be direct; otherwise, via ARRL." On or about September 1st a phony 3A2AD made its appearance and made several QSOs. We hope you worked the right one! . _ . _ . _ ZK2AA was given a morning interview over the 580-kc. rig of KMJ during his trip to Seattle and W6JQB reported the program well conducted and an excellent plug for amateur radio . _ . _ . _ W5NJM writes to inform us that no ham radio is permitted in Korea at the present time, inclusive of MARS stations . _ . _ . _ An improvement on the Rapp transmitter for DXing outlined in a previous lead paragraph is offered by W9LCG. He would include a gadget rigged to hunt down and zero-beat moderate-powered stations engaged in otherwise successful QSOs. "There appears to be a real need for something like this," observes Ralph, "Because as it is now, one often has to finish his chat before signing off." *Touche!* . _ . _ . _ HC2JR, of HC8GRC fame,

(Continued on page 116)

I.A.R.U. News

QSL BUREAUS OF THE WORLD

For best service on delivery of your QSLs to foreign amateurs, simply mail cards direct to the bureau of the proper country, as listed below (bold-face type indicates a recent change from previous listings). *Do not send foreign cards to A.R.R.L. headquarters except those for which no bureau is here listed.*

For service on incoming foreign cards, see list of domestic bureaus in most *QST*s under the heading, "A.R.R.L. QSL Bureau."

Algeria: Via France
Argentina: R.C.A., **Avenida Libertador General San Martin 1850, Buenos Aires**
Australia: W.I.A., Box 2611W, G.P.O., Melbourne
Austria: Via ARRL
Austria: **QSL Bureau (U.S. Occupation Forces), APO 168, % Postmaster, New York, N. Y.**
Azores: Via Portugal
Bahamas: C. N. Albury, Telecommunications Dept., Nassau
Barbados: VP6PX, Wood Goddard, Bromley, Welches, Christ Ch., Barbados, British West Indies
Belgian Congo: P.O. Box 271, Leopoldville
Belgium: U.B.A., Postbox 634, Brussels
Bermuda: VP9D, James A. Mann, The Cut, St. Georges
Bolivia: R.C.B., **Casilla 2111, La Paz**
Brazil: L.A.B.R.E., Caixa Postal 2353, Rio de Janeiro
British Guiana: Desmond Yong, 22 Sussex St., Charlestown, Georgetown #16
British Honduras: D. Hunter, Box 178, Belize
Burma: B.A.R.S., P.O. Box 376, Rangoon
Canton Island: Francis T. Blatt, KB6AG, % C.A.A., Canton Island, South Pacific
Ceylon: P.O. Box 907, Colombo
Chile: Radio Club de Chile, Box 761, Santiago
China: **M. T. Young, P.O. Box 34, Taichung, Formosa**
Colombia: L.C.R.A., P.O. Box 584, Bogotá
Cook Islands: Ray Holloway, P.O. Box 65, Rarotonga
Costa Rica: F. Gonzalez, Box 365, San Jose
Cuba: **Radio Club de Cuba, QSL Bureau, Lealtad No. 660, Havana**
Curacao: **Via ARRL**
Cyprus: **MD7XP, P.O. Box 451, Nicosia**
Czechoslovakia: C.A.V., P.O. Box 69, Prague I.
Denmark: E.D.R., Box 79, Copenhagen, K.
Dominica: VP2DC, Roseau
East Africa (VQ1, VQ3, VQ4, VQ5): P.O. Box 1313, Nairobi, Kenya Colony
Ecuador: Victoriano Salvador, P.O. Box 2536, Quito
Eire: **I.R.T.S. QSL Bureau, 97 St. Stephens Green, Dublin**
Ethiopia: Robert Newberg, ET3AE, Box 145, Addis Ababa
Fiji: S. H. Mayne, VR2AS, Victoria Paraed, Suva
Finland: OH2NT, Kasarminkatu 25C12, Helsinki
France: **R.E.F., 72 Rue Marceau, Montreuil sous Boise (Seine)**
Germany: (DL2 calls only) QSL Bureau, % Posts & Telecommunications, Wahnerheide, B.A.O.R. 19
Germany: (DL4 calls only) DL4 QSL Bureau, APO 757, % Postmaster, New York, N. Y.
Germany: (DL5 calls only) Via France
Germany: (other than above) D.A.R.C., Postbox 99, Munich 27
Gibraltar: E. D. Wills, ZB2I, 9 Naval Hospital Road
Great Britain (and British Empire): A. Milne, 29 Kechill Gardens, Hayes, Bromley, Kent
Greece: C. Tavaniotis, 17-A Bucharest St., Athens
Greenland: 1385th AAF Base Unit, APO 858, % Postmaster, New York, N. Y.
Grenada: VP2GE, St. Georges
Guam: G.R.A.L., Box 100, Guam, Guam, Marianas Islands
Guantanamo Bay: **KG4AD, Box 35Q, Navy 115, % FPO, New York, N. Y.**
Guatemala: Manuel Gomez de Leon, P.O. Box 12, Guatemala City
Haiti: Roger Lanois, % RCA, P.O. Box A-153, Port-au-Prince
Hong Kong: Hong Kong Amateur Radio Transmitting Society, P.O. Box 541, Hong Kong
Hungary: H.S.R.L., Postbox 185, Budapest 4
Iceland: Islenzkir Radio Amatorar, P.O. Box 1080, Reykjavik
India: Amateur Radio Club, India, P.O. Box 6666, Bombay 20
Indonesia: **P.A.R.I., P.O. Box 222, Surabaja, Java**
Israel: **I.A.R.C., P.O. Box 4099, Tel-Aviv**
Italy: A.R.I., Via San Paolo 10, Milano
Jamaica: Thomas Meyers, 122 Tower St., Kingston
Japan: F.E.A.R.L., APO 500, % Postmaster, San Francisco, Calif.
Kuwait: **Doug Taylor, VT1AC, Box 54, Kuwait, Persian Gulf**
Libya: **See Tripolitania**
Luxembourg: **W. Berger, 40 rue Trevires, Luxembourg**
Macao: Via Hong Kong
Madeira: **Alberto C. de Oliveira, CT3AA, Beco Chao da Loba, 4, Funchal**
Malaya: **C. E. Salton, Postal Services Dept., Johore**
Malta: **R. F. Galea, 20, Collegiate Street, Birkirkara**
Mauritus: V. de Robillard, Box 155, Port Louis
Mexico: L.M.R.E., Apartado Postal 907, Mexico, D.F.
Montserrat: VP2MY, Plymouth
Morocco: C. Grangier, Box 50, Casablanca
Morocco: Tangier International Zone only: EK1MD, Box 57, British Postoffice, Tangier
Mozambique: Liga dos Radio-Emissores, P.O. Box 812, Lourenco Marques
Netherlands: V.E.R.O.N., Postbox 400, Rotterdam
Netherlands East Indies: Hr. C. Loze, PK1LZ, Burg. Kuhrweg, 47 Bandoeng, Java
Newfoundland: N.A.R.A., Box 660, St. Johns
New Zealand: N.Z.A.R.T., P.O. Box 489, Wellington C1
Nicaragua: L. B. Satres, Bolivar Ave., 106 Managua
Northern Rhodesia: N.R.A.R.S., **P.O. Box 332, Kitwe**
Norway: N.R.R.L., P.O. Box 898, Oslo
Pakistan: **P.O. Box 416, Lahore**
Panama, Republic of: L.P.R.A., P.O. Box 1616, Panama
Paraguay: R.C.P., P.O. Box 512, Asuncion
Peru: R.C.P., Box 538, Lima
Philippine Islands: Elpidio G. DeCastro, Philippine Amateur Radio Assn., 931 R. Hidalgo St., Quiapo, Manila
Poland: Polski Zwiazek Krotkofalowcow, P.O. Box 320, Warsaw
Portugal: R.E.P., Travessa Nova de S. Domingos, 34–1° Lisbon
Roumania: **A.R.E.R., P.O. Box 95, Bucharest**
Salvador: J. F. Mejia, 7° a Calle Poniente No. 76, San Salvador
Siam (Thailand): **Frank Speir (W6FUV), Saha Thai, 4th Mansion, Raja Damnoen Avenue, Bangkok, Thailand**
South Africa: S.A.R.L., P.O. Box 3037, Capetown
Southern Rhodesia: **R.S.S.R., Box 1068, Bulawayo**
Spain: U.R.E., P.O. Box 220, Madrid
St. Vincent: VP2SA, Kingstown
Sweden: S.S.A., Stockholm 8
Switzerland: U.S.K.A., Postbox 1203, St. Gallen
Syria: P.O. Box 35, Damascus
Trieste: **MF2AA, Major M.H.R. Carragher, HQ V.G. Police**
Trinidad: **John A. Hoford, VP4TT, P.O. Box 554, Port-of-Spain**
Tripolitania: **Peter Keller, MT2DZ, P.O. Box 260, Tripoli, Tripolitania, North Africa**
Uruguay: R.C.U., Casilla 37, Montevideo
U.S.S.R.: Central Radio Club, Postbox N-88, Moscow
Venezuela: R.C.V., **P.O. Box 2285, Caracas**
Virgin Islands: Richard Spenceley, Box 403, St. Thomas
Yugoslavia: FPR, Postbox 48, Belgrade

Fifteenth ARRL Field Day Results

WE have seen the annual ARRL Field Day grow from a modest beginning in which a mere handful of portable stations were on the air. Little by little at first and then by leaps and bounds the number of participants has increased through the hundreds, then into the thousands, until the FD became the giant of all ARRL operating activities, dwarfing such popular operating sprees as the annual DX and SS contests. Underlying this tremendous growth of course is the ham's love of fun and adventure — which he finds aplenty in Field Day. But more important is his obvious willingness to prepare for emergency service, a fundamental aim of the FD exercises. That willingness was never more convincingly demonstrated than in the 1951 Field Day. Statistics compiled from the many hundreds of reports received show that at least 6118 individuals (a minimum figure, since all reports did not specify the exact number at each station) were in the field operating 644 portable and mobile stations. Signals emanated during the FD period from 1586 separate receiver-transmitter combinations in addition to the many stations on the air from home locations.

Competition in Field Day is considered to be among stations using like numbers of simultaneously operated set-ups. The final scores are tabulated according to the number of transmitters in operation at each station. There are always differences in conditions at various geographical locations which in some instances are claimed to give certain areas an advantage in making contacts. The scores are therefore also tabulated by call areas this year in order that entrants may compare their scores with leading groups or individuals in their particular geographical area.

Many interesting highlights, incidents and ideas were contained in the entries of the 1951 FD participants. It is a pleasure to pass along as many of these as space will permit.

FD Quotes

"We used oil well derricks for antenna masts. It was surprising what low power can do with high antennas. Our entire equipment for the city emergency nets consists of low-power transmitters and the FD proved them to be adequate. The 1-kw. generator broke down at midnight with a sheared flywheel key. The boys dismantled it and made a key from a spike in one of the oil well derricks in record time. Regardless of the points made, we were more than satisfied that our AREC or CD equipment is dependable." — *Whittier Radio 50 Club, W6HGY/6.* . . . "FB Field Day, with good weather for a change." — *Sky Wy Radio Club, W7HLA/7.* . . . "We had intended to use 10-meter 'phone. However, the ten-meter tent was flattened in a very severe wind and rain storm and the equipment soaked. The 40-meter tent stayed up with the help of a man holding down each corner at the peak of the storm. Operations continued uninterrupted and we made 302 contacts in about 16½ hours. Next year we will try to break 400." — *Jayhawk Amateur Radio Society, WØSO/Ø.* . . . "This is the third year we have been out on Field Day and we have improved our score each time, so watch out for us in 1960! We're making it compulsory for all our gang to go into one of the other contests, such as SS, to get all practiced up for next FD!" — *Deep River Radio Club, VE3ARX/3.* . . . "Our fourth and best year. Doubled our highest previous score." — *Polytechnic Institute of Brooklyn Radio Club, W2BXK/2.* . . . "We made

CLUB AGGREGATE MOBILE SCORES

Associated Radio Amateurs of Long Beach	28,947
West Park Radiops	14,048
Maryland Mobile Radio Club	6688
West Palm Beach Radio Club	5765
San Fernando Valley Radio Club	4050
North Seattle Amateur Radio Club	2835
Palomar Radio Club	2012
Washington Mobile Radio Club	1810
South Jersey Radio Assn.	1691
Union County Amateur Radio Assn.	757
North Suburban Radio Club	612
Door County Amateur Radio Club	459
Jersey City Amateur Radio Assn.	432
Livingston Amateur Radio Club	379
Connecticut Wireless Assn.	342
Vancouver Amateur Radio Club	324
Mid-South Amateur Radio Assn.	266
Hampden County Radio Assn.	162
Amateur Radio Club of Falls Church, Va.	136
Radio 50 Club, No. 2	95
South St. Louis Radio Club	81
Dade Radio Club	41

◆

W3FSW and W3QLX set up this station in a wooded area of Woodville, Md., for Field Day. W3QLW is shown operating a dynamotor-powered 2E26 transmitter and an S-76 receiver with vibrator supply. The boys topped all single-transmitter Class B entrants in the W3 call area.

a mighty trek across the desert from El Paso to the Sacramento Mountains. The round trip covered more than two hundred miles. Our location was fine, but we had need for oxygen masks as our set-up was 9200 feet up in the mountains. The net results didn't rate us a high score, but we'll wager we were the 'highest' in the country as regards altitude. Actually the height was quite wearying and we were all dead tired at the end of the FD." — *Field Engineers Radio Club, W2HEQ/5.* . . . "High point of the FD was the QSO, while running 30 watts, which our c.w. rig had with JA2KW. The c.w. rig was manned by three teen-age club members: WØACJ 16, WØAIH 16, and WØFID 17!" — *Rochester Amateur Radio Club, WØWAA/Ø.* . . . "Complete break-in on 7 Mc. gave about 90 per cent replies to first calls made. Antenna for this rig was 60 to 70 feet high. The 75-meter 'phone was a howling success. Over 50 per cent of stations worked gave a 'loudest signal on the air' report, this with a maximum of 80 watts input to final and an antenna 70 feet in the air." — *Mahoning Valley Amateur Radio Assn., W8CQL/8.* . . . "This was our club's first try at Field Day. Many were new hams with no previous FD experience. We didn't burn up the air with contacts, but we did burn up two transmitters in the Texas heat!" — *Convair Amateur Radio Club, W5SJZ/5.* . . . "One of the highlights of our FD was a visit by a Voice of America recording crew who interviewed operators and recorded on-the-air contacts for a 'Voice' broadcast." — *Nassau Radio Club, W2BVL/2.* . . . "Usual thunderstorms for opening day. Farmers' cattle were the uninvited guests, upsetting generators, etc. Best FD for our club yet. Mosquitoes so large one was gassed up before we realized it was not a generator!" — *Nortown Amateur Radio Club, VE3BRR/3.* . . . "We (W4LNE and W4PJG) had the honor of setting up the first amateur station on Dry Tortugas Islands. We operated from a room in Fort Jefferson, which is now a national monument." — *W4LNE/4.* . . . "Used balloon-supported antennas this year. Last year we had trouble with balloons breaking, but we made special harnesses for them this time and they worked very well." —

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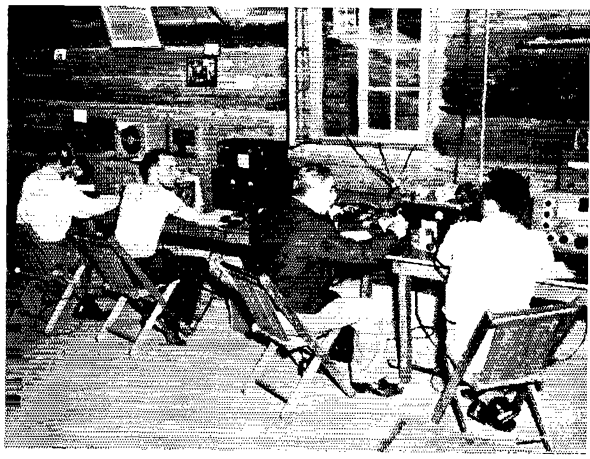
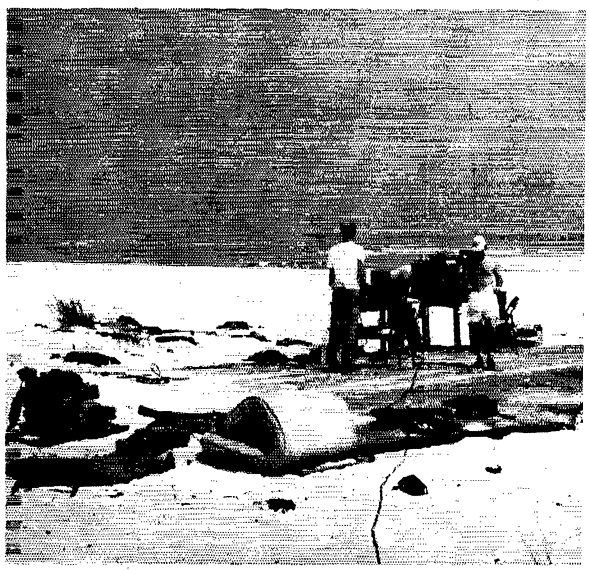
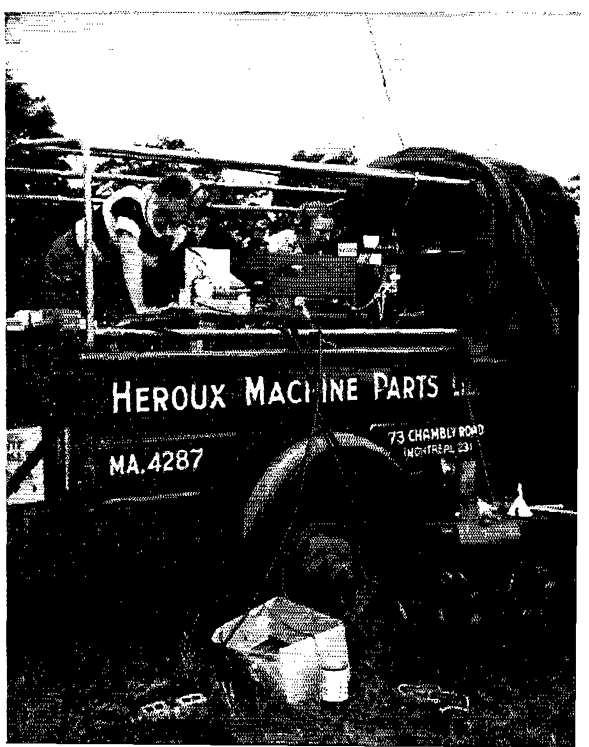






Above: The Fullerton Radio Club, W6HDT/6, operated from the Izaak Walton League cabin in Hillcrest Park, Fullerton, California. With 2619 points, they led all other W6 groups in the one-transmitter Class A category. *Center:* From this sunny spot at Destin, Florida, on the Gulf of Mexico, the Eglin Amateur Radio Society was active in the two-transmitter class. Operating positions shown are those for 75- and 10-meter 'phone. *Below:* Westmount Mountain in Montreal was the FD location of VE3XP/2, manned by six operators in the two-transmitter class. The entire station, except for generator and antennas, was operated from this one-ton truck.

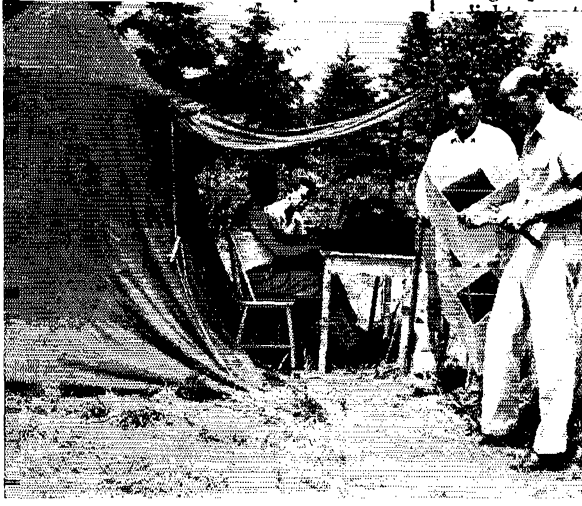
Capital Suburban Radio Club, W3NEW/3. . . . "We found that running the receivers off a separate generator minimized regulation and interference problems between transmitters and receivers operating simultaneously on different bands." — *Ottawa Amateur Radio Club, VE3RC.* . . . "I remember my first FD. In the middle of the night a cow poked her head in the tent! In this one I had birds singing on my antenna and a skunk under my car!" — *W1NXX/1.* . . . "We had a fine time and all went well except for a small cyclone from 8 to 10 P.M. Saturday. We also had winds of 60 m.p.h. for about 30 minutes and then 4 inches of rain in the next hour. It took all members to hold the tents down and keep the gear from getting wet. Thank goodness the generator kept running all the time." — *Suburban Radio Club of St. Louis, WØDCW/Ø.* . . . "Again this year we found our system of keeping check sheets and listing each station by letter and call area as well as in the log paid off in avoiding duplications. We had to come back to many calls with 'sri wkd before' along about the halfway point." — *Lakeland Amateur Radio Assn., W2VDJ/2.* . . . "This was the first year that we have used 'phone to any extent, and ran up the best score so far. It was the best FD for W2JBQ and myself. We used the same transmitter until this year. The new rig is a converted ARC command transmitter with bandswitching from 80 to 10 meters." — *W2FBA/2.* . . . "It was the best FD ever! Great plans are already under way for next year, including 30-watt rigs for all bands and a hogshead of insect repellent!" — *W5MTL/5.* . . . "Field Day this year was a huge success and one in which we put a great deal of effort. It was a 'no gripe' year and all participants had a thoroughly good time." — *Hamilton Amateur Radio Club, VE3BNG/3.* . . . "Our teen-age club had six operators in the FD this year. With two transmitters running simultaneously from a 5-kw. gas generator, we worked five bands, with best results on 40 and 80. Our new club call arrived from FCC just a few days before FD and went on the air for the first time at the FD site." — *Abington Township Amateur Radio Assn., W3RQY/3.* . . . "The antenna for use on c.w. was a doublet on all bands. We merely opened or closed jumpers proper located on the flat top, this operation taking only about two minutes whenever necessary. Seventy-two ohm Twin-Lead was used for the transmission line." — *Bartlesville Amateur Radio Club, W5EST/5.* . . . "Past two years our club has had a 'dry run' of FD gear on Armed Forces Day. Next year's check of gear will be a 'wet run' in preparation for the inevitable rain that ushers in Field Day." — *Raritan Valley Radio Club, W2QW/2.* . . . "For the first time since I've been in Field Days since 1936, I experienced no rain, no thunderstorms, no floods!" — *W8ZQU at W8TQ/8.* . . . "Our total is not very large, but it gave W9GIP and myself a lot of satisfaction to work out on 75 and 2 meters with only 5 watts input." — *W9BTQ/9.* The following comment was typical of a vast majority of FD participants: "We had a fine time, and bigger and better plans are in the works for next year." — *North Peninsula Electronics Club, W6CIS/6.*

The Old Timers Group of the Cuyahoga Radio Association of Cleveland, Ohio, W8GW/8, entered the two-transmitter class with this layout at Montville, Ohio. Looking on are W8GD and W8QV with W8AZU and W8BSS doing the brasspounding.

Here are three members of the Honolulu Amateur Radio Club, KH6GG, KH6AS and KH6ABI, tuning up the trailer-mounted rig they operated as KH6WO/KH6 in the one-transmitter class at Bellows Field, T. H. The transmitter is an all-band job that ran 85 watts input during FD and the antenna a vee beam aimed at the States.

CLASS A

Scores are tabulated according to the number of transmitters operated simultaneously at each field station. The figures and letters following each listing indicate the number of contacts, the power or power inputs used, the number of participants at each station, and the final score. The "power classification" used in computing the score is indicated by the letters A, B or C after the number of QSOs shown. A indicates power up to and including 30 watts



The Stamford Radio Club journeyed to South Salem, New York, operated W1LHE/2. Six transmitters were kept on the air. Here W1LHE and W1FTM hold down one of the operating positions while W1TDM and W1PZC prepare to launch a kite that will support one of the skywires.

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(multiplier of 3); B indicates power over 30, up to and including 100 watts (multiplier of 2); C indicates over 100 watts (multiplier of 1). More than one letter indicates that at times power inputs fell within different classifications.

One Transmitter

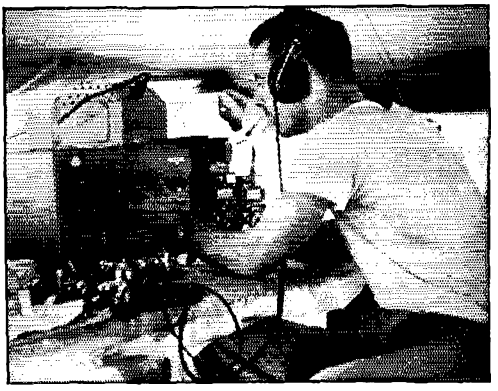
W1TX/1	Connecticut Wireless Assn.	454-	A-11-	4299
W1INM/1	Providence Radio Assn.	206-	A- 6-	1863
W1EH/1	South Lyme Beer, Chowder and Propagation Society	272-	B- 7-	1632
W1QMF/1	Newington Amateur Radio League	120-	A- 8-	1305
W2QYV/2	Niagara Radio Club	358-	A- 7-	3465
W2EWT/2	(nonclub group)	350-	A- 8-	3375
W2UBU/2	(nonclub group)	305-	A- 4-	2970
W2CGK/2	The Amateur Radio Society of Queens	228-	A-12-	2277
W2WER/2	Oswego County Amateur Radio Assn.	248-	A-25-	2232
W2WFK/2	Irvington Radio Amateur Club	192-	A-10-	1953
W2TIO/2	Newark, N. Y. Radio Club	213-	A- 8-	1917
W2GZP/2	Mid-Hudson Amateur Radio Club	115-	A- 6-	1260
W2VJP/2	Oneida Amateur Radio Club	85-	A- 3-	765
W3QB/3	York Road Radio Club	456-	A- 3-	4329
W3MIP/3	The Dot, Dash, and Mash Club	407-	A- 3-	3888
W3PKV/3	Northeast Radio Club	295-	A-15-	2880
W3IKP/3	Beacon Radio Amateurs	246-	A- 7-	2439
W3KWA/3	(nonclub group)	259-	A- 3-	2331
W3EDU/3	York Amateur Radio Club	230-	A-22-	2070
W3PKI/3	Harrisburg Radio Amateur Club	156-	B-16-	1404
W3KYR/3	Boys' Club of St. Marys Amateur Radio Society	48-	A- 4-	657
W4VT/4	Mid-South Amateur Radio Assn.	180-	B-19-	1230
W4DUG/4	Tampa Amateur Radio Club	92-	A-20-	1053
W4TIS/4	Fort Benning, Columbus Amateur Radio Club	155-	B- 9-	930
W4BX/4	Charlotte Amateur Radio Club	151-	B- 9-	906
W4RRD/4	(nonclub group)	105-	B- 3-	780
W4AY/4	Nashville Amateur Radio Club	208-	ABC- -	671
W4MTI/4	Clearwater Amateur Radio Society	48-	B- 8-	288
W5IX/5	San Leon Gumbo Grouper & Grid Radiation Society	172-	A- 7-	1773
K5NBL/5	(nonclub group)	199-	B- 4-	1194
W4ODR/5	Naval Radio Club	71-	A-10-	864
W5RFY/5	(nonclub group)	118-	B- 6-	858
W5PKF/5	(nonclub group)	135-	B- 4-	810
W5USN/5	(nonclub group)	225-	C- 7-	675
W6HDT/6	Fullerton Radio Club	162-	A-10-	2619
W6HGY/6	Whittier Radio 50 Club	210-	A-12-	2115
W6ERN/6	Radio Club of Hollywood	199-	A- 5-	1791
W6NIK/6	(nonclub group)	268-	B- 5-	1758
K6NBM/6	(nonclub group)	77-	A- 5-	693
W7HLA/7	Shy Wy Radio Club	217-	B- 7-	1302
W7IWU/7	(nonclub group)	64-	B- 3-	603
W8HQ/8	Tusco Radio Club	458-	A- 9-	4356
W8II/8	(nonclub group)	435-	A- 8-	4140
W8BDA/8	Greater Cincinnati Amateur Radio Assn.	594-	B- 6-	3564
W8VVL/8	Queen City Emergency Net	353-	A-12-	3402
W8ODJ/8	The Buckeye Shortwave Radio Assn.	260-	A-12-	2565
W8RTR/8	Canton Amateur Radio Club	222-	B-18-	2223
W8KS/8	Westlake Amateur Radio Assn.	178-	A-17-	1845
W8CEA/8	(nonclub group)	295-	B- 6-	1770
W8EHT/8	Thumb Area Amateur Radio Assn.	184-	AB-10-	1740
W8YN/8	Calhoun Area Radio Club	147-	A- 4-	1323
W8AIC/8	Central Ohio Radio Club	150-	B- 7-	1062
W8CIA/8	Louisville Amateur Radio Club	118-	A- 7-	1062
W8SIO/8	St. Joseph High School Amateur Radio Club	170-	B- 3-	1020
W8GTO/8	South East Amateur Radio Club	97-	A- 3-	873
W8HPR/8	Midland Radio Club	101-	B- 9-	756
W8UMD/8	Treaty City Amateur Radio Assn.	67-	A- 5-	603
W9JKV/9	New Albany, Indiana Amateur Radio Club	306-	A- 8-	2979
W9DAY/9	(nonclub group)	184-	A- 4-	1656
W9CDG/9	(nonclub group)	69-	A- 4-	855
W9MYG/9	Lakeshore Amateur Radio Club	58-	A- 6-	522
W9PWB/9	(nonclub group)	209-	B- 4-	442
W9UDU/9	(nonclub group)	201-	- -	201
WØHAM	Twin City Contest Club	294-	A- 8-	4887
WØQEV/Ø	(nonclub group)	289-	A- -	2601
WØTIU/Ø	Central Iowa Amateur Radio Club	189-	A- 6-	1926
WØZWY/Ø	Sioux Falls Amateur Radio Club	304-	B- -	1824
WØSO/Ø	Jayhawk Amateur Radio Society	302-	B- 5-	1812
WØMVG/Ø	Central Kansas Radio Club	231-	B-10-	1536
WØNSN/Ø	(nonclub group)	138-	A- 8-	1485
WØWML/Ø	Newton, Iowa Radio Club	147-	A- -	1323
WØMG/Ø	Northeast Iowa Radio Amateur Assn.	139-	B- 7-	1251
WØJAD/Ø	Clinton Amateur Radio Club	183-	B- 3-	1248
WØCOM/Ø	The CQ Amateur Radio Club of Aberdeen	87-	A- 7-	1008
WØDCU/Ø	(nonclub group)	275-	C- 5-	825
WØZSJ/Ø	Mitchell Radio Amateurs' Club	95-	B- 6-	720
KH6WO/KH6	Honolulu Ama. Radio Club	174-	B-10-	1200
KH6IK/KH6	Kauai Amateur Radio Club	113-	C- 7-	414
VE1JV/1	Pictou County Amateur Radio Club	162-	A- 7-	1683
VE1DN/1	Dartmouth Amateur Radio Club	111-	A- 6-	1224
VE3WK/3	Queen City Amateur Radio Club	347-	A-10-	3123
VE3ARX/3	Deep River Radio Club	112-	A- 8-	2133
VE6MJ/6	(nonclub group)	24-	A- 3-	468

Two Transmitters Operated Simultaneously

W1QOA/1	Bridgeport Radio Amateur Club	554-	A- 8-	5229
W1VB/1	Candlewood Amateur Radio Assn.	524-	A-20-	4959
W1EOB/1	Hampden County Radio Club	533-	AB- 5-	4560

W1ZD/1	Quinebaug Valley Radio Club	342-	A-10-	3303
W1NFE/1	Falmouth Radio Club	260-	A-12-	2340
W1NI/1	(nonclub group)	174-	A- 3-	1791
W1AQ/1	Associated Radio Amateurs of Southern New England	175-	A- 5-	1575
W1SPK/1	(nonclub group)	143-	A- 3-	1521
W1HQ/1	Milford Amateur Radio Club	195-	B-11-	1170
W1MNG/1	Hampden County Radio Club (Agawam Civil Defense Group)	121-	AB- 5-	1074
W1HGV/1	Nashua Mike and Key Club	119-	A-12-	1071
W1NLE/1	(nonclub group)	123-	AB- 4-	933
W1GAC/1	(nonclub group)	85-	A-25-	763
W2JC/2	Bloomfield Radio Club	475-	A-21-	4518
W1AA/2	Lake Success Radio Club	307-	A-14-	3033
W2BXK/2	Polytechnic Institute of Brooklyn Radio Club	319-	AB- 8-	2889
W2QCN/2	Rochester Amateur Radio Assn.	299-	AB-20-	1956
W2BY/2	Walton Ham Group	202-	A- 5-	1818
W2SV/2	Sunrise Radio Club	398-	A-15-	1269
W2BMW/2	Tuboro Radio Club	168-	AB-16-	623
W3QFC/2	North Fork Emergency Radio Corps	93-	ABC- 4-	621
W3NMR/3	The Lancaster Radio Transmitting Society	473-	A-25-	4482
W3KJJ/3	Schuylkill Amateur Radio Club	418-	A-12-	4005
W3RQY/3	Abington Township Amateur Radio Assn.	358-	A- 6-	3447
W3GAG/3	Philadelphia Wireless Assn.	322-	A- -	2898
W3ISE/3	(nonclub group)	233-	A- 5-	2340
W3BSO/3	(nonclub group)	308-	AB- 4-	2193
W3DK/3	Dit Happy Dash Hounds of Braddock Heights	261-	AB- 8-	1992
W3DIS/3	Darby Creek Electronics Club	276-	AB- 8-	1908
W3PIE/3	Fort Necessity Amateur Radio Club	309-	ABC-16-	1845
W3EQ/3	Haverford Township Emergency Net	142-	A-14-	1467
W3NEW/3	Capital Suburban Radio Club	254-	A-21-	1053
W3WW/3	Philadelphia High Frequency Radio Club	71-	A-15-	639
W3MKA/3	West Philadelphia Radio Assn.	49-	A- 5-	270
W4WT/4	Richmond Amateur Radio Club	653-	A-30-	6102
W4OVG/4	Chattanooga Amateur Radio Club	324-	A-10-	3141
W4NC/4	Winston-Salem Amateur Radio Club	335-	B- 8-	2160
W4AKC/4	Gaston Amateur Radio Club	201-	A- 8-	1809

Black Mountain, this lofty perch near Banning, California, was the Field Day location of W6FZV/6, one of the few Class B entrants in the two-transmitter class. Seated below the ten-meter beam are W6KDS and an interested non-amateur observer.



The Amateur Radio Society of Queens sent twelve operators into the field to operate W2CGK/2 in the one-transmitter class at Melville, N. Y. The operator busily engaged in working 'em on c.w. is Bill Boyles W2HGJ.

W4SRX/4	Eglin Amateur Radio Society	222-	AB- 5-	1509
W4GSV/4	Albany Amateur Radio Club	162-	B-12-	972
W4OGV/4	(nonclub group)	78-	A- 3-	702
W5MUZ/5	Ouachita Valley Amateur Radio Club	291-	A-10-	2619
W5EST/5]	Bartlesville Amateur Radio Club	234-	A-12-	2331
W5KC/5	Baton Rouge Amateurs' Club	318-	B-15-	2058
W5RJX/5	Cleveland County Amateur Radio Society	187-	A- 9-	1908
W5GLS/5	Bay-Shore Radio Club	291-	B-14-	1890
W5POG/5	Texoma Amateur Radio Club	109-	A-10-	1260
W2HEQ/5	Field Engineers Radio Club	153-	B- 5-	918
W5NIR/5	(nonclub group)	199-	AB- 7-	590
K5WAH/5	Lawton-Fort Sill Amateur Radio Club	282-	C- -	846
W6TO/6	Fresno Amateur Radio Club	362-	A-24-	3483
W6SF/6	Stockton Amateur Radio Club	262-	A-11-	2592
W6YX/6	Stanford University Radio Club	253-	A- 4-	2502
W6HZE/6	Taft Amateur Radio Club	208-	AB- 4-	1434
W6ARI/6	Delano Amateur Radio Club	356-	C- 8-	1143
W6CNY/6	San Luis Obispo Radio Club	109-	A- 5-	981
W6ZOJ/6	Paso Robles Radio Club	68-	A- 5-	837
W6NV/6	Monrovia Amateur Radio Club	190-	C- 6-	570
W7LNU/7	Butte Amateur Radio Club	375-	A-15-	3375
W7NAP/7	Saguaro Amateur Radio Club	216-	A- 6-	1944
W7LAB/7	Ogden Amateur Radio Operators Club	127-	A-16-	1368
W7MUY/7	Blue Mountain Radio Club	84-	B- 4-	504
W7KGS/7	Southern Montana Amateur Radio Club	41-	A- 5-	369
W8BWA/8	Cleveland Brasspounders Assn.	665-	A- 5-	6210
W8FT/8	Finlay Radio Club	440-	A- 9-	4185
W8GW/8	Old Timers of Cuyahoga Radio Assn.	413-	A- 9-	3942
W8WMZ/8	Fort Steuben Radio Club	438-	A- 7-	3942
W8ZZ/8	Detroit Amateur Radio Assn.	414-	A-18-	3551
W8DFK/8	The Brass and Java League	153-	A- 3-	1611
W8BFH/8	Buckeye Shortwave Radio Assn.	290-	B-12-	1575
W8SOE/8	South Macomb Amateur Radio Assn.	260-	B-12-	1560
W8VZ/8	(nonclub group)	235-	AB- 3-	1497
W8BKL/8	Blossomland Amateur Radio Assn.	180-	AB- 5-	1350
W8QPO/8	Cherryland Radio Club	204-	B- 8-	1224

W8CLR/8	(nonclub group)	59-	A- 7-	531	
W9RQM/9	Wisconsin Valley Radio Assn.	743-	A-24-	6993	
W9UDU/9	Racine Megacycle Club	432-	A-10-	4113	
W9PVA/9	(nonclub group)	280-	A- 6-	2745	
W9BVW/9	Tri-Town Radio Amateur Club	254-	A- 7-	2511	
W9EMO/9	Dells Region Radio Club	202-	A-12-	2043	
W9JK/9	(nonclub group)	190-	A- 6-	1935	
W9BAN/9	Chicago Radio Traffic Assn.	188-	A-16-	1917	
W9DKR/9	Kokomo Radio Club	126-	B-21-	1632	
W9CWZ/9	Point Radio Amateurs	135-	A-10-	1440	
W9DCK/9	(nonclub group)	206-	B- 6-	1236	
W9ERW/9	Eau Claire Radio Club	119-	AB-10-	886	
W9BMI/9	Radio Amateurs of Marquette University	85-	AB- 3-	705	
WØDEP/Ø	(nonclub group)	425-	B- 5-	4050	
WØWAA/Ø	Rochester Amateur Radio Club	364-	AB- 8-	2784	
WØUVI/Ø	(nonclub group)	413-	B-18-	2628	
WØJRP/Ø	Northwest St. Louis Amateur Radio Club	277-	A-13-	2493	
WØTW/Ø	The Denver Amateur Radio Net	230-	A-14-	2295	
WØBHC/Ø	Southwest Missouri Amateur Radio Club	323-	B-15-	2088	
WØAAB/Ø	Electron Club	188-	A-12-	1404	
WØKTI/Ø	Prairie Dog Amateur Radio Club	215-	B-15-	1290	
WØBMM/Ø	O.B.P. (Chapter No. 1) Radio Club	100-	A- 3-	900	
WØSOM/Ø	Tri State Radio Society	128-	B- 8-	768	
WØAYM/Ø	South East Nebraska Radio Club	124-	B- 9-	744	
WØCLA/Ø	Johnson County Radio Amateurs Club	86-	AB-12-	528	
WØJFI/Ø	South St. Louis Radio Club	193-	AB- 7-	497	
WØKYE/Ø	(nonclub group)	11-	A- 4-	33	
KH6AGW/KH6	Baldwin High School Radio Club	110-	AB- 6-	699	
KH6NR/KH6	(nonclub group)	63-	AC- 3-	252	
VE1DW/1	Yarmouth Amateur Radio Club	167-	B- 8-	1152	
VE1VY/1	Sackville Amateur Radio Club	88-	A- 5-	1017	
VE2GE/2	Montreal Amateur Radio Club	489-	A- 5-	4626	
VE2XP/2	(nonclub group)	259-	A- 6-	2556	
VE3RC/3	Ottawa Amateur Radio Club	222-	A-17-	2232	
VE7YE/7	The Penticton Radio Assn.	130-	A- 3-	1395	
VE7BQ/7	Totem Amateur Radio Club	91-	A- 7-	1044	
VE8CO/8	Yukon Amateur Radio Club	110-	AB- 8-	909	
Three Transmitters Operated Simultaneously					
W1SKT/1	Narragansett Assn. of Amateur Radio Operators	597-	A-14-	5607	
W1OC/1	Concord Brasspounders	468-	AB-13-	3798	
W1RO/1	Worcester County Radio Assn.	283-	A-15-	2547	
W1OQ/1	Lowell Radio Operators Club	242-	AB- 5-	1741	
W1RNA/1	(nonclub group)	133-	A- 8-	1422	
W1KOO/1	Burlington Amateur Radio Club	108-	A- -	972	
W2KZ/2	Radio Assn. of Western New York	912-	ABC-25-	6696	
W2FEB/2	Lockport Amateur Radio Assn.	681-	AB- 5-	5583	
W2WUX/2	Utica Amateur Radio Club	588-	A-15-	5292	
K2AA/2	South Jersey Radio Assn.	492-	A-28-	4653	
W2NVK/2	Livingston Amateur Radio Club	528-	AB-12-	4239	
W2QLU/2	Mike & Key Club of Ithaca	409-	A- 7-	3915	
W2EFA/2	Staten Island Amateur Radio Assn.	578-	B-18-	3618	
W2ABC/2	(nonclub group)	419-	B- 5-	2664	
W2JO/2	Yonkers Amateur Radio Emergency Corps	340-	AB-12-	2616	
W2EFU/2	Schenectady Amateur Radio Assn.	234-	A-25-	2340	
W2SBV/2	Elmira Amateur Radio Assn.	277-	AB-12-	2163	
W2NGX/2	Jersey City Radio Amateur Assn.	162-	A- -	1692	
W3EIS/3	Potomac Valley Radio Club	1079-	A-13-10,116		
W3DIM/3	Capital Key and Mike Club	537-	A- 8-	5058	
W3VV/3	McKean County Radio Club	462-	A-14-	4158	
W3QV/3	York Road Radio Club	365-	A-14-	3546	
W3PQT/3	Patuxent River Amateur Radio Club	191-	A-10-	1944	
W4KFC/4	Potomac Valley Radio Club "W4" Team	1151-	A-14-10,602		
W4PLB/4	Orlando Amateur Radio Club	412-	A-20-	3933	
W4JD/4	Kingsport Amateur Radio Club	570-	B-10-	3420	
W4PAY/4	The Amateur Radio Club of Falls Church, Virginia	373-	A-21-	3357	
W4PFA/4	Macon Amateur Radio Club	508-	B-11-	3048	
K4USA/4	(nonclub group)	334-	AB-12-	2442	
W4GCW/4	Pickens County Amateur Radio Club	293-	AB- 6-	1905	
W4NEP/4	Paducah Amateur Radio Club	201-	A- 8-	1809	
W4MCM/4	Kennehooches Amateur Radio Club	202-	AB- 6-	1737	
W4MN/4	Palmetto Amateur Radio Club	175-	A-21-	1575	
W4CUE/4	Birmingham Amateur Radio Club	180-	B-13-	1080	
W4FLW/4	(nonclub group)	143-	B- 7-	1008	
W4EXU/4	Piedmont Amateur Radio Club	162-	AB-10-	978	
W4NTL/4	Anniston Amateur Radio Club	131-	B-10-	936	
W4EJC/4	C. A. A. Radio Club	110-	AC- 3-	874	
W4NVU/4	Dade Radio Club	125-	AB-11-	819	
W4NDC/4	Murfreesboro Amateur Radio Club	128-	AB- 8-	687	
W4EGC/4	Azalea City Wireless Club	88-	B-15-	408	
W5MTR/5	Webster Parish Amateur Radio Club	252-	A-10-	2493	
W5DXD/5	Temple Amateur Radio Club	372-	B-11-	2232	
K5NRS/5	(nonclub group)	255-	AB- 6-	2064	
W5FQ/5	Meridian Amateur Radio Club	189-	B- 5-	1284	
K5NRK/5	(nonclub group)	116-	A- 6-	996	
W5NZD/5	Mineral Wells Amateur Radio Club	66-	A-12-	819	
W6BXN/6	Turlock Amateur Radio Club	303-	A-12-	2970	
W6GG/6	Imperial Valley Amateur Radio Assn.	244-	A- 7-	2421	
W6KVR/6	United Radio Amateur Club	122-	B- 4-	732	
W7OEB/7	Valley Amateur Radio Club of Puyallup, Washington	286-	A-15-	2574	
W7UJ/7	Valley Radio Club of Eugene, Oregon	202-	A- -	1818	
W7OVM/7	RE-IN-CA Club and Klamath Amateur Radio Society	206-	B- 5-	1236	
W7YN/7	Nevada Amateur Radio Assn.	116-	B-14-	846	
W7GOH/7	Casper Amateur Radio Club	107-	B-14-	214	
W8ICS/8	Westpark Radiops	656-	A-30-	6966	
W8MRM/8	Motor City Radio Club	516-	AB- -	4575	
W8OG/8	Springfield Amateur Radio Club	503-	A-30-	4527	
W8FO/8	Toledo Radio Club	444-	A-32-	3996	
W8CLX/8	Kanawha Valley Amateur Assn.	652-	BC-17-	3366	
W8CQL/8	Mahoning Valley Amateur Radio Assn.	412-	AB-20-	3219	
W8DC/8	Grand Rapids Amateur Radio Assn.	348-	AC- 9-	2655	
W8IRN/8	Tri-City Amateur Radio Club	274-	AB-10-	2247	
W8ZHO/8	Muskegon Area Amateur Radio Council	288-	B- 4-	1878	
W8AIJ/8	Niles Amateur Radio Club	187-	A-10-	1683	

(Continued on page 116)

The World Above 50 Mc.

CONDUCTED BY E. P. TILTON,* W1HDQ

MOST 6-meter men have experienced something like this sequence of Oct. 25th:

1830 — 10-meter band dead.

1840 — Wobbly sigs heard on 10. W8 working W7 — maybe something coming up on 6!

1847 — S9-plus sig on 49.8 Mc. Weaker one on 49.98 Mc. Fading wisps of signals above 50.

1852 — Check with W1ATP, who is hearing the same stuff.

1902 — CQ on c.w., answered by W4RBK, and inside of 15 minutes the low end of the band is boiling with signals. We renew acquaintances with WØINI, W9ZHB and W9ALU, and hear dozens of others in between. Heterodynes appear — QRM, where only silence reigned 30 minutes before!

Nobody on 6? Put away the crying towels, boys — if an opening breaking without warning after nearly two months of quiet can stir up that much activity, we need have little fear that we're slipping. Much the same state of affairs can be found on 144 Mc., too.

This sort of operating leaves something to be desired, however. It's OK for the old hands at the game. They know that no signals doesn't necessarily mean there's nobody around. They've been at it long enough to tell, by observation on other frequencies, when a v.h.f. band is open, or about to be. But it can be rather disconcerting to the newcomer, and disastrous to our hopes for conversion of the casual operator from lower bands. To get the new blood we need there must be something going on, regardless of conditions. Monitoring an unoccupied band is not the sort of experience to stir a prospect to the point of moving in!

Whether he's a refugee from lower-frequency QRM, or a neophyte poised for his first plunge into ham radio, our potential v.h.f. enthusiast is going to want to *work* somebody — now. If all the rest of us follow the low-frequency habit of waiting for something especially interesting before going on the air, we're going to lose a lot of badly-needed occupancy. And we just *might* miss an opening now and then. It's been said countless times before, but it bears repeating: "If *everybody* listens, *nobody* hears anything!"

October Doings

Aside from the sporadic-*E* and/or aurora opening of the 25th that provides our opening sermon, operating news for the major portion of October was confined to trospospheric propagation. There were some minor aurora bursts at intervals, and on Sunday, the 28th, there was a fine aurora opening, details of which will be a little late for inclusion in this report. The session of the 25th is a difficult one to classify.

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

Signals had a rapid flutter that is characteristic of aurora effect, but it did not affect the readability of voice signals on 6. As far as is known there was no 2-meter DX, and the 6-meter signals came through on normal beam directions, rather than from the north. On the 28th it was typical aurora, with signals all wool and a yard wide. Your conductor missed this one, so will have to rely on reports yet to be received to learn what it all amounted to.

On Oct. 3rd, one of the best tropospheric openings of the fall season linked 144-Mc. stations in Atlanta, Ga., with Texas stations as far west as San Antonio, a distance of nearly 900 miles. W4LRR, Atlanta, worked W5DCV, Austin, W5MIL, San Antonio, W5QNL, Texarkana, W5AJG, and W5ABN, Dallas, and W5AQS, Palmer. Signals ranged from S5 to S8 and were remarkably free from fading. W4KIP was also on, and was heard by several of the Texas stations, but was having transmitter trouble.

W5MIL confirms the report that signals were very steady over this long hop, but adds that the area covered at any one time was small. While he was working W4LRR, W5AJG 250 miles to the northeast was unable to copy the Atlanta station. Later, when W5AJG and W5QNL were working W4LRR, his signal was practically gone at San Antonio. W4KIP of Atlanta was also heard, but no stations in Mississippi or Alabama. W5JBW, Maplewood, La., was S9 for hours. Beaumont stations, much nearer, were less consistent and Houston, only about 200 miles away, was generally poor. W5MIL also worked W5EVQ, Alexandria, La., W5HAA, Little Rock, Ark., more than 500 miles, and W5MWW, New Boston, Tex., and W5QNL, Texarkana, as well as many nearer stations.

This session was the high spot in a series of openings that ran for several days. W5MWW, New Boston, Texas, reports that W8s, 9s and Øs were coming through on the night of the 1st, and on the 2nd, he worked W9BPV, Armington, Ill., and WØIHD, Overland, Mo. On the 3rd, he heard W4KIP, and then worked him on the 4th.

Our friends in South America report that there is still some 50-Mc. DX work going on in Venezuela, Peru, Brazil, Argentina and Chile, but conditions generally are not as good as in past years. YV5AC began working into LU and OA on Sept. 18th, and CE1AH finds the band open to the Buenos Aires area and to parts of Brazil almost nightly. The loss of HC2OT is felt keenly, but HC1FS tells us that he is getting ready to go on 6. If Steve could do as well as he did from sea-level Guayaquil, HC1FS should have an interesting time of it in lofty Quito.

The man who created such a stir as HC2OT, and later provided a number of us with our first Cuban contacts as CO2JF, is back in the States for awhile. Steve visited Headquarters recently, following which he will travel leisurely to Texas, there to get in some operation on 10, 6 and 2 as W5DNN once more. There is a good possibility that he may be signing an OA4 call early in 1952.

CE1AH tells us that many of the v.h.f. gang in Argentina are now on 144 and 420 Mc. Ida and Larry are also set to go on 144, and are checking with the LUs at every opportunity. It's a hop of just over 1000 miles, but the path is relatively open, and CE1AH has a 10,000-foot elevation for a start. Some years ago this would have seemed like a forlorn hope, indeed, but we know that 2-meter signals do go that far, and more. Nothing tried, nothing gained!

Ida reports that LU7WA, in Comodoro Rivadavia, 600 miles south of Buenos Aires, is back on 6 again. There's some nice DX for you, if we should happen to have any more South American openings. Such openings are not at all impossible. Recently, your conductor has had an opportunity to study hundreds of reports of TV DX collected by *Radio-Electronics*. It is interesting to note that PRF-3, the TV station at Sao Paulo, Brazil, was caught by at least two observers on June 11th, one in Grand Rapids, Mich.,

and one in Halifax, N. S. If that sort of DX can be picked up by TV sets on 65 Mc., it can most certainly happen on 50 Mc.!

South American DX still existed for South Florida in 1951. W4FNR finds that during this year he worked eight countries on 50 Mc. Ab is gunning for several of them on 144 Mc. now, with a pair of 4–125As running 500 to 600 watts.

With the OES

Though most of the fellows who are operating 50-Mc. beacon transmitters set them up to provide checks on sporadic-*E* openings, they can be very useful for other purposes. W4FLW, Dresden, Tenn., monitors the automatic of W4HHK, Collierville, 130 miles to the west, four times daily, between 7:30 and 9:30 A.M., 11 A.M. to 1 P.M., 5 to 6 P.M. and 10 to 11 P.M. All these are not possible every day, but Harry made at least two daily during the month of September. On only four days during the month did the signal go unheard, and on these days 9 out of a possible 16 checks were missed because of other commitments. The total score shows 67 tries, with the signal heard on 40 of these. When it is remembered that the transmitter uses lower power and a much less effective radiator than would be the case in most two-way work, this record shows that the 50-Mc. band merits more attention for extended-local work than it is now receiving.

W9JBF, Wausau, Wis., reports regular skeds on 144 Mc. with W9FAN at Sheboygan, with about 50 per cent success. WØOAC, St. Paul, Minn., 160 miles to the west, is worked 3 out of 4 tries. W9JBF aims south regularly at 8 to 8:30 P.M., and to the west from 9 P.M. on. On Sept. 30th he was able to get W9NW, Chicago, and WØOAC together for their first Minnesota-Illinois contact.

W9FAN, in addition to checks with W9JBF, also works W8MRK, Muskegon, Mich., at 8:45 P.M., with consistent results on this 80-mile over-water hop.

How many OES are interested in radioteletype? Latest to report acquisition of the necessary "works" is W9TQ, Milwaukee.

W8FKC, Hudson, Ohio, reports that the 6BQ7 direct-coupled amplifier used in the crystal-controlled converter described in September *QST*, page 41, also works very nicely as a preamplifier for 220 Mc. Ralph had been using a triode mixer with no r.f. stage previously. With the Channel 13 signal from Toledo as a basis for comparisons, the r.f. amplifier was found to give a considerable improvement in both gain and signal-to-noise ratio. Other 220-Mc. stations within range of W8FKC are W8BFQ, W8WM and W8RHM. Their numbers may soon be augmented by a Technician or two.

W8FKC recommends the 5763 (or a pair of them) to fellows who are looking for low-cost replacements for those 832As that are now getting so costly. A 5763 with a series-tuned tank circuit will double to 144 or triple to 220 with enough power to drive either an 832A or a pair of 5763s as a straight amplifier. TVI from 72-Mc. radiation was cleared up by shielding the heater leads and by-passing the heaters right at the terminals.

W2AOD, Flushing, L. I., writes that 420-Mc. operation is gradually catching on. George has worked W2QBM, Bronx, W2DGF, Rosedale, W2CEP, Wantaugh, W2QED, Seabrook, N. J., 120 miles, and W3BSV, Salisbury, Md., 200 miles, recently. Nightly skeds are kept with W1PBB, Monroe, Conn., at 9:30 P.M., and contacts are made whenever conditions are a little above average.

Your conductor and W1PBB work on 432.4 and 436 Mc. nightly at 9 o'clock, turning toward the New York and New Jersey stations at 9:30 for 5 minutes of transmission, listening thereafter for 5 minutes. This practice has several times resulted in unexpected contacts, the most recent being with K2AH, E. Orange, N. J., on Oct. 23rd, by both W1HDQ and W1PBB, and with W1PBB on the 26th. W1PBB also heard W3BSV, 250 miles, on the 26th.

New in the OES ranks this month: W5FXN, Austin, Texas, who has 500 watts on 50 Mc. and a crystal-controlled rig on 220. His 220-Mc. converter is similar to the 6BQ7 job in September *QST*. Jim says that W5BDT and W5AXY are also on 220, with W5UB going in San Antonio.

Looking for a good bet in 420-Mc. r.f. amplifiers? We understand from W2QED that the r.f. amplifier design in *Electronics* for October, page 106, can be adapted readily for use with a 6J4. So far, W2QED and W2EH, who have built them, have been mightily pleased with the results. The new 6AF4, 7-pin miniature version of the 6F4, should be ideal for this sort of thing. We may get some r.f. gain at 420 with more-or-less conventional tubes, yet!

September V.H.F. Party — Final Scores

The Fall V.H.F. Party, September 22nd and 23rd, was outstanding in no way. There were no band openings to amount to anything, no major records were broken, no all-time high scores posted. Yet the nearly 200 scores listed at the end of this section give heartening evidence of interest and activity. They show that, while many complain of low activity, it is still possible to work large numbers of stations on 6 and 2 in many sections of the country, even when there are no unusual conditions to spur things along.

It is good to see, for instance, that W2UK, a contest man from way back on lower frequencies, could work 152 stations in 12 ARRL sections on 144 Mc. The total posted by W1FZ/1, Blue Job Mountain, Farmington, N. H., in making the country's highest score, was equal to the best this smooth-working crew (with *one* operator, but willing

2-Meter Standings

	Call				Call		
	States	Areas	Miles		States	Areas	Miles
W1HDQ	16	6	650	W5SWV	7	2	—
W1IZY	15	6	750	W5FBT	6	2	500
W1MNF	14	5	570	W5FEK	6	2	500
W1BCN	13	5	500	W5IRP	6	2	410
W1CTW	12	4	500	W5ONS	5	2	950
W1KLC	12	4	500	W5FSC	5	2	500
				W5JLY	4	2	650
W2BAV	21	7	1175				
W2NLY	18	6	750	W6ZL	2	2	1400
W2PAU	16	6	740	W6WSQ	2	2	1390
W2AZL	16	6	—	W6PJA	2	2	1390
W2DFV	13	5	350	W6ZEM/6	1	1	415
W2CET	12	5	405	W6GGM	1	1	300
W2DPB	12	5	500	W6YYG	1	1	300
W2QED	12	5	365				
W2FHJ	12	5	—	W8WJC	21	7	775
W2QNZ	12	5	—	W8BFQ	21	7	775
W2BVU	12	4	260	W8WRN	19	7	670
W2ORI	8	6	570	W8WXV	18	8	1200
				W8UKS	18	7	720
W3NKM	19	7	660	W8EP	17	7	—
W3RUE	17	7	760	W8RWW	16	7	500
W3QKI	16	7	820	W8BAX	15	6	655
W3KWL	15	7	560	W8WSE	14	6	620
W3LNA	14	7	720	W8FQK	13	7	—
W3GKP	14	6	650	W8CYE	12	6	—
W3OWW	13	6	600	W8CPA	12	4	650
W3KUX	12	5	575				
W3PGV	12	5	—	W9FVJ	20	7	790
W3LMC	11	4	400	W9UCH	20	7	750
				W9SUV	19	7	—
W4MKJ	16	7	665	W9EQC	17	7	820
W4HHK	15	6	660	W9BOV	15	6	—
W4JDN	13	6	—	W9WOK	15	5	690
W4JFV	13	5	830	W9AFT	14	4	—
W4IKZ	13	5	650	W9NFK	12	7	690
W4JFU	13	5	720	W9UIA	12	7	540
W4LVA	13	5	400	W9GTA	11	5	540
W4OXC	13	7	500				
W4CLY	12	5	720	WØIHD	15	6	725
W4JHC	12	5	720	WØNFM	14	7	660
W4OLK	12	5	720	WØEMS	13	5	1080
W4FJ	12	5	700	WØZJB	12	7	1097
W4LRR	5	2	900	WØWGZ	11	5	760
				WØHXY	8	3	—
W5JTI	14	5	670	WØJHS	7	3	—
W5QNL	10	5	1400				
W5MWW	9	4	570	VE3AIB	12	6	600
W5AJG	9	3	1260	VE1QY	11	4	900
W5ML	8	3	725	VE3BOW	8	5	520
W5ERD	8	3	570	VE3BQN	7	4	540
W5VX	7	4	—	VE3TN	7	4	480
W5VY	7	3	1200	VE3BPB	6	4	525
W5CVW	7	2	560	VE3DER	6	4	450
W5ABN	7	2	450	VE3EAH	5	4	380

50 WAS Mc.

Standings as of September 25th

WØZJB	48	W4IUJ	38	W8BFQ	39
WØBJV	48	W4BEN	35	W8LPD	37
WØCJS	48				
W5AJG	48	W5VY	47	W9ZHB	48
W9ZHL	48	W5QNQ	46	W9QUV	48
W9OCA	48	W5JTI	44	W9HGE	47
W6OB	48	W5ONS	44	W9PK	47
WØINI	48	W5ML	44	W9VZP	47
		W5JLY	43	W9RQM	47
W1HDQ	47	W5JME	43	W9ALU	47
W1CLS	46	W5VV	42	W9QKM	46
W1CGY	46	W5FAL	41	W9UIA	45
W1LLL	44	W5NHD	41	W9UNS	45
W1KHL	44	W5FSC	41		
W1HMS	43	W5HLD	40	WØQIN	47
W1LSN	42	W5HEZ	38	WØDZM	47
W1EIO	41			WØNFM	47
		W6WNN	48	WØTKX	47
W2RLV	45	W6UXN	47	WØKYF	47
W2BYM	44	W6TMI	45	WØJOL	44
W2IDZ	43	W6IWS	41	WØJHS	43
W2AMJ	42	W6OVK	40	WØPKD	43
W2MEU	42			WØHVW	42
W2FHJ	41	W7HEA	47	WØMVG	41
W2GYV	40	W7ERA	47	WØIPI	41
W2QVH	38	W7BQX	45		
		W7DYD	45	VE3ANY	42
W3OJU	45	W7JRG	44	VE3AET	35
W3NKM	41	W7BOC	42	VE1QZ	32
W3MQU	39	W7JPA	42	VE1QY	31
W3JVI	38	W7FIV	41	XE1GE	19
		W7CAM	40	CO2JF	7
W4FBH	46	W7ACD	40		
W4EQM	44				
W4QN	44	W8NSS	46		
W4FWH	42	W8NQD	45		
W4CPZ	42	W8UZ	42		
W4FLW	42	W8YLS	41		
W4MS	40	W8CMS	41		
W4OXC	40	W8RFW	41		
W4FNR	39	W8LBH	39		

Calls in **boldface** are holders of special 50-Mc. WAS certificates listed in order of award numbers. Others are based on unverified reports.

assistance on the heavy work by W1KEX and son) has done in past parties. W6GFG/6, Mt. Loma Prieta, could make 94 contacts for the West's top score and the Santa Clara Valley section award, and VE3AIB could run up 109 contacts on 6 and 2.

Perhaps the September contest did set a few records at that. Did anyone ever before use *six* bands in a V.H.F. Party? W6NLZ, Los Angeles, worked on 50, 144, 220, 420, 1200 and 2400 Mc.! And it was the first contest to see Novices participating. WN3SBY, WN2ALL, WN6NJU and WN5TFW appear in the score tabulation, and there are quite a few WNs scattered through the report sheets. We noted them in W1, 2, 3, 5, 6, 8, and 9 in glancing through the stack.

Two members of the fair sex took section awards, but this is hardly a novelty; W8BFQ and W2FHJ have occupied the top spot in the Ohio and N.Y.C.-L.I. sections many times before. 420-Mc. participation is on the upgrade, as evidenced by W2QED's 7 stations worked on that band, and "D" showing in the band column in 12 places.

W1CTW, often a section winner, set a record of sorts. Cal traveled many miles, the last 4½ in low gear, to operate from Mt. Mansfield, highest of Vermont's Green Mountain chain, to run up a score that could have been listed as 0 — 0 — A! This was no true "first," however; your conductor had a similar disillusionment awaiting him on Mansfield's summit back in the early '30s. A car can't be driven to a spot where there is an open path to the activity centers of New York and New England.

Scores to follow are listed by ARRL divisions and sections. Unless otherwise noted, the top scorer in each section will receive a certificate award. Columns are the total score, the number of contacts made, the section multiplier, and the bands used, starting with A for 50 Mc., B for 144, etc.

ATLANTIC DIVISION

E. Pennsylvania

W3UKI	1001-	77-13-AB
W3KX	901-	53-17-AB
W3RRA	72-	12- 6-AB

Md.-Del.-D.C.

W3PYW	427-	61- 7-B
W3LMC	371-	53- 7-B
W3GKP	270-	45- 6-B
W3FU	231-	33- 7-B
W3AHQ	34-	17- 2-B
WN3SBY	32-	16- 2-B
W3NH	30-	10- 3-B

S. New Jersey

W2PWP	1890-	85-18-ABD
W2UK	1824-	152-42-B
W2BV	1250-	125-10-B
W2QED	1248-	76-12-BD
W2UCV	432-	37- 6-B
W2BAY	44-	11- 4-A

W. New York

W2ORI	540-	70- 6-BD
W2QNA	462-	62- 7-AB
W2TBD	450-	75- 6-AB
W2RUC	315-	47- 5-BD
W2UPT[3]	270-	30- 9-AB
W2DPL	180-	45- 4-B
W2ZRC	168-	42- 4-B
W2WDO	164-	41- 4-B
W2ERX	154-	27- 7-B
W2FCG	140-	28- 5-B
W2OWF	136-	34- 4-B
W2CCR	111-	37- 3-B
W2UAD	104-	26- 4-B
W2UFI	96-	32- 3-B
W2UXP	90-	30- 3-B
W2VVG	87-	29- 3-B
W2UTH	84-	28- 3-B
W2OWQ	78-	39- 2-B
W2SJV	62-	31- 2-B
W2SKN	58-	29- 2-B
W2ZHB	48-	24- 2-B
WN2ALL	32-	16- 2-B
W2CMV	24-	12- 2-B
W2UYS	16-	16- 1-B
W2QY	14-	14- 1-B
W2VBH	18-	13- 1-B
W2QXE/2[2]	10-	10- 1-B
W2RHQ	2-	2- 1-B

W. Pennsylvania

W3NKM	484-	44-11-AB
W3KWH	90-	15- 6-AB
W3KUQ	3-	3- 1-B

CENTRAL DIVISION

Illinois

W9JGA	78-	26- 3-B
W9KDX	18-	18- 1-B
W9CT	16-	16- 1-B
W9ADO	10-	5- 2-B

Indiana

W9GSY	105-	21- 5-B

Wisconsin

W9TQ	45-	15- 3-B
W9UJM	45-	15- 3-B
W9BTI	39-	13- 3-B
W9FAN	14-	7- 2-B

GREAT LAKES DIVISION

Michigan

W8NNF	252-	42- 6-B
W8RWW	175-	35- 5-B
W8GNM	170-	34- 5-B
W8DDO	39-	13- 3-B
W8OLD	10-	5- 2-B

Ohio

W8BFQ	1695-	101-15-ABCD
W8LPD	495-	55- 9-AB
W8WRN	278-	41- 7-B
W8AMR	216-	36- 6-B
W8FKC	170-	30- 5-BC
W8WAB	4-	4- 1-B

HUDSON DIVISION

E. New York

W2BVU	370-	37-10-B
W2VRE	240-	24-10-AB
W2PV	238-	34- 7-B
W2YXE	210-	35- 6-B

N.Y.C.-L.I.

W2FHJ	1054-	62-17-AB
W2HG	495-	55- 9-B
W2AOD	329-	43- 7-BD
W2ZYJ	230-	46- 5-B
W2MHE	172-	43- 4-B
W2AUF	140-	28- 5-B
W2KU	88-	22- 4-B
W2OHE	76-	19- 4-B
W2LGK	33-	11- 3-B

N. New Jersey

W2DZA	868-	43-14-ABC
W2RQI	250-	50- 5-B
W2NLY	212-	53- 4-B

MIDWEST DIVISION

Missouri

WØIHD	6-	3- 2-B

NEW ENGLAND DIVISION

Connecticut

W1HDQ[1]	2472-	95-24-ABD
W1RMZ	890-	89-10-B
W1HDF	270-	19-16-ABD
W1SPX	243-	27- 9-AB
W1RWS[1]	84-	14- 6-A
W1RVZ	72-	18- 4-B
W1CEG[1]	65-	13- 5-A
W1AW[1]	54-	18- 3-AB
W1DJV[1]	24-	8- 3-A
W1BDI[1]	4-	4- 1-B
W1HXD	4-	2- 2-A

E. Massachusetts

W1GJZ	2000-	100-20-AB
W1BJN	525-	75- 7-B
W1PBJ	525-	75- 7-B
W1AHX	368-	46- 8-B
W1ODQ	272-	34- 8-B
W1MUD	255-	51- 5-B
W1MCR	212-	53- 4-B
W1BIO	210-	42- 5-B
W1SUE	207-	23- 9-B
W1OTH/1	184-	46- 4-B
W1RUU	152-	38- 4-B
W1HIL	147-	21- 7-AB
W1SUR	140-	35- 4-B
W1TMB	130-	26- 5-B
W1BHD	116-	29- 4-B
W1KGP	90-	30- 3-B
W1TQF	80-	20- 4-B
W1TPZ	63-	21- 3-B
W1CTR	36-	12- 3-B
W1RPM	24-	12- 2-B
W1ALP	8-	4- 2-B
W1TTY	8-	8- 1-B

(Continued on page 130)

• On the TVI Front

A.R.R.L. TVI SURVEY

The gang may have overlooked our August request (pp. 36 and 108) for data concerning their experiences with TVI but it's a certainty they didn't miss our October editorial which wondered "Maybe there isn't any TVI problem." The volume of mail received in the past few weeks has been gratifying, and while it's too early to draw any summary, it's heartening to note that an overwhelming majority of the reports say, in effect, "There *was* a TVI problem." A cursory examination of the letters of the fellows who are back on the air discloses no magic cure-all — in every case they licked TVI by digging in and applying one or more of the techniques described in the articles listed below.

TVI BOOK AVAILABLE

Television Interference, an excellently arranged 80-page book containing reprints of articles from *QST* and other publications plus helpful information on the subject of TVI elimination, may be obtained free by sending a postal card with your name and address to Philip S. Rand, W1DBM, c/o Remington Rand Inc., Laboratory of Advanced Research, Wilson Road, South Norwalk, Conn.

ORGANIZED ATTACK

Spurred by the success of the Dallas and Dayton Plans in combatting TVI, a group of New York City amateurs have formed the TVI

(*Continued on page 128*)

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Hints and Kinks For the Experimenter

ANTENNA CHANGEOVER CIRCUIT FOR MOBILES

QUITE a few of the local gang were experiencing trouble with the antenna relay in their mobile installations. When in the receiving (de-energized) position, vibration of the contacts caused poor receiver performance. The circuit shown in Fig. 1 solves this problem.

Standard practice has been to ground one side of the antenna link coil and to pipe the "hot" side of the line out to the antenna through coaxial cable. In this circuit, the "cold" side of the link is lifted from ground and is brought out to another insulated terminal which is then connected to the receiver antenna post. The relay grounds the "cold" side of the link when transmitting, at the same time grounding the receiver antenna

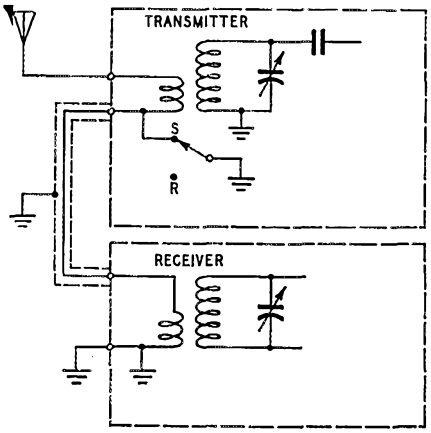

Fig. 1 — A simple method of avoiding troubles in antenna changeover relay circuits in mobile installations.

circuit. When receiving, there are no intermittent relay contacts to cause trouble. This arrangement caused no apparent loss in signal strength in receiving. A matching network could be added between the transmitter and receiver if needed. — *Loyd J. LeBlanc, W5CRI*

ADJUSTABLE FILAMENT VOLTAGE

PROPER filament voltage is required if maximum tube life is to be obtained, especially in some of the large transmitting tubes. Some filament transformers have tapped primaries to permit adjustment to take care of minor departures from rated conditions, but others do not. A simple and inexpensive means of providing adjustable line voltage controllable to close limits, and capable of compensating for too little or too much voltage on the filaments, is shown in Fig. 2.

All that is needed is an inexpensive filament transformer, a single-pole double-throw switch, and a wire-wound potentiometer. The available line voltage can be increased or decreased by the amount of the secondary voltage available from

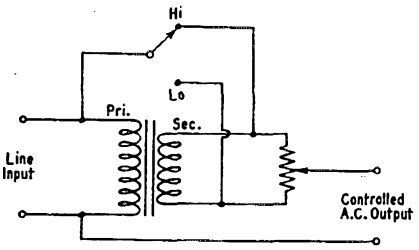

Fig. 2 — Controlled a.c. for your costly transmitting tubes is obtained simply and inexpensively by using a small filament transformer to correct line-voltage variations.

the transformer used. Naturally, the higher the secondary voltage, the greater will be the range of adjustment.

The current rating of the secondary winding need not be heavy; a one-ampere rating will suffice for over 100-watt loads on the controlled a.c. output terminals. — *Walter E. Bradley, W1FWH*

RECTIFIER WIRING FOR RAPID TUBE SUBSTITUTION

IT seems to be a natural law that when a rectifier tube goes west, there is not only no spare in the rack, but also the only available rectifier tube has a different socket pattern than the deceased.

Perusal of the socket patterns in the *Handbook* discloses that there are only three in use for five-volt octal-base full-wave rectifiers. So far as tube operation goes, two of the three are identical.

A single octal socket can be wired so that it will take any five-volt octal-base full-wave rectifier tube. This is accomplished by wiring Pins 2 and 7 together to form one side of the filament circuit, Pin 8 being the other in all cases. Also, wire Pins 3 and 4 together for connection of plate No. 1, and Pins 5 and 6 together for connection of plate No. 2.

With a socket thus wired, any one of nine rectifier tubes can be plugged in, and will work, provided the load for the tube is not exceeded by any great amount.

It is suggested that all emergency equipment be wired in this manner, to facilitate restoration of service in event of rectifier tube failure. — *Ronald L. Ives.*

Correspondence From Members-

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

AN EXPRESSIVE CALL!

Hamden, Conn.

Editor, *QST:*

Boy! Do you produce results fast! Yesterday I wrote you inquiring as to whether or not it would be advisable to check the FCC on tickets for my son and myself, we having taken the exam six weeks ago. The boy's ticket came in the afternoon mail. That's what I call real service. However, my own didn't show up (possibly because I had both Novice and Technician). I can find it in my heart to hope that mine were not processed immediately after his, as his call is WN1UGG, and I can picture the ribald remarks that will accompany a call of WN1UGH. However, someone has to take the ones where the letters have unpleasant connotations, and I'll take what I get and be glad to get it. . . .

— *John P. Ramsey*

[EDITOR'S NOTE: Has reader Ramsey overlooked the fact that among the original Americans the word "ugh" signified agreement?]

KOREAN AID

Hedron, First MAW
c/o FPO, San Francisco, Calif.

Editor, *QST:*

Since the amateur keys are silent in Korea the spare time of several of us has been used to help a critical situation existing here, the care of the Korean orphans.

This letter is being written that you may know a little more about the conditions as they are today. Can you imagine 9000 orphans in one city and its suburbs? Such is the case of Pusan. Much good work is being done by the missionaries and civic groups and they are receiving substantial aid from the States already, but for each orphanage they are giving aid to there is another application waiting.

It costs about three dollars a month to give the average orphan in Korea a basic diet of rice, barley and eggs. In many cases the older children are producing marketable products and are gaining on the goal of self support. The homes taking care of foundlings and infants need slightly more support.

Due to the extreme cold of the Korean winter and the extreme shortage of clothing, a valuable contribution would be any old clothes the junior op has outgrown or worn out.

If any of you fellow amateurs will contribute cash or clothing they will be put to good work. I would suggest that contributions be sent to:

The Chaplain
First Marine Air Wing
c/o Fleet Post Office
San Francisco, California

— *M/Sgt. Phil Rima, W4NZG*

BACK-PATTERS

262 La Casa Avenue
San Mateo, Calif.

Editor, *QST:*

Of all the excellent features in *QST* the letters to the Editor department is, I believe, one of the most important because it reflects a cross section of opinion of League members everywhere with their own individual thoughts and ideas. This small but powerful voice of theirs should be heard, and this department is their only outlet.

While I realize that certain letters received each month by yourself may or may not be in keeping with the subject or editorial note at the time, I nevertheless am convinced that *all* members' letters should be published no matter what subject they may be on.

I am further cognizant that there is a limit to space. Just how many letters are received by yourself I have no way of knowing.

Personally, when I read a series of flowery letters I smell something a bit phoney. Criticism and constructive suggestions are healthy. Remember, when they talk about one — good or bad — he must have done something worth while to be talked about!

— *Amos Kanaga, W6BAA*

MOBILE SUBALLOCATIONS

826 Watson Avenue
Topeka, Kans.

Editor, *QST:*

I am writing at this time to inquire as to whether or not the ARRL, officially or otherwise, has made an effort to isolate certain portions of the 75-meter and 20-meter 'phone bands for mobile use exclusively. The increased mobile activity which is general throughout the country would receive considerable stimulation from such an arrangement. Needless to say, the immediate effect of such stimulation would be generally valuable from the point of view of Civil Defense, emergency preparedness, etc. As a tentative suggestion the top 25 kilocycles (3975 to 4000) of the 75-meter 'phone band and 15 kilocycles in the middle of the 20-meter 'phone band could be set aside for such use. The use of these spectrum areas need not preclude mobile operation elsewhere. I would appreciate receiving your comments on such a suggestion and would also like to learn the thoughts of the rest of the amateur fraternity concerning this proposal.

— *Paul M. Kersten, M.D., WØWIT*

[EDITOR'S NOTE: The League's Board at its last meeting instructed the Planning Committee to study this problem.]

FOREIGN 'PHONE QRM

326 Somerset Street
New Brunswick, N. J.

Editor, *QST:*

I wonder if there is anything that can be done about some 'phone stations that are operating on the 40-meter c.w. band. For the past few nights every time we get in a good QSO, one of these birds comes on and washes it out. The average ham doesn't enjoy these 'phone stations and neither do I. QRM from c.w., QRN, etc., we don't mind. There should be something done about these birds.

— *William Szabo, W2VAV*

[EDITOR'S NOTE: How amateur bands are subdivided is the privilege of each individual country. No country can tell the U. S. how to subdivide its amateur bands any more than we can so dictate to them.]

NO YOUNG SQUIRT, HE!

2540 First Avenue, San Diego 3, Calif.

Editor, *QST:*

More power to you! By including prospective Novices among the beneficiaries of your code practice transmissions, you encouraged even *me* to beard the FCC examiners.

Got my WN6MUI! I'm not *quite* as dead as I feared. . . .

— *Dr. J. Van Becelaere, WN6MUI*

[EDITOR'S NOTE: WN6MUI is a mere 86 — see p. 71]

FAKE S.O.S.

Department of Air Force
Washington, D. C.

Editor, *QST:*

The recent concern in amateur circles relative to the statement in the press that a high Air Force official had stated that the false report of an Air Force aircraft in dis-

(*Continued on page 130*)

Operating News

F. E. HANDY, W1BDI, Communications Mgr.
JOHN E. CANN, W1RWS, Asst. Comm. Mgr., C.W.
GEORGE HART, W1NJM, Natl. Emerg. Coördinator

J. A. MOSKEY, W1JMY, Deputy Comm. Mgr.
L. G. McCOY, W1ICP, Asst. Comm. Mgr., 'Phone
LILLIAN M. SALTER, Administrative Aide

Dits and Dahs. The enlarged ARRL Code Proficiency Program which provides W1AW practice seven nights per week has brought an upturn of some proportions in the number of receipts to be processed at ARRL. In spite of this, we are maintaining the policy of returning CP certifications (or information whether one passed or not) within 30 days. Purpose: So any participant can continue his effort upward or requalify if he failed. This gives opportunity to try again for a certificate *by the very next qualifying date.*

The Novice and/or Technician licenses are the first badges of progress after one starts with W1AW-WØTQD-W6OWP. The rather excellent speeds we hear exercised in many WN QSOs, averaging considerably above the 5-w.p.m. level, are a tribute to the wisdom of some of the newcomers in acquiring the ARRL 10-w.p.m. CP certificate even before they get their FCC license. This is one way to make sure that any fear or lack of confidence cannot shake one's personal ability to *demonstrate* 5 w.p.m. *under test!*

The 10- and 15-w.p.m. certifications from ARRL are each milestones on the pathway to going up for the coveted General Class license. ARRL *endorsement stickers* are available after receiving an initial code certification to show any *increases* above the initial speed. Our card file of all CP awards makes an enduring record of progress for check at any time in one's amateur career. Submit copy on monthly qualifying runs. Let us start a CP award record for you.

On Honesty in Reporting. A word of praise is due all amateurs currently giving honest RST reports utilizing the full nine-point T scale and employing the *definitions* T1–T7, etc., as required. Our Operating Aid with RST meanings will be sent gratis to any Novice or other class amateur on receipt of a radiogram requesting same and giving address. To make reports valued and worth recording they should and must be *honest* reports. It is less embarrassing to know about a burr on our note, so we can work to remedy the matter, than to risk an FCC citation or unduly monopolize our frequency spaces with less than the best quality signals!

Making a Good Impression. In any walk of life it behooves one to put his best foot forward. Amateur radio is no exception. The strength of amateur radio is in the cumulative force of each prospective accomplishment of each individual licensee! Useful things that hams do run all the way from undertaking message-handling communications, educational or technical demonstrations of know-how, to ordinary courtesy, alertness to prevent interference or other irritations, membership support and activity in constructive radio (group) operations, especially those dedicated to emergency preparedness, participation in civil defense tests, one's section 'phone or c.w. net or just personal additions to one's radio knowledge and ability. Each amateur holding his license in the public interest, convenience and necessity, to that degree in which he improves his opportunities, is adding to the strength of all amateur radio. Let's make it good!

Emergency Work vs. Contests. Numerous stations had occasion in last year's SS to desist from personal activity in the contest to assist in Ohio Emergency Net operations. Long skip made help necessary for Eastern stations directly involved. The voluntarily-assumed responsibility of amateurs to give help instantly and to steer clear of amateur frequencies needed for emergency public service work is well known. Requests to QSY with little explanation have been so well heeded, generally speaking, that the entire institution of amateur radio shares in the public acclaim for our capabilities and service in past emergencies. FCC declarations to give legal force to clearing frequency band sectors are sometimes invoked indeed. The fraternity is proudest however of the work where need for such can be avoided!

One example of work utterly contrary to amateur principles on which our standing as amateurs has been built was reported by W5GHF, SCM Louisiana, last year just to urge his concern that such should never happen again:

> A W6 called CQ SS on the frequency, making three or four SS contacts before the fellows concerned could ask him to move. He did acknowledge, and moved a few kc. The near-by stations working him spilled their sidebands on the emergency frequency which also held up the emergency traffic. I was told this was the second time he had been informed of the emergency. Both times he had moved away a few kc. In the next hour I heard him get back on the frequency three more times and secure more contest exchanges. By then it was apparent he was *intentionally* doing so. Because of the nice clear channel back East he could make four or five contacts on each venture. Toward the end of the contest he moved on the frequency with a regular CQ call, no mention of the contest. Quite a few fellows would answer and he would acknowledge in turn . . . ask them to give him a number even though not in the contest, and he would give them one. I want to approve the disqualification of contestants in any contest for any such flagrant future abuse of emergency channels. . . .

If a contest (*any* contest) is in progress, all amateurs should appreciate that this must be

incidental to the more pressing requirements of an emergency situation. Casual activity should be foregone, if required, at the first word about an emergency. In some instances where the emergency is remote it is only necessary to move frequency or avoid the channel in use for emergency operations, of course. The majority of hams will instantly conform to the highest traditions, as public considerations and service conditions may require. For others, the rules of the activity on disqualification may well be invoked, indeed.

—*F. E. H.*

Y.L.R.L. 12TH ANNIVERSARY PARTY

On December 1st and 2nd and 8th and 9th the Young Ladies Radio League will sponsor its 12th annual Anniversary Party open to YLRL members only. The 'phone contest will begin at 7:00 P.M. EST, December 1st, and will end at 3:01 A.M. EST, December 3rd. The c.w. contest will begin at 7:00 P.M. EST, December 8th, and will end at 3:01 A.M. EST, December 10th. Any or all bands may be used — schedules and crossband operation permitted. C.w. stations to work only c.w. stations, and 'phone stations to work only 'phone stations. Call "CQ YLRL" and exchange the following information: station call, report, QTH, and whether you are a YLRL member or licensed non-YLRL member. *Scoring:* Count ten points for each YLRL member station worked; multiply by the total number of states, possessions, and countries worked. (Maryland and D. C. to be considered one.) Each station, state, country, etc., will count once only, regardless of the frequency worked. Count one point for each non-YL station worked — these points to be added to total after multiplying. Non-member YL contacts may not be used as multipliers. Logs must be postmarked not later than December 16, 1951, and submitted to Kay Barclay, W3LSX, 2022 Columbia Road, N. W., Washington 9, D. C. A cup donated by W1MCW and now held by W3UUG will be awarded to the highest 'phone scorer. A cup donated by W4HWR and now held by W1FTJ will be awarded to the highest c.w. scorer. These cups are awarded on a yearly basis. A member who wins the same cup three times gains permanent possession. Second- and third-place awards for both 'phone and c.w. will be donated by W3CDQ. Certificates will be issued for high score in each U. S. district and country.

A.R.R.L. AFFILIATED CLUB HONOR ROLL

With pleasure we present the second section of our Honor Roll listings for 1951 in accordance with the Board policy for a special recognition of all affiliated clubs whose *entire membership* consists of members of the League. Refer to page 67 of June *QST* for the earlier results, listing additional active clubs with 100 per cent ARRL membership, these also determined from the '51 Annual Information Survey conducted to meet Board requirements. In early '52 a new survey will be initiated, a form sent each active affiliate for the filings on which continued affiliation and new Honor Roll listings will be based. Very many clubs will now be engaged in midseason activities, code and theory classes for newly-interested persons, civil defense, building and technical programs for members, and the '52 survey also will provide for reporting all such for ARRL information and bulletin purposes.

Central Illinois Radio Club, Bloomington, Ill.
East Bay Radio Club, El Cerrito, Calif.
Enid Amateur Radio Club, Enid, Okla.
Garden City Amateur Radio Club, Garden City, Kans.
Grumman Amateur Radio Club, Bethpage, L. I., New York.
Haywire Radio Club, University City, Mo.
Les Amateurs de la T.S.F., Montreal, P. Q., Canada
The Lower Columbia Amateur Radio Assn., Longview, Wash.
North California DX Club, Inc., Oakland, Calif.
Oklahoma A. M. College Amateur Radio Club, Stillwater, Okla.
Queen City Emergency Net, Cincinnati, Ohio
Radio Club of Tacoma, Inc., Tacoma, Wash.
Sussex County Amateur Radio Assn., Newfoundland, N. J.
Valley Amateur Radio Club, Eugene, Ore.

CODE-PRACTICE PROGRAM

The following stations are transmitting code practice as shown:

W7FWD, Orpheus U. Tatro, 513 No. Central St., Olympia, Wash., 7200 kc. nightly at 2030 PST.

W8BDF, Carlton R. Commander, 21715 Statler Blvd., St. Clair Shores, Mich., 3705 kc. nightly at 2000–2030 CST.

WØSYN, Vern E. Baumgartner, 540 Hugh St., N.E., Minneapolis, Minn., 29,300 kc. Wednesday, code and theory at 2000–2030 CST.

KL7BK, Jack M. Walden, KENI, Trans. Apts., Sunset Drive, Anchorage, 3870 kc. Tuesday and Thursday, 9:00 to 10:00 P.M.

NOVICES . . . EIGHT AND EIGHTY-SIX!

The smiling youngster ragchewing with his dad, W9CYD, is eight-year-old Bobby Clute, WN9ONA, of Chicago, one of the youngest licensed hams in the U. S. Bobby started boning up on code, theory and regulations last December and won his ticket shortly after FCC started giving Novice examinations. (*Chicago Tribune photo*)

The distinguished gentleman pounding brass is Dr. J. Van Becelaere, WN6MUI, retired physician of San Diego, who will be 87 on his next birthday. He is one of the oldest hams in the country and probably the oldest applicant ever to appear for an amateur examination. (*San Diego Union photo*)

TRAFFIC TOPICS

As this is being written, the SET traffic has slowed down to a trickle. Some 300 messages have been received indicating participation by about 1800 amateurs. All in all, the end result, once the data are completely tabulated, will probably indicate a slight increase over last year's participation.

But more on this later. What we want to talk about right now is the fact that over a week after the Simulated Emergency Test, messages which originated on October 13th and 14th are still being received at Headquarters. If this is indeed a true test of our traffic-handling facilities, it can be seen that in some cases there is room for considerable improvement. Let's speculate for a moment concerning the possible reasons for slow movement of traffic.

Last year, every AREC member who participated in the SET was instructed to originate a message to ARRL Headquarters. The result was a flood of over 1800 messages received here, and a mighty busy week end for established traffic nets and Connecticut amateurs. A few of the boys complained that not only was the great amount of traffic a hardship, but that also it was unrealistic of the situation which would obtain in the event of a real emergency. These objections, although not particularly vociferous, seemed to hold water, and so this year we did it differently. AREC members reported by formal message to their Emergency Coördinator in the local net; the EC then consolidated these reports for a report in message form to Headquarters. The result was a decrease in messages received at Headquarters from over 1800 in 1950 to something over 300 in 1951.

The astounding part of the whole thing is that, generally speaking, the traffic networks last year did a better job in handling the 1800 messages than they did this year in handling the 300. How come?

Well, there are several possible reasons. One might be that the de-emphasis on volume traffic originations removed much of the necessity for having all the traffic gang out for the week end in full regalia — and so there were fewer traffickers to handle what traffic *was* originated, and fewer nets which held extra sessions to help clear and expedite the SET traffic. Another reason might be a slight letdown in enthusiasm for emergency activities due to the slowness in Washington in coming out with something specific concerning civil defense communication and the part amateurs will play in it. Still another might be the failure of local Emergency Coördinators to effect the best possible outlet for their messages to Headquarters. Or perhaps it is a combination of all three.

The most disturbing comment we have received was to the effect that SET traffic was "cluttering up" some traffic networks and decreasing their ability to take care of other types of traffic considered to be more important. What, we ask, can be more important than putting in a good performance during our annual all-out national organizational test? Do these few comments reflect the views of a majority of the traffic-handling amateurs? Specifically, do you fellows think that we should abandon the long-haul aspect of future Simulated Emergency Tests? If not, do you think that the system we used this year was preferable to that of previous years, or do you prefer the old method in which each participating AREC member originates a message direct to Headquarters?

Your wishes are our command.

—•••—

W4PL, in a recent communication, deplores the increasing tendency to ignore the check in a message. He points out that "in commercial operating the check is a very sacred animal indeed. Hams *ought* to have as high standards, especially with overseas and worth-while traffic such as they are now handling in large volume."

In amateur practice, all words between the two separation signs separating the address from the text and the text from the signature are counted in the check of the message. Thus it is up to the originator whether or not the "complimentary close" of a message, such as "Your son," is a part of the text or the signature. If it comes before the separation sign (BT), it is naturally a part of the text and counts in the check; otherwise, it is a part of the signature and does not count. Such other formal endings as "Sincerely," "Yours truly" and "Love" will normally be a part of the text and counted in the check. Many amateurs have a tendency to leave such words out of the check.

Another source of confusion is the use of the letter X in place of periods or "stops." Since these are sent separately from the other words or groups in the text of a message, they count separately. ARRL count requires that each group *sent* be counted, so "stop" or "X" or other words or letters denoting punctuation — or even the punctuation itself — counts one in the check for each time it is sent.

—•••—

WN1TVP claims to be the first Novice station to make BPL. This station originated 107 messages at the Rochester, Vt., Fair during September. Any challengers?

—•••—

National Traffic System. Activity continues on the upswing as we head into October. September saw most of the NTS regional and area nets back on full schedule, and many section nets have come to life with a resultant increase in traffic flow over the NTS routes.

We have two new Regional Net Managers to introduce. In the Second Regional Net, W2COU has taken over from W2PRE. Joe is a young fellow, but has accumulated quite a bit of operating savvy in his comparatively short time in the NTS. Since 2RN encompasses the area greatest in population of any of our NTS Regions, we hope you traffickers in New York and New Jersey will give him your best support. In the Eighth Region, the new manager really needs no introduction. He is Joe Beljan, W8SCW, an old-time traffic man with lots of experience dating back to postwar and Traffic Outlet and staunch supporter of the Michigan QMN Net for many years. Watch 8RN!

A good collection of reports characterized September operation:

Net	*Sessions*	*Traffic*	*High*	*Low*	*Av.*	*Most Consistent*
4RN (June)	17	87	15	0	6	S. C.
4RN (July)	15	37	10	0	2	S. C.
4RN (Aug.)	17	69	28	0	4	Fla.
4RN	19	125	20	0	7	Fla.
RN5	33	131	15	0	4	Okla.
RN7	50	128	21	0	2	Idaho
8RN	10	15	7	0	2	Mich., Ohio
9RN	25	330	35	0	13	Ind.
TEN	12	361	58	7	30	——
TRN	18	12	4	0	1	Ont.
EAN	19	420	76	2	22	1RN, 2RN
PAN	15	313	63	3	21	RN6

Second Regional Net (2RN): Unable to do the necessary organization work, W2PRE thought it best to resign. Joe Belth, W2COU, is starting off with a bang as Manager.

Fourth Regional Net (4RN): W4ANK has put out a fall 4RN bulletin giving complete data on performance from January through August, 1951, and operating procedure. One of the best jobs we have seen. Hunter also indicates he is having trouble hearing the NCS on EAN through a strong inverted-speech radiotelephone signal on 3670 kc. ARRL is trying to identify it.

Fifth Regional Net (RN5): Through the efforts of W5MRK and as a result of the fine support he is receiving, RN5 is rapidly developing into one of our most efficient regional nets. There was some talk about changing frequency, but the boys finally decided they were better off on 3645.

Sixth Regional Net (RN6): RN6 is operating on 3642 kc. until XDA vacates 3640 on which they now can be heard, W6JZ says, loud and clear. The registered frequency is 3640.

Seventh Regional Net (RN7): Representation is still needed from Alberta, Saskatchewan and Alaska. W7PKX is now reporting for Wyoming, while British Columbia is represented by VE7s AKI and AAJ.

Eighth Regional Net (8RN): This net went into action in mid-September under its new Manager, W8SCW. Michigan and Ohio are coöperating 100 per cent, but so far representation from West Virginia has been nil; however, it is expected this will soon be rectified.

Ninth Regional Net (9RN): A 9RN certificate has been issued to W9NZW. Bad propagation conditions in late September made it almost impossible to operate, but the net carried on.

Tenth Regional Net (TEN): The new frequency is 3545 kc., on full schedule beginning October 1st. TEN is in fine shape.

Thirteenth Regional Net (TRN): Traffic is slow, but the boys are looking for an upswing in October. Originations would help, both to and from the Canadian Regional Net.

Eastern Area Net (EAN): W2CLL has issued a September EAN bulletin heralding the 1951–52 traffic season. Representation from the regional nets remains good, although it is not yet perfect.

Pacific Area Net (PAN): WØZJO is getting some assistance from WØIC, but needs more. Why can't some of you traffic men in the Mountain Area take over as NCS of PAN once a week?

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for September traffic:

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W3CUL	192	2381	1956	425	4954
W6KYV	144	996	362	607	2109
W4PL	6	997	883	94	1980
W1CRW	23	793	777	11	1604
W6CE	18	759	759	0	1536
K6WAE	25	676	671	4	1376
K7FAG	459	429	6	419	1313
W3NRE	3	556	502	54	1115
K4WAR	216	439	382	47	1084
W3GJY	1028	0	0	0	1028
W7CZY	10	491	465	11	977
W7IOQ	55	384	447	65	951
W9JUJ	33	460	425	7	925
JA2KW	520	186	35	151	892
W6BAM	57	410	224	182	873
W6GYH	14	338	247	83	682
W5QHI	48	289	261	28	626
WØSCA	6	278	260	15	559
W2BO	29	265	180	55	529
W5PTV	5	274	240	9	528
W2COU	34	241	206	32	513
W9NZW	12	254	243	4	513
WØZJO	6	253	187	66	512
W2RUF	28	257	202	18	505
Late Reports					
W9JUJ (Aug.)	25	247	233	7	512

The following made the BPL for 100 or more *originations-plus-deliveries*:

W8ARO	222	W9TG	129	Late Reports	
W6CMN	217	W6RFF	119	W9NZZ (Aug.)	272
W2UBW/2	200	W6GEB	115	W8ARO (Aug.)	109
W9NZZ	180	W3QZC	107	W9NZZ (July)	196
W9TT	160	WN1TVP	107		

A message total of 500 or more or 100 or more *originations-plus-deliveries* will put *you* in line for a place in the BPL. The Brass Pounders League is open to all operators who qualify for this monthly listing.

W1AW SCHEDULE CHANGE

On Fridays, W1AW now takes a trick at being NCS of the Eastern Area Net of the ARRL National Traffic System. Since this net meets at 2030 EST, it was necessary to rearrange the operating schedule slightly, omitting the 2100 EST 'phone bulletin and the 1900–1930 traffic period. The Friday night schedule now goes like this:

1900–1930: 3950 kc. general contact.

1930–2000: 7130 kc. general contact.

2000–2030: Official Bulletin on all c.w. frequencies, followed by general contact on 7130 kc. if time allows.

2030–2130: Participation (as NCS) in the Eastern Area Net of the ARRL National Traffic System.

Before and after the above times, the schedule is as announced in October *QST*.

A.R.R.L. ACTIVITIES CALENDAR

Dec. 7th: CP Qualifying Run — W6OWP
Dec. 7th-10th, 14th-16th: 10-Meter WAS Party
Dec. 19th: CP Qualifying Run — W1AW, WØTQD
Jan. 5th: CP Qualifying Run — W6OWP
Jan. 12th-13th: V.H.F. Sweepstakes
Jan. 12th-27th: Novice Round-up
Jan. 17th: CP Qualifying Run — W1AW, WØTQD
Jan. 19th-20th: CD QSO Party (c.w.)
Jan. 26th-27th: CD QSO Party ('phone)
Feb. 1st-3rd: DX Competition ('phone)
Feb. 5th: Frequency Measuring Test
Feb. 5th: CP Qualifying Run — W6OWP
Feb. 15th-17th: DX Competition ('phone)
Feb. 15th: CP Qualifying Run — W1AW, WØTQD
Feb. 29th, Mar. 1st-2nd: DX Competition (c.w.)
Mar. 6th: CP Qualifying Run — W6OWP
Mar. 14th-16th: DX Competition (c.w.)
Mar. 17th: CP Qualifying Run — W1AW, WØTQD
Apr. 7th: CP Qualifying Run — W6OWP
Apr. 12th-13th: CD QSO Party (c.w.)
Apr. 15th: CP Qualifying Run — W1AW, WØTQD
Apr. 19th-20th: CD QSO Party ('phone)

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/WØTQD will be made on December 19th at 2130 EST. Identical texts will be sent simultaneously by automatic transmitters. Frequencies of transmission from W1AW will be 1885, 3555, 7130, 14,100, 28,060, 52,000 and 146,000 kc. WØTQD will transmit on 3534 kc. The next qualifying run *from W6OWP only* will be transmitted on December 7th at 2100 PST on 3590 and 7248 kc.

Any person may 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 five 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. References to texts used on several of the transmissions are given below. These make it possible to check your copy.

Date	Subject of Practice Text from October *QST*
Dec. 4th:	*A Civil Defense Club Project*, p. 15
Dec. 6th:	*A 75-Watt Transmitter for 3 Bands*, p. 18
Dec. 10th:	*Sugar-Coated Linear Amplifier Theory*, p. 22
Dec. 12th:	*A Frequency Spotter for the Novice*, p. 30
Dec. 18th:	*Operation Andorra*, p. 34
Dec. 20th:	*Screen-Grid Modulation . . .*, p. 38
Dec. 26th:	*Ten-Meter Mobile Tips*, p. 62
Dec. 28th:	*A Bandswitching Multiplier-Exciter*, p. 64

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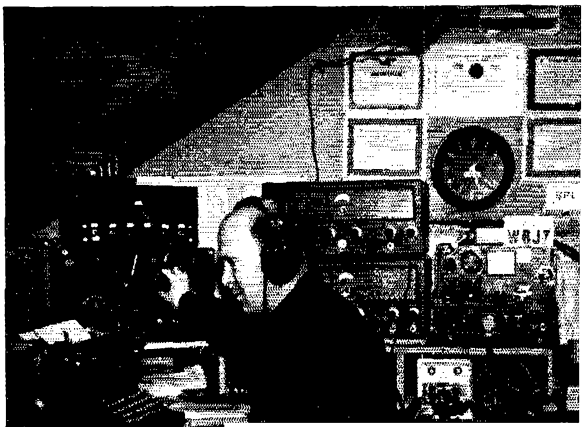
Ray Cornell, W6JZ, has served as manager of the ARRL Sixth Regional Net (RN6) since January, 1951, and has done a swell organizational job to make RN6 one of our outstanding regional nets. Result: he is now SCM! W6JZ has made BPL every month since March, 1950. His equipment consists of surplus Navy transmitters as exciters driving a pair of 806s to a kilowatt input when required, and SX-71 and BC-312 receivers.



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 written communications in which the person signing does not indicate his call letters after his name. The Circulation Department is continually having trouble with new memberships or renewals who sign their names without indicating any call letters — and then write us vitriolic letters because they are given associate memberships.

But in this column we are not concerned with that. What does concern us is the increasing tendency of members of the fraternity to remember names instead of call letters, and to refer to each other, even among ourselves, by our names instead of our FCC-assigned call letters.

"Handles" are fine for adding a personal touch in a QSO, but we should watch out that we don't remember the "handle" and forget the call, which is the first step toward using our full names on correspondence without adding the call letters which are so necessary to identify you not only on the air but in all amateur radio circles. When you write to ARRL, or when you have any occasion to sign your name on any matter which concerns amateur radio, *add your call letters.* They serve to identify you to us here at Headquarters and to all parts of the radio amateur fraternity much better than does your name.

—•••—

Your attention is invited to an item in "Happenings of the Month" of this issue concerning an order recently issued by the National Production Authority which will give amateur radio operators priority assistance in obtaining controlled materials and scarce parts and components. The order makes specific mention of the AREC, the National Traffic System and the National Emergency Net, and we strongly urge that all AREC members study it carefully. Your EC has received a complete text of the order along with additional interpretative information.

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On July 3rd at 7:00 P.M. the Disaster Chairman of the Alton-Wood River Chapter of the A.R.C. alerted the Mobile Communications Corps of the Egyptian Radio Club and asked for communications between the Red Cross Headquarters in Alton, Ill., and the levee districts between the Mississippi and Missouri Rivers, which converge just a few miles south of Alton, Illinois and north of St. Louis, Missouri.

W9AIU was immediately put on 29,640 kc. and for the next three days arranged for mobile operators in the flood area. Little did we think that the operation would last until July 18th. W9AIU is located within a mile of the Mississippi, just across the river on the Illinois shore. It looked like a hopeless task to save the levees with the volunteer workers, but with the aid of the mobiles on 29,640 kc., sandbags, supplies, etc., were shuttled back and forth to the points where they were needed most.

In the beginning we used W9YZE tied directly into Red Cross Headquarters by telephone for Net Control. Later W9YZE closed his station and we used mobiles at the Red Cross Headquarters. Still later we moved directly into the RC headquarters with a complete 60-watt station (W9DJG). This gave Red Cross direct radio tie-in with the flooded area.

In a few days it became apparent that we would need handy-talkies in several spots formerly covered by mobiles. We were able to locate several 29,640 kc. handy-talkies to serve our needs. As the levees broke we would fall back to other positions and keep on operating. At the end of the first week, using from eight to ten operators continuously, it was obvious that we were going to have a hard time rounding up enough operators to supply communications to the workers, but by one method or another we managed to keep the net in operation. A big help to us were the ham operators who were assigned to the operation from Scott Air Base, 30 miles away. These fellows filled the gaps as the civilian operators went about their regular jobs. A 75-meter net was set up using W9LWH (Alton) and K9FAE (Scott Air Base) to control the longer haul traffic and to coördinate the hundreds of Air Force men who, by now, were in the area to help save the levees.

As the levees went out, one by one, some of the men and equipment were sent to try to save the Chouteau Island levee, just a mile from W9AIU. W9AIU went back on the air on a 24-hour schedule, handling the 75-meter traffic. From here on W9AIU was the center of activity and became net control, using 750 watts on 29,640 kc. and 700 watts on 75 meters, holding schedules with K9FAE and other stations in the flood area, and occasionally handling Kansas City flood traffic into St. Louis. The feeding of all the workers, shifting of equipment, directing of sandbagging, etc., was all handled directly by W9AIU and from there by land line and messenger to the Red Cross, U. S. Army Engineers and all other agencies.

W9BA, EC of St. Clair County, Ill., and WØRCE, EC of St. Louis, were of great assistance in supplying relief and replacement operators.

Space will not permit reproduction of a list of operators, but when the man hours are added together it will go up to many thousands. They walked the levees, rode the boats, mired their mobiles and burned up their equipment, but through it all, they worked as a team, proving that when the chips are down they can produce. They were members of many different organizations, but they pulled together to bring the operation to a successful conclusion. — *W9DJG, EC Alton (Ill.) area; W9THB, EC Granite City (Ill.) area.*

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Los Angeles SEC W6KSX reports that at a recent civil defense drill W6OYY conducted Net Control from aeronautical mobile. The boys believe this is the first time such a thing has ever been done in ham radio. As you can imagine, coverage of the NCS was excellent.

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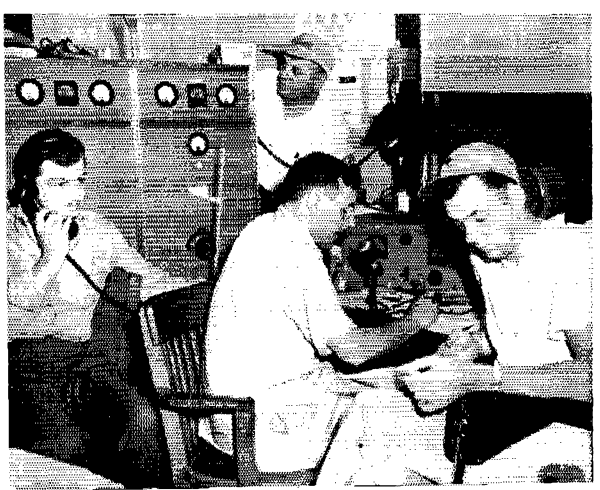
Shortly after one o'clock Sept. 21st a series of residential gas explosions in Brighton, N. Y., left over forty homes either wholly or partly demolished by explosion or fire and three people killed. As rapidly as word of the disaster spread, members of the Rochester Emergency Radio Net, mobile and fixed stations, began calling in on the emergency frequency for orders. The mobiles were requested to report to the Brighton Police Station where civil defense workers were directing activities. The fixed stations were directed to stand by for any inter-county or state relays.

It soon became apparent that we had a large-scale communication job to do, and a group of operators was assigned to work in two-hour shifts until midnight. The mobile group handled all traffic on 10 meters with headquarters



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The Egyptian Radio Club was a busy place during the height of flood activities in July. Located less than a mile from the Mississippi River on the Illinois shore just north of St. Louis, W9AIU served as net control for amateur networks on both 10 and 75 meters, running 750 watts and 700 watts respectively, using the equipment shown which is part of the club's gear. The three seated operators are Dr. R. C. Sanderman, WØBVL and WØQDF. Standing is EC Jansen, W9DJG.

set up at the Police Station. At first this was one of the mobile units, but later a fixed transmitter and receiver were moved in. Services were also set up for the Red Cross, the Brighton Fire Department, all hospitals and various other points. Fixed home stations monitored the emergency frequency and stood ready to handle traffic on the New York State Civil Defense 'Phone and C.W. Nets. Extra mobiles circulated around the area to check on conditions and transmit any necessary reports.

In all, 42 amateur operators took part, 26 of whom were mobile. Approximately 300 messages were handled including two out of county and one out of state. We terminated our services at 2:30 A.M. It was the unanimous opinion of the Red Cross and CD officials that the amateurs did a very good job, especially during the first few hours when other forms of communications were wholly inadequate. Those participating: W2s BZN CEZ CR DFS DJF DYD EPE FTF NES OWF PBC POT PSD PZC QAA QY QYT RIS RMS RUJ SAO SCZ SGJ SNI TEX TGK TZI UAD UTH VBH VUY VVG VZV WVX WWO YNX YPR YPW YUT ZHB ZS ZZS and K2BS. — *W2QY, EC Monroe Co., N. Y.*

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On Aug. 19th a forest fire, driven by a strong north wind, broke out of control on the west hills of Portland, Ore. A number of homes were in the path of the flames, and all residents were evacuated. W7s ACZ GOT IE OAU FJZ HAE and HSZ operated mobile units at the scene of the fire, and AEF operated as fixed control station. They were on duty from 9 P.M. until 7 A.M. The following night, the call came from the Red Cross for units to aid in further evacuations, and direct food supplies to the fire fighters. Mobile units W7s LMM FJZ JDX and NDB operated from 6 P.M. until 3:30 A.M. with FFJ and ORX as fixed stations, linking the fire line with Red Cross Headquarters. The Tualatin Valley Emergency Radio Club took an active part in fighting the fire with W7NDH/7 as control station and mobiles W7s PCB PAO ODZ NYC HTX and FY serving sheriffs' offices and several Fire Departments on Aug. 19–20–21.

The boys were highly commended by the Multnomah County Police and by the Red Cross. Mention of the participation was made in all local newspapers. — *W7HDN, SEC Ore.*

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In late August a serious forest fire, called the Three Creeks Fire, struck Humboldt County, California. Seventeen miles of hose were required to fight the fire. Amateur radio played a very important part. Members of the Humboldt Amateur Radio Club and the AREC, headed by EC W6SLX, handled the bulk of the radio communications. Although the operation was conducted using Forest Service equipment on Forest Service frequencies, the amateurs who conducted the operation were all volunteers whose training in emergency procedure was especially useful. The local press and Forest Service officials were lavish in their praise of the work done by the volunteer amateurs. — *W6ATO, SCM San Francisco.*

NATIONAL CALLING AND EMERGENCY FREQUENCIES

C.W.	*'PHONE*
7100 kc. (day)	3875 kc.
3550 kc. (night)	14,225 kc.
14,050 kc.	29,640 kc.
28,100 kc.	

During periods of communications emergency these channels will be monitored by stations of the National Emergency Net for personal-inquiry 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* — 3815, 14,160 kc., 28,250 kc.

ELECTION NOTICE

(To all ARRL members residing in the Sections listed below.)

You are hereby notified that an election for Section Communications Manager is about to be held in your respective Sections. This notice supersedes previous notices.

Nominating petitions are solicited. The signatures of five or more ARRL full members of the Section concerned, in good standing, are *required* on each petition. No member shall sign more than one petition.

Each candidate for Section Communications Manager must have been a licensed amateur for at least two years and similarly a full member of the League for at least one continuous year immediately prior to his nomination.

Petitions must be in West Hartford, Conn., on or before noon on the closing dates specified. In cases where no valid nominating petitions were received in response to previous notices, the closing dates are set ahead to the dates given herewith. The complete name, address, and station call of the candidate should be included with the petition. It is advisable that eight or ten full member signatures be obtained, since on checking names against Headquarters files, with no time to return invalid petitions for additions, a petition may be found invalid by reason of expiring memberships, individual signers uncertain or ignorant of their membership status, etc.

The following nomination form is suggested: (Signers will please add city and street address to facilitate checking membership.)

Communications Manager, ARRL [place and date]
38 La Salle Road, West Hartford, Conn.

We, the undersigned full members of the.....
.....ARRL Section of the.....
Division, hereby nominate.....
as candidate for Section Communications Manager for this Section for the next two-year term of office.

Elections will take place immediately after the closing dates specified for receipt of nominating petitions. The ballots mailed from Headquarters to full members will list in alphabetical sequence the names of all eligible candidates.

You are urged to take the initiative and file nominating petitions immediately. This is your opportunity to put the man of your choice in office.

— *F. E. Handy, Communications Manager*

Section	*Closing Date*	*SCM*	*Present Term Ends*
Utah	Dec. 14, 1951	Leonard F. Zimmerman	Dec. 20, 1951
West Virginia	Dec. 14, 1951	Donald B. Morris	Feb. 15, 1952
Ohio	Dec. 14, 1951	Leslie Misch	Resigned
Alabama	Dec. 14, 1951	Lewis C. Garrett	Resigned
E. New York	Dec. 14, 1951	George W. Sleeper	Resigned
Illinois	Dec. 14, 1951	Lloyd E. Hopkins	Resigned
Georgia	Jan. 2, 1952	James P. Born, jr.	Mar. 8, 1952
Washington	Jan. 2, 1952	Laurence Sebring	Mar. 10, 1952
Yukon *	Jan. 15, 1952	W. R. Williamson	Mar. 17, 1949
Tennessee	Jan. 15, 1952	D. G. Stewart	Mar. 31, 1952
Arizona	Jan. 15, 1952	Jim Kennedy	Apr. 1, 1952
Alaska	Jan. 15, 1952	J. R. Nichols	Resigned
Connecticut	Feb. 1, 1952	Walter L. Glover	Apr. 14, 1952
San Francisco	Feb. 1, 1952	R. F. Czeikowitz	Apr. 14, 1952
San Joaq. Val.	Feb. 1, 1952	E. Howard Hale	Apr. 15, 1952

* In Canadian Sections nominating petitions for Section Managers must be addressed to Canadian Director Alex Reid, 169 Logan Ave., St. Lambert, Quebec. To be valid such petitions must be filed with him on or before the closing dates named.

ELECTION RESULTS

Valid petitions nominating a single candidate as Section Manager were filed in a number of Sections, as provided in our Constitution and By-Laws, electing the following officials, the term of office starting on the date given.

South Carolina	T. Hunter Wood, W4ANK	Oct. 15, 1951
Vermont	Raymond N. Flood, W1FPS	Oct. 15, 1951
Western New York	Edward Graf, W2SJV	Nov. 21, 1951
Quebec	Gordon A. Lynn, VE2GL	Dec. 15, 1951

In the New Mexico Section of the West Gulf Division, Mr. Robert W. Freyman, W5NXE, and Mr. Clarence L. Fields, W5KWP, were nominated. Mr. Freyman received 81 votes and Mr. Fields received 29 votes. Mr. Freyman's term of office began October 20, 1951.

• 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, Jerry Mathis, W3BES — FPC has received his appointment as a c.d. radio operator for Philadelphia. He desires to see more 10-meter activity after midnight. PSH now is a member of the armed forces net on 20-meter 'phone handling traffic for Philadelphia. PDJ has a new 813 rig working on 7 Mc. OSE is attending Lehigh University. RCE and RFI have gone QRO with new rigs. The sponsors of the W3BQ memorial station expect to be on soon. ADE has a new HRO-50, is now Class A after 29 years, and will be active as an OO and on the E. Pa. net. AXA is active on the 3RN net and the York-Lancaster 2-meter disaster net. 8CNZ has become active again in Indiana, Pa., after a silence of 15 years. He has a 32V on 29,425 kc., the Western Pennsylvania emergency net. He also checks into the W. Va. 'phone net nightly on 3890 kc. in case any of his old pals wish to renew acquaintance. The E. Pa. net resumed operation Oct. 3rd on 3610 kc. The net convenes at 6:30 P.M. Monday through Friday. CUB has a new 48-foot triangular self-supporting tower with a 20-meter wide-spaced beam aloft. DHM engineered and erected the job. G6TF visited our fair city and made very enjoyable chit-chat about ham radio in England. The Philadelphia Area Council of Radio Clubs continues to perform valuable service to the public and to the radio amateurs of the section. The Northeast Radio Club has signed up with Philadelphia c.d. and has the responsibility of operating a district control center. The South Philadelphia Radio Club is becoming active and is performing a like service in its territory. The Philadelphia hams plus the Philmont Mobile Club assisted in a public c.d. test and received favorable newspaper publicity. Traffic: W3CUL 4954, PSH 84, HA 27, BIP 23, PDJ 11, CAU 10.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA — SCM, James W. John, W3OMN — Effective Oct. 1, 1951, three Assistant Section Emergency Coördinators were established for this section — one for Delaware, one for Maryland, and one for the District of Columbia. These three Area Coördinators have full responsibility for the development and operation of the AREC within their respective political boundaries. John Gore, PRL, was appointed for the State of Maryland and Walt Lockhart, PWB, was appointed for the District of Columbia. An EC will be appointed for each county in the two states and determined areas within the District of Columbia upon recommendation by the State EC to the SCM. Assistant ECs will be appointed for each club, or community as required. An organized Amateur Emergency Corps is required for each town, county, and state if we are to develop a recognized Radio Amateur Civil Emergency Service. The success of this program is largely dependent on the support each amateur radio operator gives his local EC. On Sept. 22nd the Washington Radio Club held a well-attended and successful Hamboree at Palisades Park in the District. 2- and 10-meter Hidden Transmitter Hunts and mobile installation contests were among the events featured. Numerous prizes were awarded and everyone attending enjoyed this annual picnic. The Baltimore Amateur Radio Communication Society installed the following officers on Oct. 1st: PRL, pres.; PSP, vice-pres.; RLR, treas.; and QMD, secy. The Rock Creek Amateur Radio Assn. held a social session for its meeting in September. NNX reports the Maryland Mobile Club has more than 50 mobiles and bi-monthly drills are held on 29,560 kc. Chesapeake Amateur Radio Club meetings during September stressed the amateur's part in civil defense. TT, formerly 4GR, is organizing a 75-meter "Maryland 'Phone Net." Those interested should contact him on the air or at 2618 Elmont St., Silver Spring, Md. WN3SBY received traffic from DL, who was airborne. RDQ has started handling traffic. ECP is completing equipment for his mobile. PRT has made WAS. CDQ attended the Richmond Hamfest. Traffic: W3QZC 155, CVE 111, CJT 12, CQS 8, ECP 8, TT 8, COK 7, NNX 6, JHW 4.

SOUTHERN NEW JERSEY — SCM, Lloyd L. Gainey, W2UCV — The SJRA annual picnic, held Sept. 10th, saw one of the largest gatherings of hams in this section in many years. Total registration was well over 400, including 203 hams. Hidden transmitter hunts on 10 and 2 meters attracted 26 mobile units. The 2-meter hunt was won by 3DQE, with JAV second. The 10-meter hunt was won by YPQ, with ZFA second. Because of a change in weather forecasters, REB take note, it was a beautiful day! The S.J. emergency net, both fixed and mobile on 2 meters, received net frequency crystals purchased by the City of Camden. JRO and ZEA should be commended on their fine Novice training program. ASG has solved the dead-battery problem in his mobile rig by installing a 50-amp. police generator. WN2BLV wasted no time in putting a potent 'phone signal on 144 Mc. NBJ has taken over control of the 10-meter mobile emergency group. ZI is very active in local c.d. work. SPV has his new radio teletype rig on 144 Mc. ZNO and ZEW are temporarily off 144 Mc. because of lack of an antenna. The Hamilton Township Radio Assn. held its annual picnic on the grounds of the New Jersey School for the Deaf. A fine time was had by all. Attention club secretaries, would appreciate scuttlebutt of your club activities for this column. Traffic: W2BG 108, RG 36, ASG 15, ZI 10.

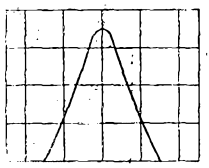
WESTERN NEW YORK — SCM, Harding A. Clark, W2PGT — SEC: SJV. RM: RUF. The traffic season is off to a good start with COU and RUF making BPL. Third highest traffic total was made by TPN on 'phone. The New York Slow-Speed Net now is operating on 3625 kc. at 8 P.M. Mon. through Fri. and looking for new members interested in handling traffic. EMW has cured a bad case of chirps by using a cathode follower VFO. COU has been appointed Manager of 2nd Regional Net. QWE and RDJ have been promoted by the Niagara Mohawk Power Corp. and have moved from Utica to Syracuse. The Rochester gang proved its alertness by establishing the first communications in the Brighton disaster. About 50 amateurs participated and handled approximately 300 disaster messages. QY and his gang are to be highly commended for a job well done. FMH is seeing some of the gang before leaving for Florida. The New York State 'Phone Emergency Net is operating on 3970 kc. each Sun. at 9 A.M. FCG, SJV, and UTH have been appointed Zone Coördinators by the state c.d. office. Traffic: W2COU 513, RUF 505, TPN 227, FE 206, DJF 137, PGT 71, NAI 65, OE 49, EUQ 22, RUT 19, W3JEX/2 16, K2DG 13, W2PYC 6.

WESTERN PENNSYLVANIA — SCM, Ernest J. Hlinsky, W3KWL — The resignation of OMA has left the section without a good Section Emergency Coördinator. It is with regret that we have to accept the resignation of another good EC. It is tough to lose one like UHN, but as your SCM I can only sympathize with him and the other ECs who find the going rough. AAX tells us the traffic bug has got him again. He is heard on WPA traffic net and is going great guns on a mobile rig. MIZ, NUG, and UHN take over as NCS and are doing a swell job in the traffic net. NRE gets the bunch of roses for handling a staggering total of 1115 messages for the month of September. Say, who said that ole Sergeant GJY got sender's cramps. During the Allegheny County Fair he handled a total of 1028 messages. Our newly-appointed OO Class IV has been making use of his appointment. His log of bad signals heard all around the country shows how many of us still can make improvements in the rig. KYR, the St. Marys Boys Club station, reports they maintain sked at midnight with K4USA. KNQ says he is unable to hear the W. Pa. net because of bad line noise. ODU says he likes his new NC-183 receiver. AER sends in his report telling us that AEV now is using a three-element beam on 14 Mc. RIS is active at new QTH with 60-ft. tower. OFO, worked by your SCM, made it feel like old times. NKM and RUE were heard knocking 'em off on the recent 2-meter Aurora opening. LNA is building a new 2-meter converter. LST says his 522 receiver is the best yet over commercial converters since he added a 6J4 preamp. Up Erie way QKI and WBM are heard nightly on 144 Mc. In Jeannette, our old friend UVD says he is doing OK with his art course. NJH is going to the Tydings Television Course. OOA is thinking of building a super 'phone rig. Remember, you boys supply the material and I will do my best to give you the information through this column. Traffic: W3NRE 1115, GJY 1028, KYR 36, KWL 22, NUG 20, AER 12, AAX 9, UHN 8, MIZ 5, ODU 2.

CENTRAL DIVISION

INDIANA — SCM, W. E. Monigan, W9RE — Send your reports to DGA, newly-elected SCM of Indiana, 1321 Governor Street, Evansville. SEC: PHV. RM: RCB.

(*Continued on page 80*)



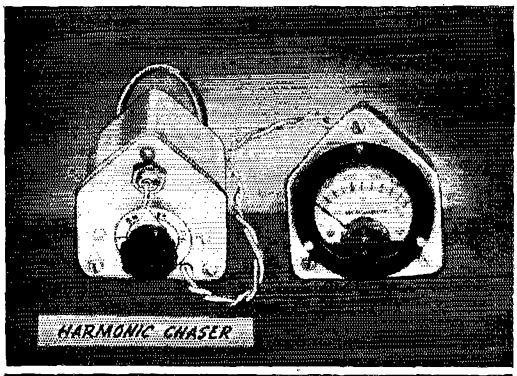
ALONG about 1946 or 1947 the League through *QST* started a campaign for increased selectivity and stability in amateur receivers. The need for this improvement is now well known, especially by those courageous souls operating twenty meters. Unfortunately, no magic method, with the possible exception of the lattice crystal networks, has been developed to get painless selectivity. It still takes many tuned circuits of proper Q to get desired nose bandwidth along with sharp skirts. The HRO-50-1 is a typical example of multiple tuned circuits to get desired i.f. response. This is all an old story up to here. To the people not fortunate enough to own an HRO-50-1, and who are contemplating building sharp filters to work with their present receivers, we want to pass along some information possibly overlooked.

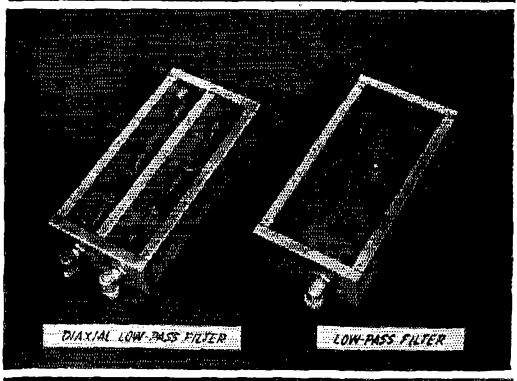
If the unit is designed to follow the present i.f. frequency without converting, it is necessary only to insure that the last i.f. stage in the receiver proper is not overloaded. If the i.f. output is fed to a unit where immediate conversion takes place it is quite a different story. The converters generally used have a definite limit on the amount of signal they will handle without overload, in some cases as low as .5 to 1.0 volts. The i.f. in the receiver is capable of developing as much as 100 volts, much more than is necessary to overload the converter. In this case overloading doesn't mean shortened tube life. It means cross modulation of the desired signal by every other signal strong enough to overload the converter. Since the purpose of the adapter is to reduce interference, it immediately becomes apparent that the strongest signal must not produce more than about .5 volts at the converter. If the gain is set in the receiver to get this, the weakest signal, possibly very near the strong one, needs maybe 60db. to bring it up to a high enough level to produce adequate audio output. The signal from the receiver can be attenuated to protect the converter if sufficient gain is built into the filter. It may sound ridiculous to attenuate the output by some method and then build in gain to get the signal back. It is even more ridiculous to expect to hit a converter with 20 to 30 volts of undesired off resonant signal and pass, unharmed, the desired signal of about .5 volts. The keying or modulation of the undesired signal will ride on the carrier of the desired signal and defy removal at this point. Although filters without gain offer some improvement their value is quite limited in the presence of strong off-resonant signals. To sum up the story, prevent overload in the receiver i.f. amplifier by intelligent use of the r.f. gain control, protect the converter in the adapter by using only a part of the signal available from the receiver, and build gain *after* or *cascaded with* selective circuits.

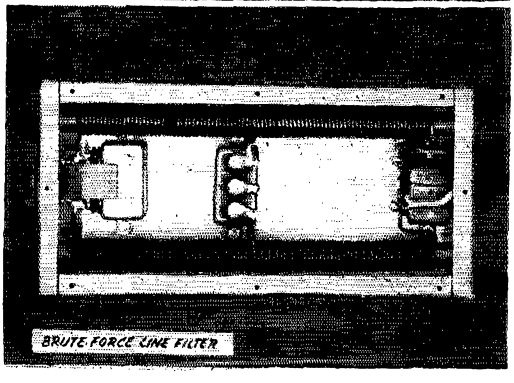
ED HARRINGTON, W1JEL

CIVIL DEFENSE NEEDS YOU—

—AND TVI IS NO EXCUSE • ELDICO'S PRODUCTS AT YOUR FAVORITE DISTRIBUTOR







ACK RADIO SUPPLY CO.
2205-3rd Ave. No.
Birmingham 3, Ala.

ALLIED RADIO CORP.
833 W. Jackson Blvd.
Chicago 7, Ill.

ALMO RADIO CO.
509 Arch St.
Philadelphia 6, Pa.

WALTER ASHE RADIO CO.
1125 Pine St.
St. Louis 1, Missouri

GEORGE D. BARBEY CO.
2nd & Penn Sts.
Reading, Pa.

BLUFF CITY DISTRIBUTING CO.
905 Union St.
Memphis 3, Tenn.

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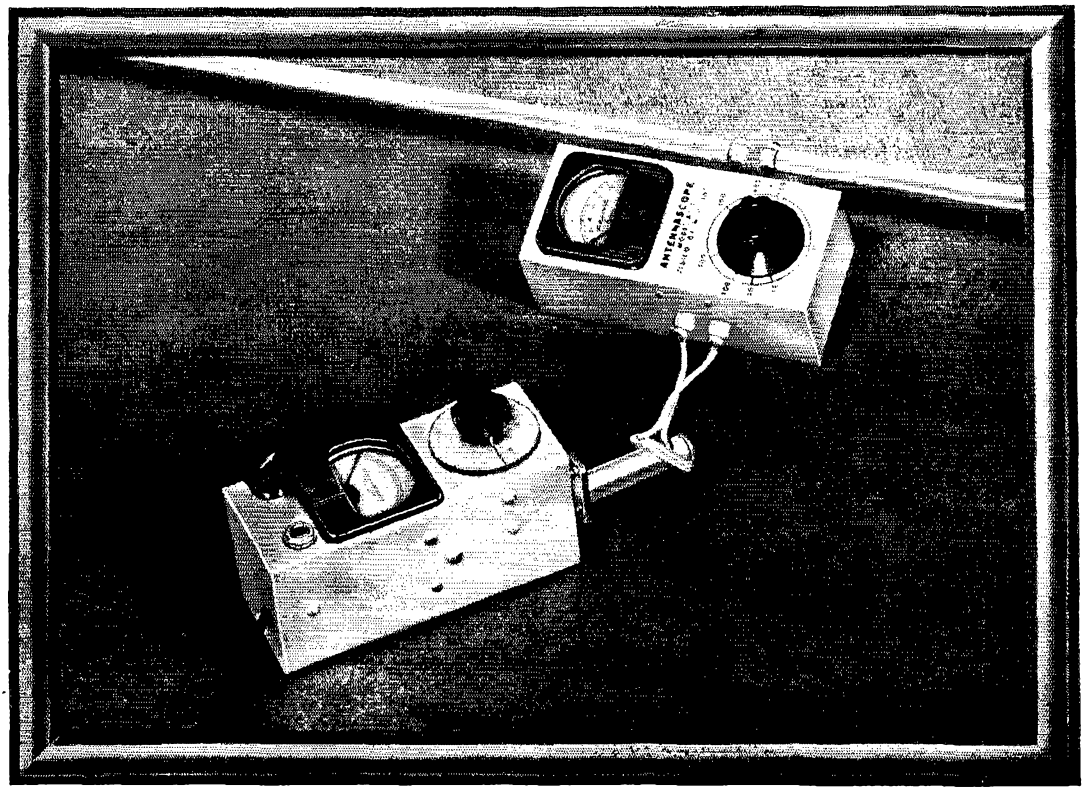

These are critical days for everyone and as a result amateur radio is doubly important. It remains the all-important emergency communications service for disaster and Civil Defense. It still affords amateurs an opportunity to relax and enjoy themselves while training and developing their skills . . . better fitting them for tomorrow's hard task on the home front and abroad.

TVI has forced thousands of amateurs off the air and, we say, needlessly! You can operate your transmitter, if it reasonably adheres to accepted engineering practices, by incorporating the tremendously effective TVI elimination accessories popularized by Eldico's amateurs and engineers.

Every station returning to the air becomes a valuable national asset. Do your part and stay on the air with ELDICO.

(PICTURED ABOVE)

GRID DIPPER
Based on the original grid-dip oscillator designed by W2AEF, the new model incorporates all the improvements to the basic instrument. The Grid-dipper kit includes a special case, tube, internal power supply and 0-1 ma. meter.
Range: 3Mc.–250Mc. in six steps.
Input: 105–125 V. 50–60 Cy.
GDO, complete kit with assembly and operation instr.....**$29.50**
Wired and tested, additional.....**$13.50**

ANTENNASCOPE
The instrument to give you positive antenna performance and efficiency resulting in less TVI. An impedance measuring meter used in conjunction with the Grid Dipper. Measures radiation resistance, resonant freq., transmission line impedance, receiver input impedance, feedline standing wave ratio, etc. Each kit complete including 100 μa Meter.
ANTENNASCOPE—complete with instructions **$24.95**
Wired and tested.....**$29.95**

(PICTURED ON OPPOSITE PAGE)

HARMONIC CHASER
Modified absorption type wavemeter for locating, measuring and identifying transmitter harmonics. Will not swamp from the fundamental. Requires an external current indicator as listed below:
TVH—complete kit with instr. Less meter.... **$6.98**
TVH—wired and tested. Less meter.....**$10.98**
TVH500—500 μa Meter in matching case.. **$7.50**

LOW-PASS FILTER
ELDICO's now famous TVD-62 is a two section M-derived low-pass filter supplied with coaxial connectors for the input and output. Attenuation of harmonics radiated by the antenna is in excess of 60db. The TVD-62 will handle up to 1 kw. A.M. and is designed for 52 or 72 ohm coaxial feedlines.
TVD-62 Complete with instr..... **$9.99**
TVD-62 Wired and tested. **$12.99**

HIGH-PASS FILTER
ELDICO's famous, compact, high-pass filter for reducing and eliminating r.f. from the TV receiver. Quickly and easily assembled in minutes. Install directly at antenna coil of TV Receiver.
Size: 2¾" x 1¾" x 1"
TVR-300: 300 ohm Filter.. **$1.98**
TVR-62: coaxial 52–77 ohm **$1.98**
Either filter wired, tested.. **$3.98**

BRUTE FORCE LINE FILTER
R.f. feeding back through the power lines is a serious source of TVI and BCI. Patterned after the recommended model in the ARRL Handbook, the brute force line filter kit comes in 2 models—1 kw.; and 2.5 kw. The TVL-1KW supplied with heavy duty line cord and plug and female a.c. outlet receptacle. The TVL-2.5KW is equipped with BX clamps for securing a.c. lines.
TVL-1KW: Max. line drain of 1 kw. Complete kit with instr.....**$7.98**
Wired and tested.....**$10.98**
TVL-2.5KW. Max. line drain of 2.5 kw., **$13.98,** W. and T. **$19.98**

Signals of Distinction

Have you heard our "Private Tutor" Novice Course? See your distributor or our ad in QST, November, pages 70-71.

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(Continued from page 78)

PAM: BKJ. PAM/v.h.f.: DOK. As I turn over the records of the SCM's office to DGA, I want to wish him the best of luck and to thank all the amateurs for their efforts and their forbearance with the delays which occurred due to the small amount of time which I could spare for correspondence work. I hope now that I can spend more time on the air. I was not able to get to the convention because of the pressure of work but my thoughts were there with each of you. NZZ contacts VE8ML and VE8MA for traffic. YUR says Elkhart County net is set up but it's hard to get stations. OCH and OJR are new at Crown Point. SQN passed his 2nd-class radiotelephone exam. ANG sets up his garage door for 29.6 frequency. It seems local hams enjoy opening his door. BBC throws horseshoes with a curve. CVN has the big rig ready now. EHV has new Ford. HRH visited ARRL Headquarters. JFS has new 300-watt rig. KIE is aircraft mobile. MWM says 'phone is slumming since he has rediscovered c.w. Hi! MZE joined the Air Force. QLW is rebuilding. RCD moved to new antenna location. THD has new vertical. The 'phone men lost, despite VMS, in the annual ball game at the TARS Hamfest. OCL, ex-5LTD, 4LLR, and 4MWX are new members of TARS. NTR is Father Kevin Ryan, at St. Meinrod Abbey, and has 696 on 3.5-Mc. c.w. HRH is new president of TARS. BKJ visited Washington State on vacation. TT is Regional EC for Weather Bureau. BSZ is QRT on account of overtime work. JUJ has his Collins back so he made BPL again. Muncie mobiles made a trip to Cincinnati. South Bend now has two mobile radio organizations. There is more and more activity for c.d. and emergency training. Best of luck to all. Traffic: (Sept.) W9JUJ 925, NZW 513, TT 335, NZZ 280, TG 185, JBQ 95, LZI 55, DGA 22, QLW 9, RZS 9. (Aug.) W9JUJ 512, NZZ 432, TT 171, DHJ 78, DOK 20, DKS 5, YUR 3. (July) W9TT 379, NZZ 301, JUJ 292, DHJ 42, DOK 41, BKJ 17, BDP 8.

WISCONSIN — SCM, Reno W. Goetsch, W9RQM — SEC: UFX. PAM: ESJ. RMs: CBE, IQW. 'Phone net (BEN) 3950 kc., 6 P.M. daily. C.w. net (WIN) 3625 kc., 7 P.M. daily. SZL, Racine EC, together with LXY, IYP, HFL, KZZ, JDT, BVG, YPB, FKA, CFP, OVZ, HHM, UDU, WN9OKH, and OLB provided communication for the 100-mile cross-country Turkey Run of the Racine Motorcycle Club. Net certificates (BEN) have been issued to EBG, AYX, FWD, ZGL, and 8ZAZ. IQW has lined up the following as WIN NCS: Mon., LFK; Tues., CBE; Wed., IXA; Thurs., IQW; Fri., KKM; Sat., SFL; Sun., FXA. IXA is QRL with studies for CAA school. NLE worked 24 in 4 sections during the W-VE Contest. Appointments: New — NLE and OOD as OO, Class IV; YYY as Asst. SEC; LEE as OES. Renewals — OVO and SZL as EC; JBF as OES; OVO as OPS. DCK reports that the newly-organized Wolf River Club has the call OXR. JGG entered Marquette U. IHW has new Hunter Cyclemaster and HRO-50T1. DDG plans on amateur TV on 450 Mc. TQ worked VE3 on 144 Mc. New on 144 Mc. in the Milwaukee Area are EA, ESJ, and WN9OOI. BTI has a new beam. JBF worked a string of Illinois and Minnesota stations during September on 144 Mc. KXK was host to the Point Amateur Club's annual picnic and also the annual picnic of former Truax and Scott Field instructors, with BCV, NVJ, HID, EWC, ODL, and 8ECK attending. Madison FLARC had a well-planned emergency test with 10 mobiles and station at Red Cross Headquarters participating. FKA, IUQ and JDT now have their Advanced Class licenses. CBE again has taken over as CAN Net Manager. For real enjoyment and constructive operating, take part in the section 'phone or c.w. nets, Emergency Corps, and other organized operating activities. Appointments are open for OBS, OO, OES, ORS, and OPS. Contact me for details. Traffic: (Sept.) W9ESJ 371, IQW 77, IXA 61, CBE 59, MQV 32, DR 22, ANM 20, OVO 6, RQM 4, SFL 4, NLE 2, DCK 1. (Aug.) W9LFK 18, CBE 11.

DAKOTA DIVISION

NORTH DAKOTA — SCM, Rev. Lawrence C. Strandenaes, W0JWY — League officials in the section are: SEC: RRW. PAM: EOZ. RM: LHB. Please give these men your full coöperation, for only then can their work be effective. From Portal, DMK writes that he and BRS, both immigration officers, are active on 3.5-, 7-, and 14-Mc. c.w. KOY reports that IKM is proud of his new and third jr. operator. KOY's brother, KH6GF, paid her a visit this past summer. EVP, man of many skills, is expert in carving and woodcraft. FPW, of Bottineau, now is sporting a new 10-20 beam on windmill tower, full-wave flat-top on 75 meters, and a new RME-50. DBH and DBI have added a new NC-183 to their shack. RBS is portable-mobile on 3.8, 14, and 28 Mc. with a TBS-50. From CGM comes the report that there are no less than 7 hams in the city of Mayville. New hams there are DRE, DQB, and his XYL, DPZ. My term as SCM expires in December. I thank all for your coöperation during the past two years, and hope that all of you will give the same coöperation to your new SCM.

SOUTH DAKOTA — SCM, J. W. Sikorski, W0RRN — CNJ is attending School of Mines. HDO, formerly of Mitchell, now is located at 4195 Gardner Road, Salem, Ore., and is operating portable/7 on 3.5 and 3.8 Mc. The CQ Club, Aberdeen, held an outing and measured lake depths with sonar equipment. CAR, formerly of Mitchell, now is at 1433 Oriole Place, Brentwood 17, Mo., and can be found on 3.5 through 28 Mc. New "A" tickets went to AZJ and BHP. PVE is stepping out with new Viking and HRO-50T, and CSB with Johnson VFO. BWP is erecting 20-meter beam. The South Dakota c.w. net is in operation, with OJB as RM, on 3720 kc. The 'phone net is on 3900 kc. with UVL as NCS. The 160-meter net has selected 1905 kc. as the net frequency, with BTK as NCS, and FKE and ENV as alternates. They are operating Friday nights at present. We are contemplating publishing a South Dakota ham bulletin. I would appreciate your comments and suggestions. Traffic: W0PHR 38.

MINNESOTA — SCM, Charles M. Bove, W0MXC — Asst. SCM, Jean Walter, 0KYE. SEC: BOL. RM: RPT. SII is building a mobile rig for 50 and 144 Mc. TF now is mobile on 28 Mc. and Sam has a 40-foot windmill tower to support his beam. URQ also is mobile now. SW is the proud possessor of a new HRO-50T1. QIN now has stacked beams on 50 and 144 Mc. FID is attending the University of Minnesota. DON built a 50-watt rig on 7 Mc. for emergency work. 5EBF and HGC, of the Air Forces, now are portable 0 located at Wold Chamberlain Airport. WN0DZF and WN0DXZ are new hams. FDS donated a large trophy to the Minneapolis Radio Club. This trophy is to be given to the amateur who has made the most outstanding contribution to amateur radio in Hennepin County. The St. Paul Radio Club, Inc., recently celebrated its twentieth anniversary as a club. The Southwestern Minnie Radio Club, at Marshall, now is an affiliate of the ARRL. TKX has been keeping skeds with JA2KW and KT1OC and others. W0RWF and PKO took the Minneapolis hams on a tour through Northwest Airlines communications system which was very interesting. Join the Emergency Corps now. Drop a card to BOL or MXC for application blanks. Traffic: W0RXL 18, TKX 12, MXC 6, RA 6, FTJ 2.

DELTA DIVISION

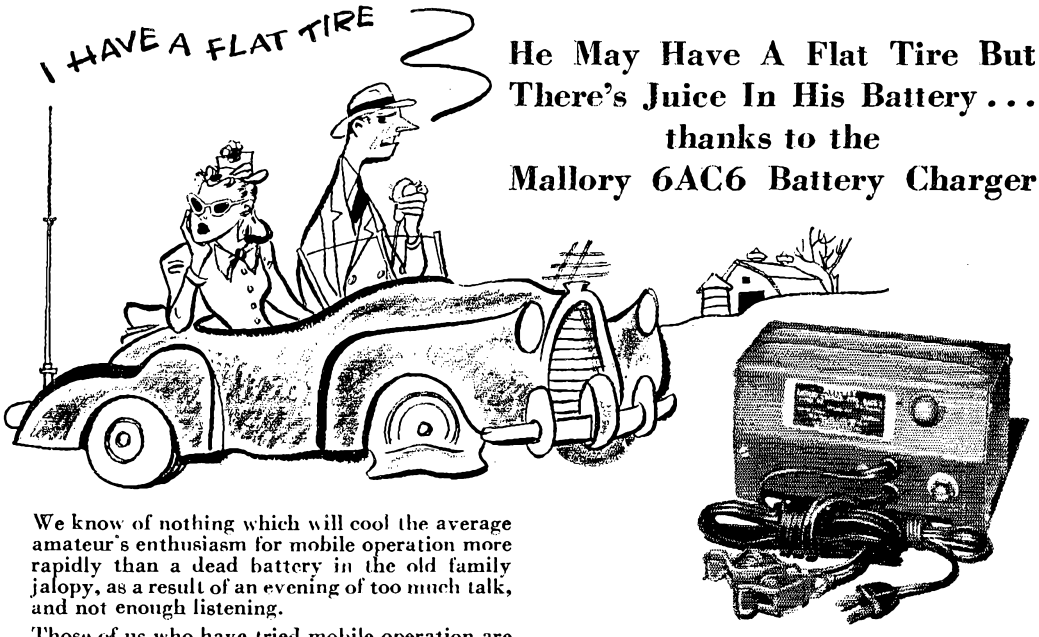
ARKANSAS — SCM, Dr. John L. Stockton, W5DRW — SEC: EA. RM: ANR. PAM: FPD. The Ozark Net was discontinued because of lack of activity and more interest in the slow-speed net. OEF/5 is Manager of the slow-speed net and MWE has been doing a good job as representative from Arkansas on the RN5 Net. ANR has been doing some mobile work on 3.8 Mc. and hopes that the MARS c.w. net can become more active. A good crowd attended the Devalls Bluff ham meeting and a fine time was had by all. We wish to welcome MU to North Little Rock after being away from the State with Collins for the past sixteen years. Welcome home, Bill. I would appreciate a little more news from the gang as it's hard to try and write these lines without much assistance from all concerned. Glad that OKU is active at Camp Chaffee and getting some traffic on the nets. Traffic: W5ANR 45, EA 40, DRW 36.

LOUISIANA — SCM, Robert E. Barr, W5GHF — The SCM visited the Webster Parish Fair in Minden recently and found an excellent display by the Minden Ham Club, with an active station on 75 meters, using the call of Bill Fritz, BZR/5. The latest newcomer to the ranks in Springhill is WN5TRQ, a graduate of the "on-the-air" code school of CNG. Aspirants for the different class amateur licenses are urged to take advantage of the CNG code instruction which is given on 3905 kc. each Mon., Wed., and Fri. at 0630 CST, lasting thirty minutes. NG continued his 40-meter traffic throughout the summer. DHE and the Baton Rouge gang have one of the best emergency set-ups in the South. Included in the Baton Rouge organization are stations in practically all communities within a forty-mile radius of the City. The Louisiana MARS has taken a big stride toward more consistent activity, thanks to the efforts of CEW, FMO, HEJ, FYZ, and others. Scheduled MARS net on 'phone is now for a full hour on Thursday night from 2100–2200 CST on 4025 kc. BMM is trying some mobile 75-meter operation, using CGC and CEW as his "guinea pigs." GHF has new beam under construction for 14 Mc. EVZ will engineer the 1952 license plate applications, as he so graciously did in 1951. K4USA had as a guest operator recently W5FMO of New Orleans. QAW now is on 75 meters to represent Haynesville on the Pelican Net. Would like to hear from the new licensees of the State, especially the WN5s. AXU still spends about half of his time operating MUW from the Rio Grande Valley. Traffic: W5NG 228.

MISSISSIPPI — SCM, Norman B. Feehan, W5JHS — AWP is new EC for Corinth. The Hattiesburg Club has elected the following officers: MUG, pres.; FGE, secy.; MRH, vice-pres. KYC has a pair of 715C tubes in 75-meter rig running 900 watts. WZ is building new rig for 10, 20, and 40 meters. SSB has moved to Bay St. Louis and checks into CFN, TFC, TCRN, and Hit and Bounce Nets; he also has a sked with JHS at noon for traffic from Keesler and the Gulf Coast. PGF has gone mobile on 10 and 75 meters. SCE has eliminated his TVI. QMQ, PGF, SMD, KYC, MRH, and FGE were busy in the Simulated Emergency Test. RUT and JFE check into RN5 each evening. IGW is heard on 40 and 80 meters handling traffic again.

(Continued on page 82)

MALLORY HAM BULLETIN



He May Have A Flat Tire But There's Juice In His Battery . . . thanks to the Mallory 6AC6 Battery Charger

We know of nothing which will cool the average amateur's enthusiasm for mobile operation more rapidly than a dead battery in the old family jalopy, as a result of an evening of too much talk, and not enough listening.

Those of us who have tried mobile operation are fully aware of the very difficult problem of how to keep the car battery charged adequately for starting purposes, and still provide plenty of juice for a reasonable amount of time on the air. Many schemes involving the use of heavy-duty Police type generators and even the installation of extra batteries to increase the ampere-hour capacity of the auto, have been tried with varying degrees of success in an attempt to solve this problem.

Most hams balk at such drastic measures which consist mainly of replacing or adding to perfectly good standard equipment already found on their automobiles.

Recently, one of our good amateur friends, who is a red-hot mobile fan, told us of a method he used for keeping his battery at top performance and still add no extra equipment to his automobile. His system sounded so practical that we'd like to pass it along.

Here is what he did. First, he visited his Mallory Distributor's, and bought a small, inexpensive Mallory 6 volt Battery Charger (the 6AC6) together with a special automobile Cigarette Lighter Plug (Mallory R-655) to be used for inserting the Charger output into the electrical circuit of his car. The Lighter Plug was attached to the Battery Charger cable and the whole business was then mounted conveniently in his garage. After an evening of mobile operation, he simply inserted the Plug into the cigarette lighter socket, turned on the 115V AC line, and the next morning, presto, his battery was ready for heavy starting action.

With this very convenient arrangement, this ham was able to operate his mobile rig the year 'round, with little fear of even tough winter-time starting.

Year 'round mobile operation which practically disregards winter-weather starting conditions sounds pretty good, doesn't it?

Incidentally, if your car is not equipped with a cigarette lighter, don't let that handicap you; simply ask your Distributor for a Mallory Dashboard Receptacle (R-652) which may be clamped to the dashboard without drilling a single hole. It'll provide the same electrical connection as the lighter socket.

There are Mallory Battery Chargers available from your Distributor's in capacities from 4 to 75 amperes. One of them should be exactly what you need for your own installation. Also, don't forget those other fine Mallory parts including ham band switches, push button switches, controls—rheostats—potentiometers—pads, dry electrolytic capacitors, tubular capacitors, ceramic capacitors, dry disc rectifiers, vibrators and Vibrapack* power supplies.

**Reg. U. S. Pat. Off.*

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MALLORY

TDP and QVI have new Viking transmitters. 4QBM now is 5TRK. WA has been checking into the Hurricane Net using emergency power. DLA, PGF, QMQ, and JFE are working Santa for new 32V-3 transmitters. Traffic: (Sept.) K5FBB 83, W5SSB 41, JHS 18, WZ 11. (Aug.) W5SSB 43, KYC 37.

TENNESSEE — SCM, D. G. Stewart, W4AFI — New appointee is RMJ as ORS. OGG, an active ORS, has moved to South Carolina. Welcome back to the fold, ex-LUH now 8HCH/4, and congrats on the Western Union Public Service certificate. The Davidson County 10-Meter Net is operating on a new frequency, 29.6 Mc. KGQ is a new mobile on 28 Mc. in Memphis. DQH recently made a trip to Florida, working 4 Mc. en route. RMJ is active on 3.6 and 4 Mc. and meets the Overseas Net daily on 3955 kc. at 0700 CST. IKG is mobiling on 14 Mc. ØPME was a recent visitor with PL. IIB is active on MARS and 4-Mc. TPN. FX has new fifty-foot mast. FWH/4 can be heard regularly on 4 Mc. from new QTH. FLW is plugging away on 50 Mc. and observing HHK's beacon four times daily. Memphis mobile amateurs are receiving Advanced First Aid instruction from the Red Cross. HHK and BAQ demonstrated a two-volt storage-battery-operated pack set for 28 Mc. and are working on auto-call units for guarding 28-Mc. Net. The MSARA was host to an FBI agent who delivered an interesting and informative talk. The Fountain City Amateur Radio Club celebrated its second anniversary in October. Traffic: (Sept.) W4PL 1980, OGG 57, IIB 43, AEE 17, BAQ 13, RMJ 10, FLW 4, AFI 2. NDC 1, PMR 1. (Aug.) W4BAQ 18.

GREAT LAKES DIVISION

KENTUCKY — SCM, I. W. Lyle, jr., W4KKG — The Louisville gang seems to have gone mobile in a big way. Mobile rigs are thicker than fleas around the town. Some of the fellows are sporting some fancy looking rigs too. VP now is pouring the coal to a pair of 4–125As and doing FB. FIN installed mobile while on vacation and is running 15 watts. RYL says bass are biting, DX fishing is poor! WBG is working on new electronic key but finds time to handle lots of traffic. Take time out right now, gang, to drop CDA a line and register for KYN. He and MWX are working hard on this net and as RMs have a tough job. KZF built a grid dipper and says every ham should have one. TPA is a new Novice Class licensee in Erlanger. OXT, first-class traffic man and fine operator, has been appointed ORS. MQ is working on new 75-meter antenna. Bob is PAM for Kentucky and requests that more of you fellows sign in on 3945 kc. for the Bluegrass Net roll call. BXU is starting to roll again. NBY takes traffic for Southeastern Kentucky on 'phone or c.w. CNE warms up on KYN again and is Monday night Net Control Station. MDB and KKG spent a nice week end at the Beverly Hills and the Cincinnati Hamfest! MOP and KMX are "Mobile Maniacs." ANA is ill at his home. Drop him a card, gang. OYG now is Class A and is building a 20-meter beam for a go on that band. Don't forget a report at the end of each month, fellows. Just a few lines on a penny post card will do. Traffic: K4WBG 226, W4MWX 72, NBY 45, CDA 19, KKG 11, MQ 6, BXU 5, OXT 5.

MICHIGAN — SCM, Norman C. MacPhail, W8DLZ — Asst. SCM ('phone): R. B. Cooper, 8AQA. Asst. SCM (c.w.): J. R. Beljan, 8SCW. SEC: GJH. RMs: UKV, YKC. New appointments: OBS to ERN; OPS to SPF; EC to YLA (Marquette County), III (Chippewa and Mackinaw Counties), YWF (Schoolcraft County), and ZXE (Iosco County). Winter schedules for Michigan traffic nets are as follows: BRNet, 3930 kc., 5:30 to 7:30 EST, Monday through Friday; QMN, 3663 kc., 5:30 through 7:30 and 10:00 P.M. Monday through Friday; MEN, 3930 kc., Sundays at 9:00 A.M. SCW reports both the QMN and the 8RN are rounding into shape. The Cherryland ARC gang is building a 200-watter with 812s p.p. in the final, according to SYQ. New officers of the Great Lakes ARC are: SS, pres.; UMI, vice-pres.; EO, secy.-treas. TDO, UMI, ERN, SPF, WFA, LU, CEP, and IBP make up the several club committees. Communications for the Fifth Annual AuSable River Canoe Races were handed by SYQ, DXH, DXJ, QPO, LU, DDN, YDK, YNG, ZWM, DAQ, YIZ, IKX, and AQA. The Kalamazoo ARC members are building 2-meter jobs for c.d. work, according to ELW. The Calhoun County Emergency Net meets regularly at 9:30 Sunday mornings on 29,600 kc. FLA has a new rig on 40-meter c.w. FFG is building a 100-watt job with 807s p.p. in final. HKT and GTM are having fun on 160 meters with converted H-T4 aircraft rigs running fleapower (about 6 watts). COW is going mobile with a tri-band outfit. The Grand Rapids ARC is conducting a 12-week class in theory and code with 93 signed up. The course covers basic theory, antennas, receivers, transmitters, operating procedures, power supplies, etc., with club members acting as instructors. EGI reports plenty of traffic from the National Scout Conference held on MSC Campus. New officers of Genesee County RC are: QIC, pres.; FBO, 1st vice-pres.; WXO, 2nd vice-pres.; FNQ, 3rd vice-pres.; FNQ, secy.; GJH, treas. Michigan needs some volunteers for OO appointment. FWQ reports MNQ now is Class A, FPW has moved to Port Huron and is teaching school there. Traffic: (Sept.) W8RJC 476, NZZ 374, ELW 190, EXZ 76, TZD 50, SCW 45, ZLK 41, DLZ 31, WXO 30, AQA 22, TBP 20, WVL 20, EGI 17, LR 14, SPF 14, SWF 10, UES 10, GJH 8, ILP 8, IV 8, FWQ 7, QIX 6, MQU 4, ZEE 4, FX 2, QPO 1. (Aug.) W8ELW 122, COW 39, IKX 28, AQA 14, QPO 10, YKC 10, LR 7, TQP 7, FFG 1. (July) W8YKC 12.

OHIO — Acting SCM, Jack Siringer, W8AJW — Asst. SCMs: C. D. Hall, 8PUN, and J. Erickson, 8DAE. SEC: UPB. PAM: PUN. RMs: DAE and PMJ. Because of the pressure of business Les Misch, HGW, has deemed it necessary to resign the SCM post. AJW will act in this capacity until a new SCM has been elected. NGW has been called back into active military service and is being replaced as QSL Manager for W8 by LJS. Norm's QTH is 701 East 240th St., Cleveland. As part of the c.d. program, the Cuyahoga County amateurs have been conducting Hidden Transmitter Hunts. According to LYD, EC, these have proven most successful. NGZ now is DL4PG. CPA is building a new 2-meter debugged (he hopes) rig. STQ, who has been ill for several months, has returned to the fold. The OCARC met Oct. 14th and the winner of the OCARC trophy, for the highest-scoring Ohio club in the last ARRL Field Day, has been determined. The BN completed a very successful summer season with no missed schedules. DAE is planning to operate the net 6 nights per week during the winter. The MVARC is making arrangements to handle traffic for the several hundred Puerto Ricans in Youngstown and are lining up the KP4s to help out on the other end. ZJM has applied for OTC membership. ARO is consistently making BPL. The Cuyahoga County 10-meter groundwave contest of Oct. 6th created much excitement, with 5 states being represented. Local honors may go to one of the following: FCX, FJR, or WML. New CACARC officials are PM, secy.; YPE, pres.; AGA, vice-pres.; and AJH, treas. The Westlake Amateur Radio Assn. meets the 2nd Monday of each month in the Fairview Park City Hall. New officers are PKB, pres.; and WZH, secy.-treas. YJE made DXCC Nr. 1329. Congratulations! FKC sent in an unusually interesting v.h.f. report. The *QS*, out of Springfield, tells us that VZE received his OTC certificate; that the club is sponsoring two contests, Club Contacts Contest and Band Contacts Contest, and that LBN recently worked his 11th state on 144 Mc. From up Toledo way we hear via *Shack Gossip* that the two XYL editors passed their General Class exams; and, oh yes, the gals are now coming forth with cooking recipes in the publication. The *R-F Carrier* of the DARA states that their membership is well over the 100 mark (paid up, that is) for 1952-53; KKH is back on 75-80 meters again after an 18-month layoff; that EC drills will be held each Monday at 8:00 P.M. and will monitor 29.64, 29.693, and 145.3 Mc., and that the gang really impressed John Q. Public with its "Montgomery Fair Ham Shack" at the County Fair. Judging from reports, the various summer hamfests, such as those of the Akron, Cleveland, Piqua, Cincy, and Findlay, etc. Areas, produced turnouts of several hundred people in all cases. Traffic: (Sept.) W8ARO 464, FYO 361, IB 186, DAE 105, QIE 12, AJW 11, BEW 11, PUN 6, DZO 5, LBH 5, DXO 4, LCY 4, ZJM 4, ET 2. (Aug.) W8ARO 324.

HUDSON DIVISION

EASTERN NEW YORK — SCM, George W. Sleeper, W2CLL — SEC: ILI, RMs: TYC and KBT. PAMs: IJG, NIV, and ILI. Traffic totals indicate that the traffickers are once again in full swing with their very worthwhile service. OPS, as well as ORS, should forward the SCM their monthly traffic totals — there is much traffic handled that is never reported. FGL has new rhombic ranch in Burnt Hills. UKA licked TVI and now needs TV-proof communications receiver. The SARA is holding regular meetings again. RYT, new EC for Schenectady County, reports his group all organized for c.d. APF is going to fire up the full gallon. VDQ is back from the Marines. Congrats to UDU on the new jr. operator. RYT had rust trouble with 20-meter beam. The AARA reports a full fall program. SOX will address a joint meeting of the AARA and SARA in November. PHO is doing well again with QTC. It is good to have Al on the nets again. Congrats to EFU on licking 40-meter TVI. SUL still is away in the wilds of Dutchess. LRW has new heater for 144 Mc. AWF and JQI really are serious about 144 Mc. They did a swell job with demonstration for local c.d. EYK is at Princeton using the call EEK. There still is no news from WARA. The Crystal Valley Radio Club is active with AREC-c.d. HCS, of glass arm fame, is teaching at high school — code! GTI sent a nice card from California. We still need an EC for Ulster County. Ulster is the last county on the AREC list. KBT is sending out swell NYSS bulletins. BNC is reporting as big QTC totals as ever. Keep it up, Helen. Your SCM extends to each of you his best wishes for a Very Merry Christmas and a Prosperous New Year. Appointments: RYT, EC for Schenectady County; MRR, EC for Rockland County; NOC as OO. Endorsements: BRS, EC for Rotterdam. Traffic: W2BNC 349, PHO 226, LRW 107, TYC 106, WBH 31, FEN 28, BLU 24, EFU 19, BRS 16, AWF 6, CLL 3.

NEW YORK CITY AND LONG ISLAND — SCM, George V. Cooke jr., W2OBU — Asst. SCM, Harry J. Dannals, 2TUK. SEC: SYW: RM: TUK. With the start of

(Continued on page 84)

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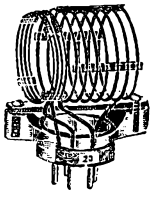

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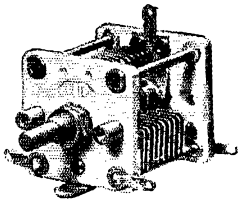

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the new season all appointees and affiliated clubs were alerted to action by attending a section meeting at which plans were formulated for increasing activity and interest in the many ways of getting pleasure from our hobby by participation in the many forms of appointment. Increased interest already is noted. At a picnic held by the AREC at Hempstead Lake Park 17 members, 2 SWLs, and 10 YLs and XYLs had a grand time. Our SEC, SYW, now is in new QTH at West Babylon. Rural areas seem to be coming through with reports of greater activity than the cities in the AREC. Smithtown now has 7 mobiles in its set-up operated by GNI, HAR, DID, HFD, CBW, JFU, and PZE, with UGH expected to return soon from W6-Land. They are on 29.6 Mc. and JFU is trustee of GSW c.d. station. WN2IDK reports into the Suffolk 2-meter net. There is some 6-meter activity near Brookhaven and the 10-meter net is progressing with 4 drills during the month. In Nassau County, FI as EC, three new Novice stations, KFV, KAE, and KDP, are active. QOW reports into the State c.d. 80-meter net. C.d. headquarters stations are manned each drill night at Malverne, Baldwin, Freeport, New Hyde Park, Franklin Square, Oyster Bay, Bayville, Hicksville, and Hempstead. In Queens, with DIC as NCS reporting, test drills were held on 10 meters attended by 12 stations with excellent results. In Kings County, BIV as EC, DXN and ZLK are active in the State c.d. net. 2-meter activity is building up quite rapidly. BBE now is Asst. EC for 10-meter net. In the Queens nets, YAN, WHY, CVU, and ZCS have received Section Net certificates for good attendance and activity. The NLI Traffic Net, with TUK as RM, has changed its operating frequency permanently to 3630 kc. and finds increased interest and a growing volume of traffic being handled. Write HJ or meet him on the air for full information on how you can get in on the net and help cover the section in handling the great amount of traffic coming this way. VVP, active at KYN, has earned his ORS appointment. MQB, participating in TCPN, has received his ORS and OPS certificates. YJD has been called into the Air Force. CYK and his XYL, EEO, QSOed their daughter, GPK, at State Teachers College, Oneonta, on first on-the-air contact from school. What a family! The Mid-Island, Nassau, and Lake Success Clubs handled 200 messages out of the Mineola Fair. Have you seen the new Lake Success Club banner yet? It's something to look at. BYB and JKX are new calls in Hempstead. A Novice license advancement training net is planned for 3710 kc. Novices are urged to get in and reap benefits from OT's efforts. UNS now is at Camp Cooke, Calif., and works Mid-Island gang on 7 Mc. AOD, that intrepid 420-Mc. enthusiast, worked 3BSV, Salisbury, Md., for best DX on that band. QBM, AOD, DGF, and CEP are the 420-Mc. gang here. UUM, LUC, and LDP are new members of the New York Radio Club. BO did it again, earning another BPL certificate. WN2IVA, jr. operator of PF, is active on 3.5 Mc. New Tu-Boro Club members are PQM, WN2ITJ, and WN2LRN. The Club conducts code classes at each meeting. Contact LGK for details. IAG, 10-meter EC for Queens, asks all counties in the section to check in on 29.64 Mc. Thursdays at 1930. IN made a trip to Panama and did some DXing from down there. Traffic: W2BO 529, OBU 253, UBW/2 200, OUT 139, OJX 131, MQB 103, EC 79, BIV 60, VL 50, JBQ 36, DXN 30, PF 21, KYN 10, LGK 10, IAG 7, IN 6, GP 4, LPJ 4.

MIDWEST DIVISION

IOWA — SCM, William G. Davis, WØPP — SCA again leads the gang in traffic with 559 and earns another BPL certificate. He reports T.E.N. moving to 3540 kc. New members of TLCN are DDV and DEY. TLCN resumed regular skeds on Oct. 1st. YTA has new YL jr. operator born Sept. 15th. He also reports an 813 going on 3.5, 7, and 14 Mc. CFX reports his new antenna is up and he's raring to go. NYX reports a virus infection knocked him for a loop. DNR is a new ham in Waterloo. The Waterloo Club station has its new call, DVL. BDR reports his wire recorder went haywire so his traffic score is low. Those hams of the Des Moines Club taking part in the simulated bombing exercises were AUL, BBE, DFH, DGF, DCV, DQD, IYW, WMM, VQG, OLY, PJV, SVD, UOI, UOJ, WGJ, RV, GBB, HIB, WCH, IQS, and WIJ. Herman Hazel, WNØEDL, is the first Novice licensee to report to the SCM. Give him a lift, fellows. NTB and AEH reported from the West Coast while on vacation. Otherwise no 'phone men sent in a report. Traffic: WØSCA 559, QVA 56, YTA 35, CFX 31, NYX 16, BDR 14.

KANSAS — SCM, Earl N. Johnston, WØICV — SEC: PAH. Asst. SEC: UPU. RM: FDJ. PAM: HEC. Activity on the QKS net is increasing. If you have never called in, don't be bashful. Do it now and give Arno the support he is entitled to. The KVRC gang of Topeka has gone overboard on transmitter hunts. On September 16th and 30th more than twenty participated with a picnic following. Both clubs in the Kansas City Area, the Jayhawk Amateur Radio Society and the Johnson County Radio Amateurs Club, are now affiliated with ARRL. The JARS is one of the first clubs to sponsor a net for the Novices. Frequency is 3716 kc. Sundays, the time is 4 P.M. YFE, of Manhattan, is building gear for 50 and 144 Mc. DRL, of Topeka, has finished a five-element beam on 144 Mc. and is working into Kansas City and out to Greenleaf, Kans. CED, of Garden City, has resigned as EC because of a new job with Northern Natural Gas Co. He will be on the road somewhere between Minnesota and Texas servicing Motorola mobiles and fixed stations. The Southeastern Kansas gang, headed by HEC, EGN, LIX, BNU, NXJ, and others, engineered an FB picnic at the Country Club in Independence, Oct. 7th. Unable to attend because of the flu we heard that more than fifty hams were registered, sixteen mobiles were on the grounds, and drew as far west as Dodge City and south down into Oklahoma. The group also is formulating plans to organize a club for the Southeast Kansas gang. Traffic: WØNIY 74, KXL 7, LIX 5.

MISSOURI — SCM, Clarence L. Arundale, WØGBJ — AJD works TCRN regularly. ARH is working 20-meter 'phone DX. GAR now is located at Brentwood and is building a T-55 final. CKQ is assisting NCS on MON Net. EBE now has completed modification of Collins 75A-1. FIR is working on big rig. GAR is keeping schedule on TXN. GCL is building 10-meter mobile rig. HUI has installed co-ax relay for his new receiver. ICW is putting the finishing touches on 2-meter rig. LNK has received his 35-w.p.m. Code Proficiency certificate. OUD has new electronic key in operation. PME has returned from Germany. PLJ runs 90 watts on 2 meters and is looking for more contacts. PTG and QMF are in the process of constructing equipment for 50 and 144 Mc. QXO is home from the hospital with his back in a cast. WAP says the new 100-watt rig needs a shot of Flit for minor bugs. 5KVW now is in Missouri and preparing to operate on 3.8 and 144 Mc. GYB, ex-WØVMO, recently returned to Springfield and will be on the air again. MON is badly in need of St. Louis net members to handle St. Louis Area traffic. MON is operating on 3580 kc. at 1900 CST, Monday through Friday. SAN has changed scheduled frequency to 3720 kc. at 0800 CST the first and third Sundays of each month, which will permit Novice operators to join the net. The SMARC held its annual picnic with good attendance in spite of the rain. Traffic: (Sept.) WØWAP 158, QXO 100, AJD 74, GAR 42, EBE 20, PTG 9, OUD 8, HUI 6, FIR 3. (Aug.) WØQXO 254.

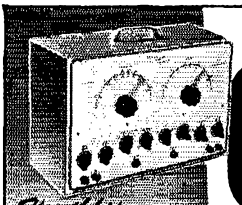
NEBRASKA — SCM, Guy R. Bailey, WØKJP — The 80-meter c.w. net meets Monday through Friday on 3520 kc., with a new slow-speed net on 3745 kc. JDJ is the manager of both nets. Let's get in and give him our best. This is a fine opportunity for you Novices to get experience. QXR has a new beam, 16 elements on 28 Mc. and 8 on 14 Mc. OED is rebuilding at his new QTH. JJK is on at his new QTH. BEW has new Stancor. 9VQL has moved to Omaha. DVI is a new call in Omaha. NMN is reporting into the 75-meter net. PUK is supervisor at KOWH. BBX attended the Austin, Tex., Convention. JFM is sporting a new mobile rig. BDT is pre-med. at Omaha U. EXP took a vacation trip to New York. The Omaha E.C. meets every Friday at 10 P.M. with twelve consistent reporters. The South East Nebraska Radio Club's new officers are SUS, pres., BWK, vice-pres., AYM, secy.-treas., BDF, act. mgr. EGQ is new call of Bob at Leigh. P.O. Box 626 is the address of the Ak-Sar-Ben Radio Club and *Ham Hum*. Send in your news, gang, and don't forget your SCM wants news also. The Ak-Sar-Ben Radio Club meets the second Friday of each month at Hotel Fontenelle. EGD and EGF are new calls of Leon and Lenere, son and daughter of BBX and CSN, our four-ham family. FMW reports he is getting along fine after his operation at Omaha. Orville's traffic report for this month was mislaid by your SCM so will send it in next month. Let's have some reports, gang. Traffic: WØKJB 19.

NEW ENGLAND DIVISION

MAINE — SCM, Orestee R. Brackett, W1PTL — SEC: IGW. RM: LKP. Net frequencies and time are as follows: Pine Tree Net, 3596 kc. at 1900 with RQR and OHT Mon., LKP Tues., QUA Wed., BWR Thurs., and LGR Fri. Some of the old members to become active again are OHT, NXX, BWR, and LRG. Sea Gull Net, 3960 kc. at (new time) 1830 Mon. through Fri. NCS, PTL and others who will help out until a new PAM can be appointed. The Novice Class licensees are trying to start a net. SUK will work with them and pick up what traffic there is with WN1TWR and place it in the proper channel. Net certificates (SGN) were issued to KKZ, RNA, and RYM. ACO is building a larger rig for 28 Mc. so he can really get out to the groundwave crew. OHT is trying to get that ART-13 working with batteries and electric motor. SEC Don Dean comes through with the news that during a drill held Sept. 9th in conjunction with civil defense and CAP he had 6 mobiles on the job and again the amateurs come in ahead; also he has 140 full and 23 supporting members. SFZ is going to school at the U. of M. SSK is moving to Penacook, N. H. AEK has been in the hospital but now is back on the air. HQX is a new member of SGN. XYL LYR is trying for that Advanced Class license. Officers of the Androscoggin Amateur Radio Assn. as reported by the secretary, W. Rinaldi, are Virgil Thompson, pres.; Albert Guenther, vice-pres.; O. D. Ellis, secy.; and Malcomb Howland, George Nichols, and Ed Huden, trustees. Traffic: W1LKP 103, QQY 83, LRG 44, PTL 31, BTY 23, QUA 18, LBJ 16, QIQ 12, OLQ 9, OHT 7, SEJ 4, EFR 2, KDE 2, QEK 2.

(Continued on page 86)

New 1952 HEATHKITS



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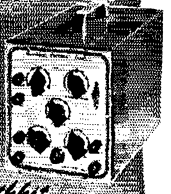

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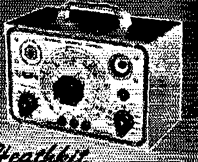

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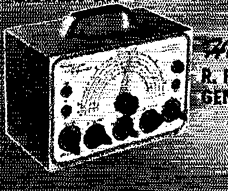

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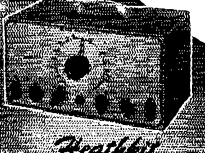

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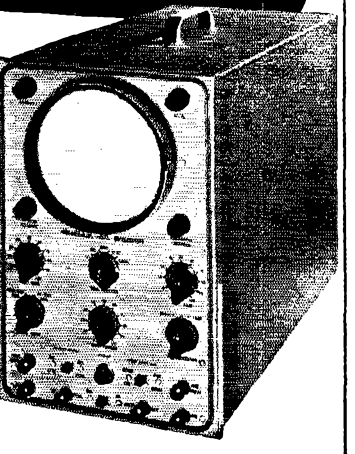

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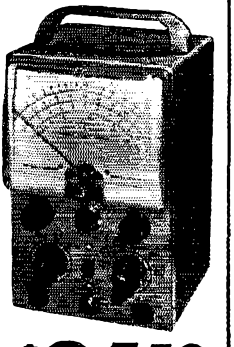

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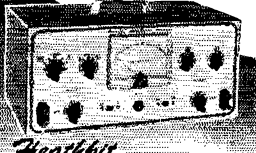

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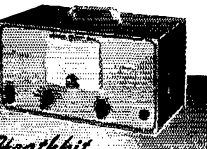

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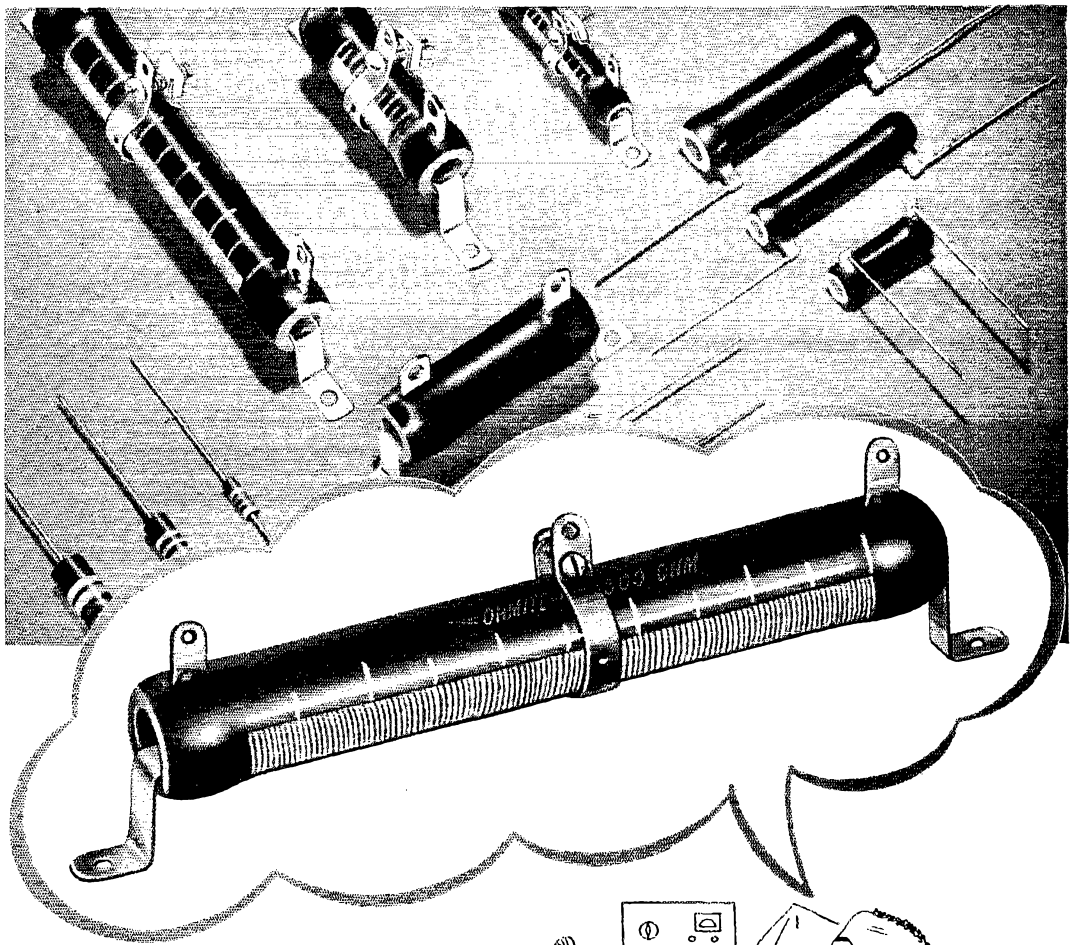
EASTERN MASSACHUSETTS — SCM, Frank L. Baker, jr., W1ALP — Appointments endorsed for another year: ICO Framingham, JQ Needham, QQL Lynn, MME Hull, EK Newton, HP Merrimac, as ECs; TQP as Radio Coördinator for Region 5; ALP and LAO as OBS; LAO and MME as OPS; EMG as ORS. DDO is on 3.9-Mc. 'phone. TWE is a new ham in Squantum. 7RO, ex-1RO, is on 14-Mc. c.w. and 'phone. UAR is ex-1BBT in Braintree. NBT moved to Weymouth. BIO is working DX on 144 Mc. RPM, BZN, TUE, and KGP are on 144 Mc. IXE is mobile on 3.9 Mc. The Wellesley Amateur Radio Society, TKZ, has been organized with HRY, pres.; NWO, vice-pres.; RPM, secy.; and TTY, treas. Meetings are held the 1st Wednesday of the month at the library in Wellesley Hills. The Braintree Amateur Radio Club, TYN, has a station set-up in the police station. OOP gave a talk at the Quannapowitt Radio Assn. on "A Novel and Unique Low-Power C.W. Transmitter." BGW has a midnight sked with KR on 3.9 Mc. TVI has Class B license. The South Shore Club held its final summer meeting. WE writes from Nevada and says he is going to Los Angeles, Calif. SS handled his 1000th GI message on TCPN. BGH is on 144, 14, and 3.9 Mc. for the winter. The Newton Emergency Unit has moved into its permanent quarters at C.D. Building and has 6 fixed and 10 mobile rigs. EMG has a Gonset 3-30 in his car. New officers of the Framingham Radio Club are: RXH, pres.; MHC, vice-pres.; SON, secy.; MEG, treas.; RCJ, act. mgr. The Martha's Vineyard Amateur Radio Club held its annual picnic at SGL's QTH with PMC, IWD, MBQ, AHX, LYV, NZP, SLW, OJE, OQT, SUE, and 5PVK present. SGL and LHT have Class A. HP, PBT, SNZ, LHT, QUY, REI, QZS, SIX, and TQU went to the hamfest at Brattleboro, Vt. JLW now is living in Scituate. PBT's XYL passed Novice Class exam. TUJ has his Class B license. Robert Morse, Dr. King, and Roland Soucie passed the Novice Class exam. SIX worked IWR in Haverhill from Pack Monadnock. A net on 28 Mc. is operating between Natick, Marlboro, and Framingham. ICO is on 3.9-Mc. 'phone. FWS showed Field Day slides at the South Shore Club. Meetings are held the 1st and 3rd Fridays at Quincy YMCA. JFS attended the hamfest at Manchester, N. H., and had his new wheel chair that the gang on the North Shore bought for him. UBE is LFD's son. The members of the Gypsy Radio Club fared very well at the Manchester Hamfest in winning prizes. LAO won a 10-meter converter. New hams: TZQ, TYU, TTF, TRS, TUH, TVC and UBU. UBB is on 3.5 Mc. TRE worked his first ZS. TYP is on 28 Mc. JFS had a visit from PI, SMC, and SZC. RRA, Winchester EC, had his certificate endorsed. NXM now is in Winchester. The Eastern Mass. Radio Club's new meeting nights are the 2nd and 4th Thursdays of each month at the Cambridge YMCA, writes QVP, president. PKQ has Class A. TSJ, Braintree, is on 28 Mc. TRS's XYL passed her exam. QYT is on 28 Mc. Hams gone to sea as radio operators are: RER, KTU, CF, BUG, and NYV. SMC is Net Control for Boston Surburban Net, which meets at 8 P.M. Mon. and Wed. on 28.7 Mc. SFW and SWV are on 7 and 28 Mc. Any Novices interested in a net on 3745 kc., please contact JCK or ALP. Traffic: (Sept.) W1SS 196, EMG 142, TY 98, LM 69, THU 65, JFS 52, PU 26, DMS 13, BGH 9, WU 6, ALP 2 (Aug.) W1DMS 31.

WESTERN MASSACHUSETTS — SCM, Victor W. Paounoff, W1EOB — SEC: JYH. RM: BVR. The West. Mass. Net meets Monday, Wednesday, and Friday at 7 and 10 P.M. on 3725 kc. New officers of the Worcester County Radio Association are RO, pres.; LTA, vice-pres.; RLQ, secy.; LSZ, treas.; and RDD, act. mgr. KC is a candidate for the Worcester City Council. Along with many others of us new home-owners, COI finds that the fall is more suited to planting that new lawn than ham radio. By the time you read this my new address should be 702 Rogers Ave., West Springfield, Mass. Please address your correspondence to this address. A large group from West. Mass., including BVR, enjoyed as usual the Vermont Hamfest. GVJ indicates that the N.E. 'phone net again is in operation on 3870 kc. at 9 A.M. Sunday. TRB is new-comer in Whitinsville. Any news from or about Novices or Technicians will be very welcome. Newcomers are WN1UAN and TPF, ex-6TND. Start saving your pennies now for the largest New England Division Convention ever in Springfield on June 14, 1952. So promises RDR, the convention chairman. JYH, RRX, BBT, OJV, CKJ, and EOB are on the staff of night school radio course at Springfield Trade School. Traffic: W1BVR 46, GVJ 5.

NEW HAMPSHIRE — SCM, Norman A. Chapman, W1JNC — RM: CRW. The Fourteenth N. H.-ARRL Convention was well attended. To the Hamfest committee, NKI, OCV, EXZ, SLJ, QJX, and RYC, and the Manchester Radio Club, we extend our hearty congratulations for sponsoring one of the largest get-togethers ever held in New Hampshire. WN1TVP is the first Novice to attain membership in the BPL. The Nashua Mike and Key Club successfully carried out a well-planned Simulated Emergency Test. Participating stations were OMZ, QKA, DUB, RYD, TWO, QJH, QHS, OMZ, ATO, TVQ, NMB, RWN, CVK, and NAZ. Five mobile stations were in operation, with OMZ as fixed headquarters station. The New Hampshire Novice Net is functioning on regular schedule during the early evening hours on 3710 kc. All Novices are invited

(Continued on page 88)



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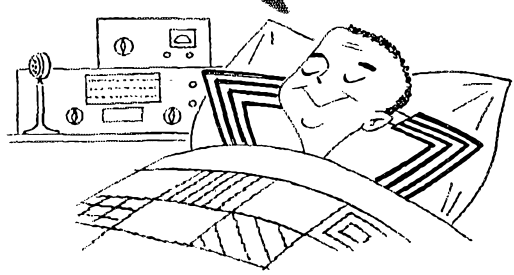

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to call in. MCS has a new SX-71 receiver and now is employed at M.I.T., Cambridge, Mass. SAL is rebuilding and will end up with an 8005. BFT likes his new 75A-2. Don't forget the New Hampshire QSO Party. Look for announcement in an early issue of *QST*. SS, AHN, 2ZOL, and his XYL 2BTB, members of the TCPN, were present at the Hamfest. Traffic: W1CRW 1604, TBS 221, WN1TVP 107, W1SAL 78, QGU 27, JNC 26, POK 20, QJX 19.

RHODE ISLAND — SCM, Roy B. Fuller, W1CJH — SEC: MIJ. RM: BTV. PAM: BFB. The Rhode Island Net (RIN) meets Monday through Friday at 1900 on 3540 kc. The Newport County Radio Club provided communications at the recent soapbox derby held in that city. A mobile unit at the start and finish of the course helped a lot in speeding up the whole affair. Participating were TRX, SAO, GQQ, JFF, MMX, Gillerin, Finberg, and Chas. The NAARO held a week-end QSO Party at Ken Woods summer camp. Movies, QSOs, cards, refreshments, yarns, and hornets were enjoyed. There seems to be some misunderstanding by some hams in this section regarding this report, so I will try to clear up some points now. If I receive no activities as in summer then no section report appears in *QST*. Coöperation of all R. I. amateurs is requested that we may have data on radio operating work to report here every month. Please bear in mind that a September activity you report will not appear until the December *QST* reaches you, and that reports have to meet our proportional *QST* space allotments.

VERMONT — Acting SCM, Raymond N. Flood, W1FPS — The Vermont Hamfest at Brattleboro was a great success. Approximately 325 attended and about 40 took exams for all classes of ham tickets. New Novice licensee is Doris Newcomb, WN1UBL, 13-year-old daughter of SNL. AXN is new PAM for Vermont and also is NCS on Vermont 'phone net. Howie says the net is shaping up well. AVP and RNA are Alternate NCS. OAK does an FB job with Vermont c.w. net bulletin *Maple Sugar RF*. Get yours by reporting in regularly at 7 P.M. Mon. through Fri. on 3520 kc., new net frequency. AVP reports WN1UBZ is a new Novice in Rutland. GAZ is back on the air with new Canadian rig. The Tri-County ARC has over 50 members and still is growing. AZV reported to the hospital for removal of his appendix. SEC mobiled down to Brattleboro and visited FPS. Regular reports are requested, please. Traffic: W1OAK 78, RNA 59, AVP 48, FPS 33, JLZ 28, AXN 14, IT 11, SPK 9, BJP 8, BNV 5.

NORTHWESTERN DIVISION

ALASKA — SCM, Josiah R. Nichols, KL7MZ — Considerable activity in organizing traffic net has produced a good solid coverage for all of Alaska. 'Phone nets on 75 meters tie in with the Oregon emergency net through Southeastern Alaska. Also, the 40-meter net has a trunk outlet Stateside and on 20 meters we have a direct contact in the Far East emergency net. Any Alaskan amateur interested in any of these nets, please contact your SCM. There are several appointments available as follows: OPS, ORS, OO, and OBS. A code class every Tuesday and Friday night is held on 3870 kc. at 9:00 P.M. Anchorage Time. Speed is from two words up to and including any speed desired. Please send your traffic count on the 1st day of each month. Traffic: W7EDP/KL7 588, KL7YV 38, AJQ 33, PJ 30, TI 23, AGU 20, ABN 15, YG 15, AAG 12.

IDAHO — SCM, Alan K. Ross, W7IWU — Grangeville: KOG/7 is reporting into the FARM Net and says there is enough interest in Grangeville to start a local radio club. Kellogg: NUK has applied for AREC membership. He is 14 years old and is on 7 Mc., but is building an all-band 3.5-29-Mc. rig. Elk River: AFT is back on 3.5 and 7 Mc. after a 17-year layoff. He is local civil defense director and says that prompted him to get back on the air again. Heard deer hunting with their portable rigs: DMZ, American Falls, on 3.9 Mc.; GPM, Nampa, and ORJ, Boise, both on 160 meters. Boise: The Simulated Emergency Tests went off fine with GHT, AHS, IWU control, MUT, EF, SHN, AXY, and ZN alternate control; 10 Boise mobiles, ORJ, PKA, OSQ, NPO, and AHS on 28 Mc., and ALY, FOF, EF, DOH, and SHN on 3.8 Mc. My thanks to all ECs and members of the FARM and Gem Nets for their fine help. Traffic: W7NH 103, GHT 32, IWU 7, FIS 5, HAH 2.

MONTANA — SCM, Edward G. Brown, W7KGJ — State 'phone and c.w. nets are getting off to a slow start this fall. Possibly extra work loads are responsible for the boys not showing up. Only one activities report was received this month, so we have no current news of happenings around the State. MKV is on the air again after a long silence. Frank expects to go into the services soon so is getting some hamming done before having to leave. FIN is working on 6-meter transceiver and CT and KGJ plan working six meters also. SAW is having antenna problems because of restricted space. CT is redecorating his shack. Walter R. Marten, KUH, has been appointed Section Emergency Coördinator so, you ECs, please send your reports to Walt. The first known Novice call in Montana is WN7PTW. XYL of KGJ. W7ED and XYL were elected president and secretary-treasurer, respectively, at the annual Wyoming-Idaho-Montana-Utah convention held at Big Springs, Idaho. Traffic: W7KGJ 52, CVQ 28.

(*Continued on page 90*)

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OREGON — SCM, J. E. Roden, W7MQ — AWI is new EC for Cave Junction Area. KTG was busy all summer hauling logs. NFU also was QRL because of forest fire season activities. HDN, our SEC, was awakened about 2 A.M. recently by the sound of fire sirens and found the fire laddies were calling on him to put out a fire in his attic. DHX has finished wiring his new Viking transmitter and also VFO. WN7PQK, a newly-licensed Novice from Salem, is very much interested in the organization of a Novice Net and suggests contacting him by mail. IEJ is new Asst. SEC, which should be of some assistance to him in his work as RACES Net 35,507-kc. Manager. ØHDO, formerly of South Dakota, has moved to Salem and expects to be on the air very shortly with 200 watts on 3.8-Mc. 'phone. PAB reports that the Rogue Valley Radio Club of Medford has turned over the use of its club rooms to civil defense for a Control Center, with HLF, former Oregon SEC, as communications chief. NJS has received her Class A license. LMO is on his way to Japan on a job for RCA. KQN now is on 3.9-Mc. mobile. CHN now is located in Tacoma, where he is pounding brass for N.P.R.R. NOJ now has his Class A ticket but is busy working DX on 14 Mc. CN is enlarging his ham shack. NGW is new vice-president and treasurer of PARC. JRU has returned to his old QTH on Lakeshore Drive. QP and OZN now are mobile. Traffic: W7AIZ 176, HDN 158, II 131, TH 91, MQ 78, AJN 61, IEJ 31, GNJ 29, BSY 19, AXJ 14, JKU 14, DHX 11, NTH 10, KYG 7, ADX 6, BDN 6, NUR 6.

WASHINGTON — SCM, Laurence Sebring, W7CZY — SEC: KAA. RM: FIX. PAM: NRB. KTL spent a week in the hospital. CWN is all ready to go duck hunting on the Skagit Flats. AVM has been in the Vets Hospital at Vancouver for a year and a half and hopes to be home in Aberdeen again soon. WN7PRZ, Novice and Technician Class, sends in his first traffic report and beats his dad, ZU. He is testing out a 220-Mc. rig, and is looking for contacts. ETO is hunting deer in the hills around Wenatchee. JFB has new 20-meter ground-plane antenna and also was heard on 144 Mc. in Olympia. FRU and his XYL took a trip to California, but report that they were unable to locate many hams there. OPA and NWI now are Class A. HEE checked into OEN using five-watt mobile from Spokane. PGY spent his vacation mobiling in Oregon. OZG has a new jr. operator. The Seattle Mobile Hunt gang includes CO, KZP, IRC, AWP, CBE, KKZ, and BA, with BA as the rabbit the last time. DND is building a new kw. rig for 28 Mc. The Seattle 2-meter emergency net is under way with MWP as NCS. BLX put up a new pole for his beam and overhauled it. IOQ, MYL, and KWX are handling GI traffic on MARS. DYD, KO, KGQ, and BYK are trying to keep 50 Mc. alive. BYK reports a good Aurbo opening on 50 Mc. the day after the VHF Contest. BG says "no more mobile, too many calls to make a contact." ACF passed away on September 27th. His death is a big loss to amateur radio. His funeral was attended by AZI, ER, FIX, FRU, and ZU and floral pieces were sent by WSN and WARTS. Traffic: (Sept.) W7CZY 977, IOQ 951, TH 251, EAU 142, FRU 130, FIX 120, BA 117, LFA 111, JFB 92, LVB 71, OEB 25, EVW 23, NRB 22, ETO 20, KIX 15, EHH 14, OIT 12, OS 12, PRZ 10, AVM 8, CWN 8, MBY 7, ZU 7, GAT 2, (Aug.) W7ZU 13.

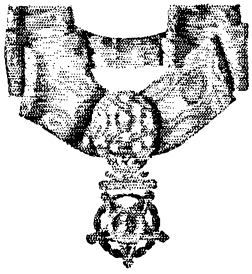
PACIFIC DIVISION

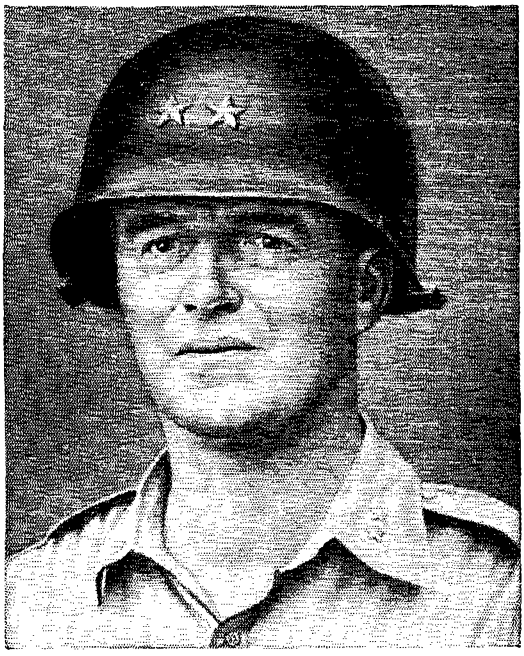
HAWAII — SCM, John R. Sanders, KH6RU — The Honolulu Mobile Club elected GG president, with AAI remaining as secretary-treasurer. The Club entered the October DX Contest with an FD-type set-up at Waimanalo Beach. The HARC plans a similar outing early this winter. The Maui Club had a neat set-up at the County Fair, with EM loaning his new 32V-2. The SCM visited the Maui Club and made a very interesting tour of WWVH. BA also was along. DK is new EC for Maui. MG is building a super-shielded 28-Mc. rig. AEX worked 88 countries in one week. NW is building a nice 814 all-band tank rig. BA, OA, and RU toured ZK2AA about Honolulu as he passed through en route home. *Far Pacific Area:* WØDEA/KG6 reports from Guam that he is constructing. KB6AQ is a new station on Canton. KB6AO is visiting friends on Maui and Hawaii during his prolonged vacation. KG6AAE reports 111 'phone patches for the month and says DX to Europe is FB from Guam. During a recent local contest held by the Maui Amateur Radio Club, KH6AEX worked 88 countries in one week! Traffic: JA2KW 892, KG6AAE 402, KH6ADY 15.

NEVADA — SCM, Carroll W. Short, jr., W7BVZ — SEC: JU. ECs: HJ, JLM, JVW, KIO, KOA, MBQ, TJY, VO, and ZT. RM: PST. OPS: JUO. Nevada State frequencies: 3660, 7225, and 29,360 kc. The 1951 Nevada license plates with call letters issued beginning Oct. 1st were a surprise to some who didn't expect them until 1952. Do you have yours yet? They're fine publicity for ham radio! TKV made WAS on 28 Mc. KEV has his antennas up again and is on 7 Mc. BJY has 25 watts on 7 Mc. KG6FB/7, with the CAA at Tonopah, is on 28 Mc. JU, LGS, 6CE, and ex-6FD furnished communication for the Colorado River Marathon from Needles, Calif., to Parker, Ariz. Nominated for next year's officers of the So. Nevada Radio Club were KIO, BVZ, LUV, NCR, DVJ, LGS, BJY, LVP, LBE JU, and OXX. NWU took his General

(*Continued on page 92*)

Medal of Honor





Major General William F. Dean, of Berkeley, California—Medal of Honor. In the hard early days of the Korean War, when it was Red armor against American rifles, General Dean chose to fight in the most seriously threatened parts of the line with his men. At Taejon, just before his position was overrun, he was last seen hurling hand grenades defiantly at tanks.

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and Advanced Class exams in Reno and plans to try 75-meter 'phone if he passes the latter. Meet your SCM mornings on 7225 kc.

SANTA CLARA VALLEY — SCM, Roy I. Couzin, W6LZL — Your SCM and the entire Santa Clara Valley section wish to congratulate CIS on his reelection as Director of the Pacific Division. AEV, our SEC, reports an organization meeting will be held soon so he can get acquainted with the ECs and get future plans rolling. The San Mateo group is holding drills on 147.198 Mc. now because the attempt at cross frequency had too much QRM. Club news this month: The Monterey Bay Radio Club had as guest speaker K6BJ, of Eimac, who spoke on his new system of modulation. The North Peninsula Electronics Club had as guest speaker Norris Nahman who spoke on transmission lines. The Santa Clara County Amateur Radio Assn. had no meeting in September as the County Fair opened the same night and the Club had a booth at the fair. The exhibit turned out to be a success at the fair with an unusual amount of people asking about ham radio, especially the new Novice Class license. Quite a group signed up for the new code class. RFF hopes to be back at his home QTH soon but is having his ship originations relayed through JA2KW. CAZ is getting the rig perking at home QTH but having a little 813 trouble. YHM noted the reactivation of MTN c.w. but says there is great need for new members and also relief for the NCS. HC wishes to have his OBS and OO appointments cancelled as the Net Manager's job has him snowed under. K6WAE is doing a swell job handling traffic. Traffic: K6WAE 1376, W6BPT 238, HC 158, YHM 130, RFF 119.

EAST BAY — SCM, Ray H. Cornell, W6JZ — Asst. SCM, Guy Black, 6RLB. SEC: RVC. This section is progressing nicely with plans for reorganization and reactivation. With the appointment of Harry Cameron, RVC, as SEC, it now is possible to concentrate on the implementation of plans for AREC. Increased seasonal activity is reflected by expanded club programs. The September meeting of the SARO was held in South San Francisco when the radio maintenance and repair facilities of the United Airlines were inspected. Members particularly enjoyed the trip through a huge double-decked stratocruiser. The East Bay Radio Club, with the help of other local clubs, is sponsoring the section picnic. They also recently joined the Central California Council of Radio Clubs. The Oakland Club held its annual auction, which was a huge success. The Mt. Diablo Club provided communications for the recent Walnut Festival at Walnut Creek. The Club has an excellent TVI committee which has gained the respect of the hams and public alike. The North Bay Amateur Radio Club enjoyed a nice talk on the preparation of ground crystals from raw quartz at the October meeting in Vallejo. KEK and JZ were visitors. The Richmond Radio Club was visited by RLB, DNX, CJI, and NJO on October 5th. Plans for the section picnic were discussed. The U. of California Radio Club has a fancy new beam in its new QTH in Cory Hall. The Mission Trail Net executive committee met at the QTH of QZ. JZ was present and problems mutual to MTN and RN6 were discussed. KZF is EC for MTN. QZ finds less time for traffic because of activity in the c.d. mobile net. DEK and ENF are sporting new harmonics. KZN and QDE are painting their homes. ØBDU is the popular YL member of the Oakland Radio Club. AKB finds time for civil defense work in spite of being prexy of the Oakland Club. WN6NBI is the son of YDI — they report mutual interference is terrific. The San Francisco Area Emergency Net furnished a complicated mobile communication network to direct the famous Football Festival, Parade of Lights, in Berkeley on September 21st. Participants were BWZ, GQK, LOZ, NGV, NL, RN, and YNO. CHP operated the control station at the reviewing stand. Traffic: W6JZ 204, NGC 14, YDI 8.

SAN FRANCISCO — SCM, R. F. Czeikowitz, W6ATO — Phone JU 7-5561. SEC: NL. Phone PL 5-6457. *Marin Area:* EC: KNZ, Tamalpais Amateur Radio Club EC: ZUB. The Tamalpais Amateur Radio Club now is affiliated with ARRL. This Club sponsored a display at the Marin Community Fair held Sept. 6th through 9th. Operation was on 40- and 80-meter c.w. and 75-meter 'phone. Power provided by the Fair was inadequate, sometimes running as low as 78 volts. A request on the Civil Defense Authority produced a gas-driven generator, which kept HYT on the air. A considerable amount of traffic was handled, and an impressive demonstration of 'phone-patch operation was given with the assistance of FQS. HYT also provided an interesting display of archaic tubes and parts. Operators participating were HYT, HPM, KJA, ZUB, FQS, and ZQK. The Marin Radio Amateurs Club again is active. Bill Scarborough, ZK2AA, and John Gruble, W7RT, chairman of the Seattle National ARRL Convention, attended the September meeting. *Eureka Area:* EC: SLX. In case it has not yet been mentioned in these columns, I am very pleased to announce that the Humboldt Amateur Radio Club has for a number of months been in possession of its charter as a club affiliated with the ARRL. The Emergency Corps is becoming increasingly active. *Santa Rosa Area:* EC: IEN. The 2-meter net for Emergency Corps Civil Defense communications is active every Tuesday at 8 P.M.

(*Continued on page 94*)

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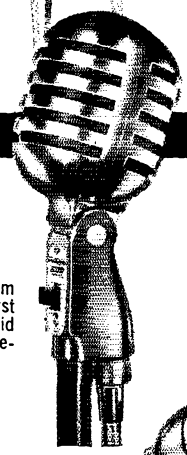

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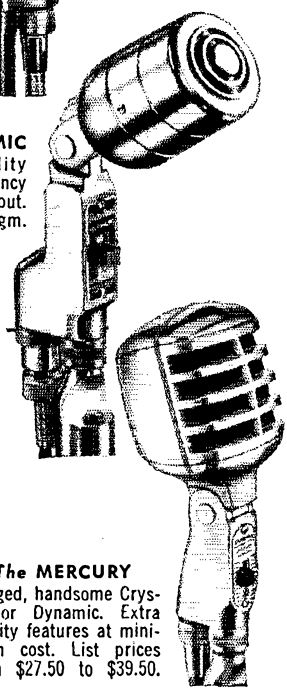

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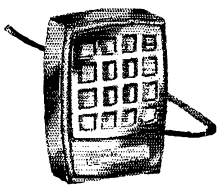

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Write for Illustrated Bulletin

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on 145.35 Mc. and contact is solicited with adjoining areas. *San Francisco:* EC: BYS, Asst. EC: JWF. The San Francisco Emergency Corps 2-meter net meets every Monday at 8 P.M. on 147.15 Mc. The first civil defense test drill went off smoothly from the new control center at the Youth Guidance Center, with Admiral Cook, and other high personages of civil defense observing our 2-meter operation in an unplanned and unannounced visit. We are all extremely gratified with the fine showing made by SEC NL, EC BYS, and all the mobiles of the E.C. By way of relaxation, the E.C. mobiles handled the communications for the University of California Berkeley Football Festival Parade. Considerably more 2-meter equipment now is in the process of being rebuilt, and will be made available for members of the Emergency Corps shortly. SIGN UP FOR THE EMERGENCY CORPS. DO YOUR PART TO PROVE OUR CLAIM TO AMATEUR FREQUENCIES, WHICH ARE ONLY LOANED TO US IN THE PUBLIC INTEREST. HJP, traveling again, has been assigned to HQ. U. S. Air Forces in Europe, at Wiesbaden, Germany. ASL now is RMN3 in the Navy at Hawaii, and can be reached at Box 384, U. S. Navy Gomm. Stn., Navy 128, % Postmaster, San Francisco. GCW is getting out FB on 7 Mc. CORRECTION: No harmonics from 3.5, 7, 14, or 28 Mc. amateur transmitters fall on TV Channels 5 or 7 EXCEPT stations operating between 29 and 29.7 Mc., which will have a sixth harmonic on Channel 7. Remember that the fifth harmonic of 14 Mc. falls on Channel 4. *TVI TIPS*: Use diplomacy ALWAYS with the complainant — it usually reduces TVI to the point where filters can be effective. SFRC meets 4th Fri., 1641 Taraval St., San Francisco. HAMS meets 2nd Fri., 1625 Van Ness Ave., San Francisco. Marin ARC meets 2nd Fri., Engr. Lecture Room, Marin College, Kentfield. Tamalpais ARC meets 3rd Fri., 232 Mirimar Ave., San Rafael. Sonoma Co. RAC meets 1st Wed., Grace Bros. Brewery Taproom, Santa Rosa. Humboldt ARC meets 2nd and 4th Fri., YMCA Rooms, Mun. Aud., E St., Eureka. Traffic: (Sept.) W6JCG 26, SWP 9, ATO 5. (Aug.) W6ERS/7 11.

SACRAMENTO VALLEY — Acting SCM, Willie van de Kamp, W6CKV — *Northern Area:* Asst. SCM, Edward M. Cripps, 6YNM. DDC, HRF, FKI, and JDN represent the mobile gang in this Area. IEO sends greetings from the Navy via the American Legion Net. MFD and ZGA are Class A in McCloud. *Central Area:* Asst. SCM, Willie van de Kamp, 6CKV. GERC opened the fall season with meetings again. GUX is recovering from an accident. GUV is converting 274N for emergency work. HBM and KYO were in the V.H.F. Contest. SYN is threatening to let his license lapse. MON is trying screen-grid modulation. ZFJ dusted off the mobile rig. *Southern Area:* Asst. SCM, Richard M. Hall, 6ZYV. SARC had an exhibit at the State Fair featuring emergency communications. KME put 2-meter gear in the car for a trip back East. BVK is working with the CAP gang on c.d. GDO is chasing DX on 14- and 50-Mc. 'phone. PIV was active in the V.H.F. Contest. ZYV is recovering from an attack of arthritis. Traffic: W6GDO 81, PIV 63.

SAN JOAQUIN VALLEY — SCM, E. Howard Hale, W6FYM — SEC: FYM. RM: JQB. ECs: BCL, CQI, EHN, FIP, GCS, GKX, HZE, JPU, and K6FAJ. ORS: JQB and LRQ. OBS: EXH, GRA, GS, and OHT. OES: RJE and UWY. OOs: FKL and JQB. The Fresno Amateur Radio Club is planning to hold its Junior Hamfest on December 8th and amateurs within a 50-mile radius of Fresno are invited to attend. YUB has moved from Clovis to Sacramento. NDP is a new call in Fresno. WN6MZT and WN6NTY, at Stockton and Turlock respectively, are the only new Novice calls brought to the attention of the SCM's office so far. HXW, at Fresno, has a new harmonic. AHO has been recalled to active duty as a commander with USNR Research Program in San Francisco. W5SEX/a16 is a new arrival in Turlock from Oklahoma City. He is EQO's brother. SUV and HXR, both of Fresno, mix amateur radio with deer hunting. New officers of the Turlock Club are GIW, pres.; EQO, vice-pres.; SQR, secy.-treas. The Turlock and Stockton Clubs participated in the National SET on October 13-14. K6FAJ had MARS booth at Antelope Valley Fair. K6FBF now is an active MARS station at Madera. A new club, the Inyo-Mono Counties Amateur Radio Club, meets in Bishop the first Monday of each month. The Inyo-Mono Counties Emergency Net also is in operation on 3805 kc. Don't forget that you can check in with your traffic on SJVN, 3525 kc., Monday through Friday at 1900 PST. Traffic: K6FAJ 192, W6JQB 77, EXH 35, GIW 10, FYM 7.

ROANOKE DIVISION

NORTH CAROLINA — SCM, J. C. Geasien, W4DLX — Your SCM, with deep regret, reports the death of Robert H. Day, W4OD, Winston-Salem, on Sept. 2nd. Bob was well known and had many friends among amateurs in this State. The SCM had a nice visit from 9AWM/2, who was mobiling to Georgia. RRH and LWU report a lot of activity on the Atlantic Net, 1895 kc. They want more fellows on 160 meters. REU, secretary of the Sandhill Radio Club, reports life stirring in the Rockingham-Hamlet

(*Continued on page 96*)

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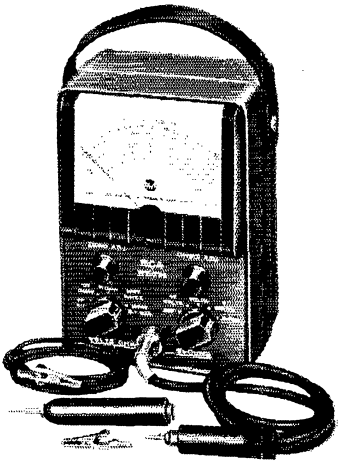

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WG-264 Demodulator Crystal Probe. Extends range of both Junior and Senior VoltOhmyst to 250 mc. Shpg. wt., 12 ozs.

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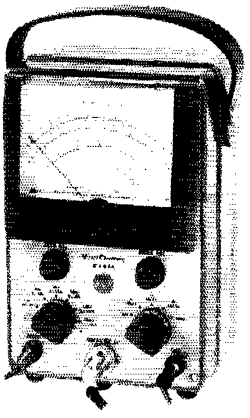

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Area again. EPI claims 5 hams in his family. Can anybody beat him? BBZ, of Wilmington, reports SWR is a new ham there. MVP and EC both have new QTHs and are on again. EC's Marine Mobile sure gets out when Doc goes fishing. He also may be found on 75-meter 'phone several mornings a week working DIS. MDA is going to college but is sweating out a call from the Navy. BBZ has 10-20 beam down for a working over but keeps 40 meters hot in the meantime. REZ reports 7 Novices: TNA, Greensboro; TNB, Winston-Salem; TMJ and TML, Raleigh; TNC, Hickory; TMP, Stony Point; and TMO, Forrest City. The Catawba Valley Club is moving into new quarters. IAG and LSI have moved to W3-Land. BFQ, Winston-Salem, is on 75-meter 'phone after 24 years of c.w. LWU has gone mobile. We really have a bunch of them in the State now and would like to have more. Traffic: W4RRH 78, DLX 23, REZ 13, LWU 3.

SOUTH CAROLINA — SCM, Wade H. Holland, W4AZT — The Rock Hill Radio Club operated ONJ/4 at the York County Fair and handled a great many messages. TLO is a new ham in Rock Hill. DCE and ANK did their usual good job of traffic-handling this month. The Fourth Regional Net began active operation on 3615 kc. on October 1st, covering South Carolina, North Carolina, Virginia, Georgia, and Florida. 4RN operates two sessions each evening Monday through Friday at 1945 and 2130 EST. Our own ANK is Net Manager and asks that anyone interested in joining 4RN report at the above listed frequency and times. Hunter will be glad to supply any information wanted. The Greenville Amateur Radio Club has resumed monthly meetings after a summer recess. Meetings are held the first Monday of each month at 8:00 P.M. in the Christ Church and all Greenville Area hams are invited to attend. Traffic: W4ANK 300, DCE 42, AZT 16.

VIRGINIA — SCM, H. Edgar Lindauer, W4FF — Members of this section are requested to give heartiest coöperation to QSL Manager Tom Moss, HYW. If your call was listed on the barb he sent you, please send envelopes and sufficient postage to cover mailing and help him clear the deck of all those mildewed cards that have been standing by for your action. The Shenandoah Valley Radio Club received its charter from ARRL. The new officers of the Blue Ridge Amateur Radio Society of Roanoke are JFV, pres.; QBQ and OKP, directors; JXE, treas.; CA, secy. RTZ will sport a 10-meter rig during a trip to New Orleans and hopes to outpoint RIX and O1M in QSOs. The Peninsula Radio Club puts out a bang-up news bulletin. Work on main control center for civil defense activities in Hampton and Elizabeth City County is in progress at Hampton City Hall. RQR has returned from African-European trip. His new QTH, 6TZB, will be Santa Ana, Calif. New ORS are KSW, RYS, and PXA. NUU is taking special electronics course for the Navy and recently was appointed OPS. WO had his OO appointment extended. LW covered a regatta with 10-meter mobile in conjunction with 3NZF ashore at the receiving end. ONV, KMS, IWS, and JUR assisted in civil defense mobile operation at Fredericksburg. IWS is doing a swell job organizing a mobile club at Dahlgren. PXA, QDX, and MWH represent the section on 4RN. PXA assumed VSN Net Manager job during the month and needs assistance at the NCS posts, so let's have some eager-beaver volunteers. MWH takes over as Net Manager of VN. LAP is getting a rig together in Germany. KFC, IA, and FF were on hand to carry part of the traffic load during the SET, assisting Red Cross Headquarters station 3PZA, Washington. Traffic: W4ONV 93, PWX 56, NBA 46, PXA 43, FV 26, LK 10, FF 8, KFC 6.

WEST VIRGINIA — SCM, Donald B. Morris, W8JM — W. Va. State Radio Council was formed in Charleston, with BFS president and CLX secretary. Each active radio club should send a delegate to the Parkersburg meeting Dec. 1st. FMU, PZT, GBF, and JM attended joint meeting of the Charleston radio clubs. GCZ has new HQ-120 receiver. DFC has lined up five new WVN net members. Meek, ex-8ALG, visited West Virginia amateurs while on vacation. All West Virginia amateurs should read the story of PQQ in October *QST*. BWI has new shielded rig about ready to put on the air. The following radio clubs were represented at the State Radio Council meeting in Charleston: Stonewall Jackson ARC, MARA, Appalachian Radio Club, KVARA, Tri-City ARC, Charleston ARC. Let's have all clubs at Parkersburg on Dec. 1st. ELX is attending W. V. U., which interferes with radio operating. Rhodes, of MARA, still is confined to the hospital because of burns. The c.w. and 'phone nets are off to a good season on 3770 and 3890 kc. Reports from any West Virginia amateurs are welcomed, especially those with the new WN calls. Traffic: W8AUJ 47, GCZ 13, DFC 3.

ROCKY MOUNTAIN DIVISION

COLORADO — SCM, M. W. Mitchell, WØIQZ — This month's news will indicate how much news one can write up out of three cards received. ZJO barely makes BPL this month on account of power supply troubles. QCX is working a little DX on 3.8 Mc. with KH6 and KL7. He is working coast-to-coast with his 75-meter mobile. PNK now is settled in new location and ready for a busy season. He claims to be the highest ham in the world with his location altitude of 11,450 feet above sea level.

(*Continued on page 98*)

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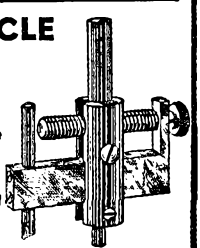

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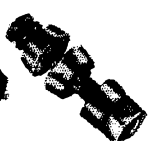
TYPE 116

TYPE 20



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5/16	.16	1 1/4	2.30
3/8	.21	1 1/2	3.30
1/2	.40	1 3/4	4.50
5/8	.57	2	5.90

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O.D.	I.D.	WALL	PRICE
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5/16	3/16	.062	.10
3/8	1/4	.062	.13
1/2	3/8	.062	.18
5/8	1/2	.062	.23
3/4	5/8	.062	.29
1	7/8	.062	.38
1 1/2	1 1/4	.125	1.13
2	1 3/4	.125	1.50

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Any contenders? How about it, men? This is all the news three cards can produce. I'll have to have more reports if this news column is to exist. Write me for report cards. Traffic: WØZJO 512, QCX 10.

UTAH — SCM, Leonard F. Zimmerman, W7SP — The members of the UARC 10-meter mobile net have received commissions as civil defense officers and as Salt Lake City special police officers after almost a year of weekly classes and lots of work and study. You fellows are doing a fine job for the AREC and our hats are off to you. CPI and JVU report they are building high-power mobiles for 75 meters. NXC and NHQ are added to our growing list of 2-meter stations. Seems everybody is set up for 144 Mc. but still no activity. Why doesn't someone organize a net? There has been no traffic reported for several months for Utah. Isn't anyone handling traffic?

WYOMING — SCM, A. D. Gaddis, W7HNI — SEC: LKQ. PAM: KFV. The Wyoming c.w. net again is active with CARS on 3760 kc. IJW is moving to Newcastle. PKX still is using an invisible antenna. PSO is a new ham in Casper. ABO now is "the Voice of the Valley" at KWOR, Worland. HLA has been off the air since selling his transmitter. AEC is back on the net after a summer at the lake. IQQ is working portable daily sked with KAM. NVI is back from Fort Knox. GS is rebuilding. LKQ is busy with radio repair. AMU, HX, AXG, and others are on CAP morning net. FLO saw two World Series games on TV. HNI and JRG increased power on 144 Mc. with better results.

SOUTHEASTERN DIVISION

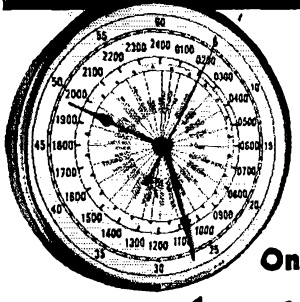
ALABAMA — SCM, Lewis C. Garrett, W4LEN — SEC: ISD. Endorsements: GJW as OPS, OBS, ORS, and OO. Doc and Josh, CAN, have held Sunday A.M. skeds for 5 years. RTI has alternator in the car for efficient mobile work. OLG is NCS of AENR — Birmingham Emergency Mobile Net 29,560 kc. Sundays at 1400. FPB is president of new Birmingham Police Amateur Club, DD is secretary. Other members are LC, EDR, CTY, and PES. These operators keep the club station, TRM, well known on 3.5, 7, and 14 Mc. with a kw. KVY has new 'phone patch and a newly-decorated ham shack. WN4TOI is Novice from Tri-cities. MEM, JKU, and OKJ are going on 144 Mc. KIX has new 304-TL rig on 3.5 Mc. and a new jr. operator. SUF is working good DX on 7 Mc. with 125 watts. AUP is working for all-Novice WAS. FGT also is known as AF4FGT. BMM, OR, and BFM are active in civil defense. HFP is collecting equipment for all-band kw. Alabama's call-letter plates look good — blue and white. By the time this column is printed LEN will be operating as a portable 9 from Indiana. Traffic: W4KIX 58, GJW 49, BFM 33, LEN 18, PPK 18, ICO 5, SUF 2.

EASTERN FLORIDA — SCM, John W. Hollister, W4FWZ — Priorities are available to amateurs in organized nets. Support the net activities. Uncle Sugar puts the emphasis on it. (Incidentally, KM played a big part in the arrangements for those priorities through committee work.) Clewiston: That George is my boy; a staunch stand-out for traffic on any band including 14 Mc. and I'm for him. I wish I could reproduce that famous letter in these pages. And now comes PJU with a "woe" instead of a "whoops" this time. He hears he caused TVI in Lynchburg, Va. Wow! Ft. Lauderdale: IM reports AREC totals 17 members now on 7140 and 29,400 kc. Jacksonville: GEF (USNR) from Washington is on 14-Mc. c.w. Welcome. NMG put Harvey-Wells into that mobile antenna farm of his. Miami: Welcome, Novice WN4TRP. Dade Club officers are LXZ, pres.; LQN, vice-pres.; LVV, treas.; and SAT, secy. EC is IEH. Club Station NVU has two 200-watt senders, 6 receivers, and simultaneous operation on 4 bands. Tampa: Glad to hear from DES, who has been hospitalized but now is doing well. CQX runs ½ kw. with 813 goosed with VFO for c.w. exclusively and on traffic 90 per cent, and plus a bunch of folded dipoles. Howard is chief operator for the NAL. He is on RC disaster committee, CAP, and is ready to relay via v.h.f. and c.w. when needed. Oakland: OCG has gone to Camp Gordon and we lose a grand guy. Luck. Are you WN fellows interested in a WN traffic net? LMT suggested it, so let me hear from you. That man is here again, so Merry Christmas to all. Traffic: W4PJU 368, OCG 292, KJ 125, HWA 33, LMT 23, IM 22. FWZ 20, RWM 13, IYT 6.

WESTERN FLORIDA — SCM, Edward J. Collins, W4MS/RE — SEC: PQW. EC: PLE. AXP now is out of the hospital and on 7 Mc. PTK has become a big wheel on 3.5 Mc. Mrs. PTK is awaiting call. PQW is hard at work on c.d. program. SZH has FB mobile rig going. UW is on 75 meters. ECT has been heard on 7 Mc. NYZ and NOX are giving 75 meters a whirl. QK has mobile gear going again. VR still keeps 7 Mc. hot. NRX is one of the most active stations in the section. JM and MFY meet the Hurricane Net. PLE has an FB c.d. group going in the Hair Net. BKN represents Panama City. NN and AGB meet the Eastern Florida nets. HJA is going mobile again. HIZ is in c.d. work. CQF had a visit from lightning. PAA is on all bands and TV. Hi. PLI was home from OX3-Land. OWN is going to DL-Land. ODO is back on 10 meters. MS has been working WN stations. RZV spends his spare time on 28 Mc. LUF is about ready to go again. FDL is using super-modulation. CNK is polishing up the 2-meter gear. UC keeps the gang

(*Continued on page 100*)

RADIO SHACK 2-IN-1 BARGAIN FOR A HAM'S CHRISTMAS!



buy him this **AUTOMATIC, ELECTRIC 2400-HOUR CLOCK WITH HUGE 10" DIAL AND SWEEP SECOND**

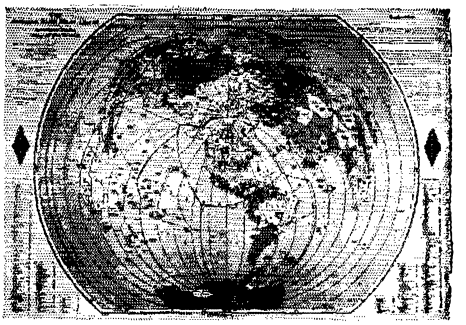
AT A SINGLE GLANCE this fabulous clock tells your favorite "ham" the exact time in every time zone of the world. Key cities and countries shown on inner dial, 0100-2400 hours and 1-60 seconds shown in separate bands. Gray metal with chrome plated bezel. Self-starting. Convex crystal. A clock of this quality has never been offered at a price so gift-consciously LOW!

Order by stock number *32-870*

Only **$12.50**

*Plus $2.50 U.S. Federal excise tax

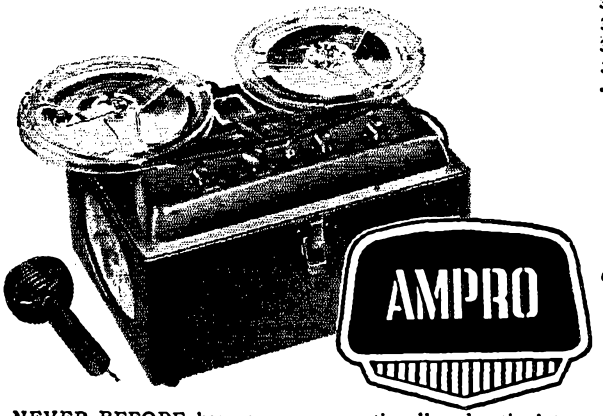
and get this **$2.00 A.R.R.L. WORLD MAP FREE WITH EVERY CLOCK PURCHASE!**



A MERRY XMAS BONUS at no extra cost (sells everywhere for $2), the A.R.R.L. map goes with this clock perfectly. It's printed in 6 colors; measures a giant 30" x 40"; heavy paper. Shows time zones, over 265 indexed countries, amateur prefixes. Accurate with 2% in miles and kilometers. Easily read from his operating position. The finest map of its kind, and FREE with each clock!

Map without clock, 42-803 .....*$2.00*

SENSATIONAL! CLOSE-OUT OF AMPRO TAPE RECORDERS



NEVER BEFORE have we seen a nationally advertised tape recorder sold so low! Ampro's fair-trade pre-Korea price on this Model 730 recorder/playback unit was $94.50. Because this model has recently been superseded by a new, more expensive machine, Radio Shack is privileged to CLOSE OUT the final few at $79.50. The Ampro 730 offers these special features: TWO-HOUR recording on a 7" reel; LIGHTEST WEIGHT — only 15 lbs.; SMALLEST — only 8½ x 8 x 12"; COMPLETE with microphone, take-up reel, radio-phono cord, speaker, amplifier. Other features include: dual track recording, monitor system, fast forward skip, fast and manual rewind, timing indicator, level indicator, guarantee.

*NOTE: Tape comes on plastic reel, 1200 ft. on 7", 600 ft. on 5". Plastic recording tape has higher fidelity and greater strength than paper.

Order No.	Description	Net
SS-730	Tape recorder	$79.50
34-091	Extra 7" reel.....	.50
34-092	Extra 5" reel	.44
34-085	1200 ft. tape (paper)*	2.34
34-086	600 ft. tape (paper)	1.50
34-088	1200 ft. tape (plastic)	3.67
34-089	600 ft. tape (plastic)	2.34

$12.95

Complete as shown, with ¼" AC/DC drill, chuck, lambswool bonnet, 2 sanding discs, PLUS 40" detachable wood handle for using drill as floor waxer, etc. Geared down to 500 rpm with load! Lifetime lubricated. Easily worth TWICE our special price. A deluxe gift at a give-away price!

RADIO SHACK
CORPORATION
167 Washington St., Boston 8, Mass.

supplied with parts. AXP received endorsement of his ORS, OBS, and RM certificates.

GEORGIA — SCM, James P. Born, jr., W4ZD — OSE has organized a new c.w. net, the Brass Pounders Net, which meets every Saturday at 1930 EST on 3750 kc. It is a slow-speed net and all are urged to meet this Net as often as possible and help our new Route Manager, OSE, make this fall and winter season a highly successful one. The Atlanta Two-Meter Net now holds regular drills every Monday at 2030 EST. KIP invites other 2-meter stations in the State to listen for them and participate in the net activities. Our sympathies go to HZG, whose wife passed away recently. EJC is building a new kw. rig and a 14-Mc. beam. KL still is looking for DX. IRL is teaching Electronics at Southern Technical Institute at Chamblee. K4WAR made BPL again this month with a grand total of 1084. OSE has joined the Fourth Regional Net. PGZ has returned to the air after his recent illness. LXE is rebuilding his 28- and 14-Mc. beams and is TVI-proofing his transmitters. EJC is the new EC for Fulton and Dekalb Counties. FBH now is working 3.8-Mc. 'phone with a new transmitter and antenna. We are glad to welcome Novices WN4TGK, WN4TKB, WN4TEG, and WN4TGO to this section and invite them and other Novices to participate in ARRL activities. The Macon Radio Club now is affiliated with the League. Merry Christmas and a Happy and Prosperous New Year to all. Traffic: K4WAR 1084, W4KGP 74, RKK 57, OSE 48, KXX 42, ZD 29, RZU 22, KOR 19, FVY 18, NS 17, EJC 8, MTS 8.

WEST INDIES — SCM, William Werner, KP4DJ — SEC: ES. Civil defense sent registration forms to every KP4, resulting in several conferences with your SCM and assistants. The c.d. director visited KP4ID to witness net operation. C.d. plans using Red Cross organization which includes our 3925-kc. net, every member of which should now have a membership card in the Red Cross Disaster Communications System. In ordinary times we continue as amateurs and part of Red Cross; in war we who now pass c.d. security checks and take the Loyalty Oath become part of c.d. and will operate under c.d. authority. C.d. will send other membership applications to all KP4s. We urge all of you to join c.d. CH now has VFO and went back to 28 Mc. KD also is on 28 Mc. BY, LT, and LU are new on 3925-kc. net. FS and NX want 2-meter contacts. Forty KP4s answered the PRARC questionnaire advising they have mobiles. FF has new bandswitching mobile. CK and CL operate mobile on the way home from the office and don't mind waiting in traffic jams. BV has new TBS-50C. Traffic: KP4DJ 2.

SOUTHWESTERN DIVISION

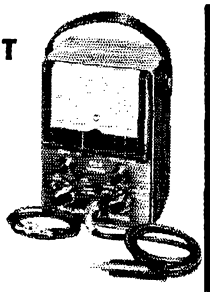
LOS ANGELES — SCM, Samuel A. Greenlee, W6ESR — SEC: KSX, PAM: PIB, RMs: DDE, FYW, and LDR. We are happy to announce the appointment of Frank B. Smith, PIB, as Phone Activities Manager. The section expects to do great things under his leadership. LDR, RM, reports an ever-increasing traffic flow through SCN. Correction: SCN time is 2030 hours (not 2000 as reported). BPL this month was made by KYV, CE, GYH, GEB, and CMN. No, that is not an error, CE is very much back in the traffic game. He says he is going to take it easy but considering his first report since 1950, we wonder. BLY reports: MJA is teaching code at home; ZPC has a new harmonic; NCP's place is a weird and wonderful sight with antennas, from 2 to 160, extending off in all directions; HNT and DSE are newcomers in Whittier and CAU now is Class A; WGL and FMQ are QRM armed forces; JTK is recuperating from an operation and YUY is trying 144-Mc. mobile. KYV has new high-speed tape equipment. He reports several of his Pacific skeds are so equipped. EPL is going on 50 and 420 Mc. CMN has 7- and 3.5-Mc. rigs on the air. KSX finds time to be on all bands — 'phone and c.w. COZ reports: DGB has new all-band transmitter; EXB and EWB visited K6USA; GUM operates on all the 'phone nets. Special Notice: A new section net, the El Capitan Net, is being organized to operate in the 3.5-Mc. band. ECN is a slow-speed net primarily devoted to traffic-handling and will work in conjunction with SCN. Old-timers and Novices alike will welcome the chance to brush up on code speed and operating procedure. The section traffic men will check in frequently to lend a hand. Those of us who have hesitated to accept or originate traffic because of lack of speed are asked to check in and become members of ECN. Further details will be announced by card and on the air. The annual picnic of the Two-Meter and Down Club was held at Buena Park Sept. 30th. There was a large attendance and several ARRL officials were present. A huge raffle added to the enjoyment. KYV and GEB are putting 522s on 144 Mc. (two top traffic men on 'phone? Tch! Tch!) BUK says 7-Mc. c.w. sounds like the good old days. AM is chairman of the joint meeting of the Northern and Southern California DX Clubs to be held in Fresno Jan. 19th and 20th. CK is new OO. YLRL news per Carol, WSV: First meeting of the season was attended by MFP, MWU, YXI, JMC, JMS, GAI, KER, ABF, CEE, WSV, EHA, NLM, NZP, YZU, UHA, and VE5QL. They are planning a memorial station to honor the memory of their silent key, Helen, W6MWO. AVF will be trustee. AREC news per KSX, SEC: Ventura County Net grabbed off 13 mobile units when the Ventura City Fire

(*Continued on page 102*)

"SEEK NO FURTHER, PAPPY . . . TERMINAL HAS IT IN STOCK!"

No fooling — come around and see for yourself! TERMINAL is New York's leading radio supply house, with thousands and thousands of items, hundreds of leading names in electronics from which to choose! You'll like TERMINAL's friendly service and low price policy, too!

RCA WV-77A JR. VOLTOHMYST

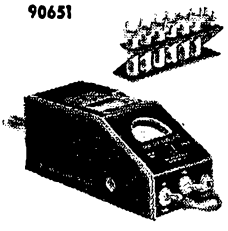


No wonder this new RCA vacuum tube voltmeter is so popular — it's good and priced low! D.C. and A.C. voltage ranges 0-3/12/60/300/1200; resistance 0-1000 megohms in 5 ranges, center scales 10/1000/10,000/1 meg/10 megohms. Complete with tubes, WG-218 AC probe and WG-217 DC probe, leads and instructions. **47.50**

WG-264 crystal diode probe, extends RF range to 250 Mc. **7.75**

MILLEN GRID DIP METER

90651

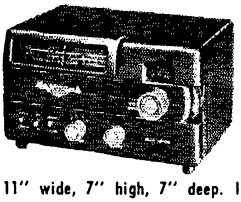


A valuable, accurate RF measuring meter for radio amateurs and engineers. Calibrated oscillator with 2" meter reads oscillator grid current. Use it as Grid Dip Oscillator, Oscillating Detector, Signal Generator, Indicating Absorption Wavemeter. Complete with 7 plug-in coils for 1.7 to 300 Mc. Dial is calibrated for direct reading. **61.50**

90671 STANDING WAVE RATIO BRIDGE

Improve your antenna efficiency with this handy gadget! Use with external 0-1 Ma. meter to find standing wave ratio in 52 or 75 ohm coaxial line. Frequency range is 1 to 150 Mc. Complete with calibration chart, meter plug and instructions. **16.80**

NATIONAL RECEIVERS



SW-54 — This Mighty Midget has performance never before achieved in so compact a receiver! A real distance-getter, covers entire range from 540 Kc. to 30 Mc., voice, music or code. Size only 11" wide, 7" high, 7" deep. Ideal for den, junior's shack or lad in service. **49.95**

NC-125 — A real communications receiver, featuring RF amplification, built-in Select-O-Ject circuit, "S" meter, good audio, phono input. Covers 550 Kc. to 36 Mc. in four bands, with calibrated electrical bandspread on all amateur bands. 11 tubes, including rectifier and voltage regulator. Less speaker. **149.50**

NC-125TS — 6" PM speaker in matching cabinet **11.00**

NFM-73B — Plug-in NBFM adaptor for NC-125 **18.95**

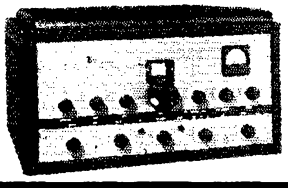
HALLICRAFTERS RECEIVERS

S-38B — The lowest priced communications receiver on the market, with many features found in much higher priced sets. Standard broadcast band plus three short wave bands to 32 Mc. The radio that amazes the experts! **49.50**

All Hallicrafters Models Available

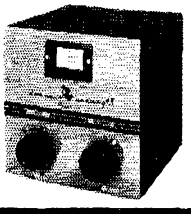
S-40B, complete	99.95	S-72, complete	109.95
S-40BU, complete	109.95	S-72L, complete	119.95
S-53A, complete	79.95	S-77, complete	99.95
SX-62, less R-46 spkr	289.50	S-80, complete	44.50
SX-71, less R-46 spkr	199.50	S-81, complete	49.50
R-46 speaker	19.95	S-82, complete	49.50

JOHNSON VIKING I TRANSMITTER KIT



100 watts phone, 115 watts CW output. Full output on AM on all amateur bands from 160 to 10 meters. Furnished unassembled but complete in every detail for easy assembly. Less tubes, crystal, key, mike. **209.50**

JOHNSON VIKING VFO KIT



Accurate frequency calibration on all bands, 160 through 10 meters. Adequate output, stable, good companion for Viking I transmitter or any other. Less 6AU6 and OA2 tubes. **42.75**

TERMINAL RADIO CORP.

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Phone: WOrth 4-3311 *Cable Address:* TERMRADIO

Dept. installed f.m. equipment. Their frequency is being monitored 24 hours by the Sheriff's Office. The SEC visited Mt. Baldy and San Bernardino at a joint meeting in Pomona. A study group has been formed to assist the SEC as a member of the Los Angeles County and Cities C.D. Planning Board. The group, representing all phases of ham activities, is composed of MYC, FE, LDR, KGC, and PIB. Thanks also to BUK, EHA, EPL, FZO, GTE, KQS, NAZ, and MU for reporting. Traffic: W6KYV 2109, CE 1536, GYH 682, GEB 375, CMN 321, HOV 164, LDR 142, KSX 66, HLZ 60, BHG 50, MJA 34, CK 32, COZ 25, FYW 18, BLY 14, PMS 11, AM 10, FMG 8, OHX 4, DTY 3.

ARIZONA — SCM, Jim Kennedy, W7MID — PKU is new ORS and MGM is new OO appointee. LLO now is Class A. Novices in Tucson are D'Anna, WN7PUZ, and Marshall, WN7PUB. RU and PXC have new Viking rigs. Forty-two stations participated in the September c.w. party. Better join the fun! NYK has a 32V-1, 5RDB/7 has a hot homemade super and a ten-meter ground-plane antenna that is reaching out 60 miles on ground wave. 6WVQ/7 has a Viking on 28 Mc. 5SPK/7 has a kw. on the same band. QAP is at Fort Huachuca. MNH is a Naval radio operator at Quezon City, P.I. HUV is on 3.8-Mc. 'phone. LAD is on 7-Mc. c.w. LVR spends his time on 50 and 144 Mc. JGZ advises that the AZN meets Monday, Wednesday, and Friday at 2000 on 3315 kc. PUM has a new steel tower and 10 over 20 beams. New mobiles on 28 Mc. in Phoenix are PXC and OQF. New Novice calls in Phoenix are WN7PUV, Inez; WN7PUO, Jane; and WN7PUR, Bill. QNO reports his first offspring, a boy. LBN is on the air from Bordeaux, France, with the Signal Corps. JOK is on 3.8 Mc. single sideband. I'm happy to report that my XYL, Jan, now is PWU, on 28-Mc. 'phone. Traffic: K7FAG 1313, W7PKU 64, JGZ 48, K7NRZ 44, W7LVR 14.

SAN DIEGO — SCM, Ellen White, W6YYM — Asst. SCMs: Shelley E. Trotter, 6BAM; Richard E. Huddleston, 6DLN; Thomas H. Wells, 6EWU. SEC: NBJ. RM: IZG. ECs: DEY and VJQ. The Fifth Annual ARRL SET was actively participated in by the San Diego County AREC with excellent results. BSD expects to apply for ORS appointment. Orange County hams are busy attending a radiological monitoring course at Orange County High School. Chief chef of the Upper Ten Club of San Diego is BWI, specializing in baked beans. MFT is heard on 7 and 28 Mc. One of the first Novice licensees to make General Class is ODB. WN6OCY and WN5NPV are studying away to get to 13 w.p.m. SKZ is new president of the Soledad Club and YYN is the new veep. The YLRL's annual Christmas Dinner is scheduled for Dec. 15th at the QTH of Mary Poe. HON expects to be running 100 watts on 144 Mc. shortly. MGT is about to get on 28 Mc. San Diego was well represented at the V.H.F. Hamfest in Buena Park recently and NQV won many of the prizes. GPF is stimulating interest in RTTY in San Diego. HDN is knocking off the DX with his new beam and Collins transmitter. JKE and ROI are visiting in KH6-Land. CHV should be burning up 14 Mc. shortly with a super new 14-Mc. beam. LDJ, of Santa Ana, has moved to Santa Barbara where he has a job as "Prof." ZE and DEY are getting plenty of performance out of their coax antennas on 28 Mc. VAD is going on 420 Mc. ETO has been called into the service and is missed by the OCARC. KW's new ham shack is about ready for operations. The OCEN plans to have a c.w. net on 3700-3750 kc. so Novice amateurs can enter into c.d. communications. Traffic: W6BAM 873, IZG 156, ELQ 124, BSD 97, YYN 2.

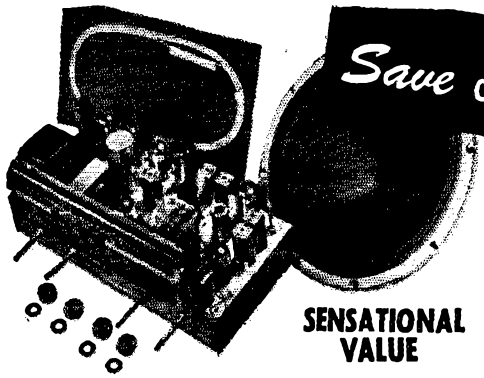
WEST GULF DIVISION

NORTHERN TEXAS — SCM, William A. Green, W5BKH — Asst. SCM, Joe G. Buch, 5CDU. SEC: JQD. RMs: GZU and LSN. PAM: IWQ. Appointments as EC were made for BEY, LJG, and PXI. JQD is overhauling the SEC records and promises to keep all hands of the AREC busy. He intends to make distribution of a pin-pointed map of this section to all ECs soon. Lubbock EC PXI made big plans for the SET. The traffic-handlers are back in harness again with the Nortex/Okla. 'phone net operating every day at 5:30 P.M. until clear on 3960 kc. and NTX, with ARK as NCS, working Mon., Wed., Fri., at 7:00 P.M. on 3760 kc. All hands are invited to participate in either or both of these nets. Much of the overseas traffic in and out of the area is being handled by KRZ, while QHI takes care of NTS channels. A nice job of handling fair traffic was done by RJM at the Fannin County Fair. Two-meter enthusiasts in this section are being heard consistently in the Great Lakes Area according to 9SUV. Watch for those openings. CVW has up a new 60-foot steel tower with 10-2 beams on top and now is ready for net operations. VIM improved audio quality with a new mike. It sounds good here. LGY spent five weeks in California driving 3867 miles and visiting many hams during the trip. TSV is the call of the Pampa ARC. New calls noted are WN5TKL, WN5TKM, and WN5TGZ. Traffic: W5QHI 626, GZU 304, KRZ 221, ARK 159, BKH 106, LEZ 45, IWQ 35, SQW 29, HBD 26, RHP 10, VIM 6, CVW 2.

OKLAHOMA — SCM, Frank E. Fisher, W5AHT/AST — SEC: AGM. RM: FOG. PAMs: GZK and ATJ. EHC's son, Clarence, age 13, is now WN5TKC. ORH's brother,

(*Continued on page 104*)

Save ON THESE NEWARK values

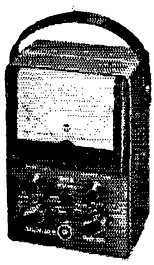


SENSATIONAL VALUE

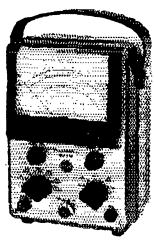
NEWARK'S FM-AM RECEIVER

Hi-fi FM-AM chassis featuring push-pull audio output. FM circuit is drift-compensated. Has full range bass-treble tone control and phono jack with built-in preamp for magnetic pickups. Chassis is complete with 12" PM speaker, built-in AM and FM antennas, 12 tubes (including rectifier), all hardware, and escutcheon. Size, 13½x9x9". Wt., 20 lbs.

96C034. SPECIAL PRICE.....$69.50



Latest RCA Low-Cost VTVM's



MODEL WV-77A VOLTOHMYST

Incorporates features found only in more expensive instruments. Measures DC volts from 0.05 to 1200 volts in 5 ranges; measures AC volts from 0.1 to 1200 volts rms in 5 ranges. Ohmmeter-measures resistance from 0.2 to 1 billion ohms in 5 ranges. Frequency response flat from 30 cps to approximately 3 mc. Has ±3% over-all accuracy on +DC scales and ±5% on AC and —DC scales. Zero-center scale for discriminator alignment. Features 200-microampere meter movement. Complete with DC probe, AC direct probe and cable, lead and clip. Size, 8x5⅜x4½". Shpg. wt., 6 lbs.

62G010. NET.....$47.50

MODEL WV-97A VOLTOHMYST

Improved version of the famous 195-A. Wide response, 30 cps to 3 mc. Reads DC volts to 1500 in 7 continuous ranges, with an input resistance of 11 megohms. Reads AC rms to 1500 volts; AC peak-to-peak, 4200 volts. Input resistance, .83 megohms and 70 mmf to 1.5 megohms and 60 mmf. Ohmmeter reads 0.2 ohms to 1000 megohms in seven continuous ranges. Overall accuracy: on DC, ±3%; on AC, ±5% of full scale. Size, 5¼x7¾x3¾". With probes and leads. Shpg. wt., 10 lbs.

62G000. NET.....$67.50

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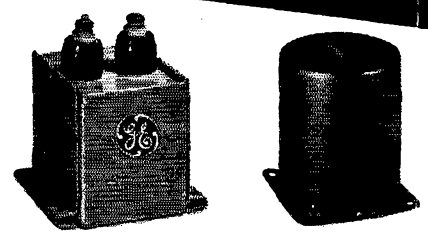

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Multi-Filament Transformer. Has six CT secondaries: (3) 6.4 V @ 8A; (2) 6 V @ 2.5A; (1) 2.6 V @ 10A. Size, 4¼x5x5¼". Shpg. wt., 14 lbs.

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Filter Choke. 6.5 hy @ 230 ma, 3000 volts insulation. Size, 5x7½". Shpg. wt., 23 lbs.

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Filter Choke. 4.2 hy @ 300 ma, 78 ohms, 2500 volts insulation. Size, 4½x3½" dia. Wt., 9 lbs.

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A

B

Fig. A. For 110 volts, 60 cycles. Delivers 250 V @ 50 ma, 100 V @ 15 ma, 6.3 V @ 2.5 amps and —24 V bias. Hum level 94 db below 250 V and 57 db below 100 V. Chassis, 4¾x8x2" Less 5Y3 rect. 8 lbs.

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Fig. B. Output: 250-300 V @ 2-8 ma, or 280-320 V @ 8-16 ma. Filament: 6.0-6.3 V, adjustable @ 1.5 A. Hum level 90 db below 300 V @ 10 ma. Size, 3½ x 10¼ x 6". Less 80 rectifier. Wt., 6 lbs.

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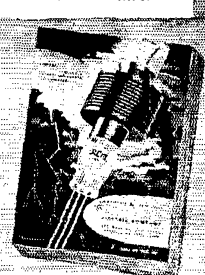

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Guy, is now WN5TKS. WN5TKD is on 3.7 Mc. Oklahoma County AREC held another Hidden Transmitter Hunt. GVV has been organizing mobiles on 75 meters for AREC. JF, NGE, and OQF are now equipped and others are building. Enid ARC has had some interesting club meetings with films of microwave and mobile 'phone operation through the courtesy of Ma Bell; also talks by FJ on automobile QRM. LHU returned from an extensive trip to W6-Land, bringing with him dope on mobile operation on the Coast. EZK is back on 7 Mc. with other antenna in prospect. From the way GVS is staying with 50 and 144 Mc. you would think lower frequencies were obsolete. MFX lost a modulator power supply and is off 75 meters for a while. RIT sold his BC-610 and will unveil his new rig before long. QXL is happy with a new Viking transmitter. PA, as Regional Coördinator for river forecast net, is facing quite a job finding amateur stations in the needed locations. OPEN has the largest active membership of its history and is showing good form in its weekly drill. The Texas–Oklahoma Traffic Net ('phone) has had a very busy month and looks for still more traffic during the winter season. OLZ is finding some relief from the static that has plagued its summer operation. Business is picking up here, too. Traffic: W5GZK 323, MRK 250, OQD 96, AHT 91, JHA 37, MFX 35, HFN 19, OWG 14, OZE 13, EHC 6.

SOUTHERN TEXAS — SCM, Dr. Charles Fermaglich, W5FJF — QOF now is a student at U. of Houston. QFA is active on MARS and STEN and has a new gamma-match antenna for 75 meters. RIH still is sparking the c.w. net. FIW and AQE are doing fine on the c.w. net despite the bad conditions. MN is handling lots of traffic. QEM is active on So. Tex. Traffic Net and So. Tex. Emergency Net. NIY is working STEN c.w. net, and is experimenting with a 1500-foot-long wire antenna. NHD reports 28 Mc. has been good to Africa. The 10-meter net has been changed from 29.6 to 29.1 Mc. and meets Wed. at 8 P.M. The 2-meter Coastal Emergency Net meets at 8 P.M. on 146.8 Mc. AQE, new EC for Winkler County, reports the Winkler County ARC has resumed regular meetings every other Monday. IPT reports new officers of the Temple ARC are PNP, pres.; LM, vice-pres.; IPT, secy.-treas. The TARC had operating exhibit at Cen. Tex. Fair. QOT is on 14 Mc. with Stancor 202. QGD will be on with new rig. GKR is showing signs of life. QCE is going to U. of Tex. Duties as acting NCS of MARS Tex. c.w. net are keeping IPT busy. ACL reports conditions so poor he had to mail Korean traffic to the West. RFG is back on after a hot summer. ELPEN is on 29 Mc. at 2000. NPX uses single sideband on 27 and 28 Mc. and has been appointed OBS. KUC is doing an FB job getting out the publication of the West Gulf Division DX Club. NW recently worked FB8BB and reports most DX around 14,050 kc. The DX Club meets on 3925 kc. Thursdays at 8 P.M. to discuss DX. LGG recently moved to Austin and has an FB set-up. FNA is working VU2s and VP8s. AWT has been working a lot of DX for all the traveling he has been doing. JC is working lots of DX. KUC is working lots of DX on 28 Mc. in the daytime. FXN has home-grown rig — 500-watt VFO on all bands. He has 35 zones and 141 countries confirmed. EFC has a pair of 4-250s in the final and has 160 confirmed on 'phone. JUF moved to Abbeville, La. LVD heard OY3IGO. New members of the DX Club are BZT, NZE, LHD, OZR, MPG, AFX, KUJ, IIP, KWY, CEW, BK, CPI, MET, and NTT. MJT is a new member of the AREC. LSE is going to the Middlewest and is going 10-meter mobile. PTV made BPL again. Hams employed in the electronics engineering field will be interested to know that the 4th Southwestern IRE Conference and Radio Engineering Show will be held in Houston, May 16–17, at the Rice Hotel. Traffic: W5PTV 528, MN 439, QJO 79, QDX 65, JRV 51, QEM 51, QFA 51, IZB 38, RIH 30, FIW 22, CPG 17, QEY 14, PBG 11, AQE 4, IPT 2, RFG 2.

CANADA

MARITIME DIVISION

MARITIME — SCM, A. M. Crowell, VE1DQ — SEC: FQ. EC. EK. RM: OM. Please note two important new appointments this month. Both EK and OM are well experienced and capable men in these fields and should do a good job. OM has reorganized the MTN, which meets on 3715 kc. every Mon., Wed., and Fri. at 8 P.M. AST. EK will handle new AREC appointments with a view to improving c.d. manpower in the Halifax Area. If interested in this see EK for your AREC membership card. An old-timer, HJ, was heard the other night back on 3.5-Mc. c.w. Sorry to hear that DW was in a motor car accident. XR has been working on 14 Mc. in addition to some low power on 3.8-Mc. 'phone. VW, East Coast Sigs. Army station, has gone to 14-Mc. 'phone. NN is a new call heard. ACK has been quite active on 14-Mc. c.w. FQ is rebuilding his three-element beam. We hear with regret that DB is on the sick list. DQ, FQ, HC, LZ, and PT represented Halifax Flight in a group who were airlifted to and from the Montreal Hamfest. Orchids to F/O Barrett, KM, and fellow officers for tops in transport to and from this Hamfest. Traffic: VE1FQ 130, MK 42, ABA 20, EY 18, AAK 15, PS 14, ZO 14, KG 8, OM 8, XH 7.

(*Continued on page 106*)

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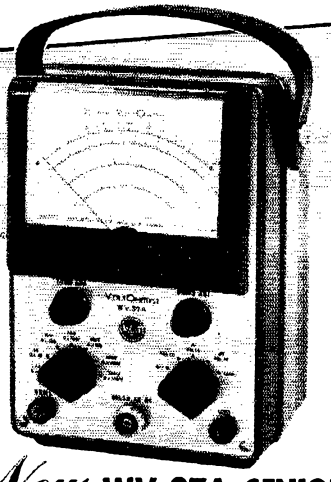
...and for that really "special" gift HARVEY recommends one of these NEW RCA VOLT-OHMYSTS



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It measures dc from 0.05 volt to 1200 volts in five ranges. Uses 1-megohm resistor in isolating probe; probe has less than 2-uuf input capacitance. Has 11-megohm input; useful for measuring high-resistance circuits such as oscillator, discriminator, and avc.

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The all-new RCA WV-77A Volt-Ohmyst comes completely equipped with probes and cables as illustrated.

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7. Frequency response flat from 30 cps to approximately 3Mc.
8. Negative-feedback circuit provides better over-all stability.
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NOTE: In view of the rapidly changing price situation in both complete units and components we wish to emphasize that all prices are subject to change without notice, and are Net, F.O.B., N.Y.C.

ONTARIO DIVISION

ONTARIO — SCM, G. Eric Farquhar, VE3IA — The Quinte Club opened its winter season with a good attendance at the first meeting. Six members of this club had mobiles in recent S.E.T. Oshawa held a combined picnic with the Quinte gang at Cobourg, with the Belleville boys making off with a goodly part of the prizes. More than 100 OMs, XYLs, YLs, and harmonics attended. BTQ now is located at Trenton. V.h.f. activity in Oshawa, Kingston, Perth, Belleville, and Peterboro increases. September V.H.F. Field Day resulted in ANY getting 42 stations and AVZ accounting for 36. A newcomer to hamdom, DOS, whose shack is located in a discarded coal-bin at the Indian Hospital in Moose-Factory near James Bay, had the unique experience of assisting in the search for two missing fliers as an observer on daily flights. He also made his facilities available to the communications section of the searchers. Welcome to two new calls in Kapuskasing, BUU and DLU. True ham spirit was shown to a newcomer to Canada when AVS and BG visited an EX, LAI, during and after a spell in the hospital. AVS added to the goodwill gesture by getting word to an anxious wife in Norway of the whereabouts and welfare of her husband. PH enjoyed the visit of 8LQA and his XYL. BIK gets out well on 28 Mc. with vertical coax. AWR, AGJ, and DND sport new beams. BNQ has 34 states on 28-Mc. mobile. BTQ, MW, EI, FQ, and BSG attended the Goderich picnic. Congrats to BVR and Muriel on becoming OM and XYL in October. Likewise congrats to XYL and daughter of QU. As the result of a car accident CI received serious injuries. A speedy recovery and return to his calling is the sincere wish of all. Season's Greetings to all. May you and yours have a Prosperous and Happy 1952. Traffic: VE3IA 184, ATR 161, WY 153, BUR 126, TX 97, DGZ 94, WN 42, BJV 31, BVR 29, GI 27, BNQ 26, AYW 21, EAM 20, DGA 15, DU 15, PH 15, VD 5.

QUEBEC DIVISION

QUEBEC — SCM, Gordon A. Lynn, VE2GL — One of the highlights of the month was the Hamfest on Sept. 22nd in Victoria Hall, Westmount, sponsored by the Montreal Amateur Radio Club. More than 300 hams, XYLs, and YLs sat down to the banquet and remained for the dancing which followed a day of interesting personal QSOs among hams from VE1-, VE2-, VE3-, VE4-, W1-, and W2-Land. On Sept. 28th ABU, ABR, and ACT set up portable equipment in the bush some 30 miles northeast of LaSarre to provide communication for the Red Cross to LaSarre and Montreal. A trapper had been lost in the bush and the search was organized by Red Cross. ABU/2 was on the air from 8:30 P.M. the 28th to 4 P.M. the 30th, when the victim's body was found. Messages were handled to ABP in LaSarre where operators were ABP, AKX, and AAN, and to AO in Montreal. At ABU/2 operators were ABU, ABR, and ACT. WW is on from new QTH in Beaurepaire with 555-ft.-long antenna. CK finds time to handle a bit of traffic in between 'phone QSOs. BV has new VFO with n.f.m. and was heard on the air with it when he came on for a short test and spent the entire evening ragchewing. PQN got off to a good start with several of the old gang reporting in and two or three new ones, including RZ and AMB. TA has renewed ORS on the certificate first issued to him in Feb. 1924. XA has new four-element 50-Mc. rotatable beam and is all set for 50-Mc. openings. Traffic: VE2CA 33, AO 26, CK 17, GL 5.

VANALTA DIVISION

BRITISH COLUMBIA — SCM, Wilf Moorhouse, VE7US — The SEC, VE7DD, of 6650 Balsam, Vancouver, solicits members for AREC. New ECs now are appointed covering communities and areas. DH, Nanaimo, is on with clamp-tube screen modulation of 807. XV is silent. PO's EC job has been taken by AJV. TT is active in nets. QC, Regional EC, is very busy with the interior gang. CB, AAZ, SF, and MU, are active in Victoria. ACW has been relieved by CX at Alberni. RS is on c.w. as usual. FB cavorts the Province. BJ and the net still are active. 3755 kc. is busy with AREC activities. The Island Net also is on this frequency. Vancouver mobiles are active and the mobile gang had a meeting and decided on 3740 kc. as the mobile frequency. AOQ, in Victoria, is carrying papers around a job. LP still is active on AREC. WN7PQU checks into B.C. nets. AKN now is known as "Dimples" of Jordan River. AAZ is building a new rig. CB is on with new antenna. All deadwood ARRL appointments have been removed and active stations are solicited. CGM agrees no VE reduction in 'phone sub-bands shall take place. We are already limited in gear and power levels. The Nanaimo Club gives thanks to the AREC and DD, ASA, QC, QV, and AOB for their help during the Nanaimo Forest fires. ALL is mobile. AQB is on 7 Mc. calling Gs. AQS and ASB are due back in Nanaimo. Traffic: VE7AOB 9, DH 4.

YUKON — The following report was written by John W. Smith, VE8RY, who would like the VE8 gang to help keep this column alive by passing along items of interest to himself or to any of the officers of CO. AW still is looking for the rare DX and waiting for another four cards to make it 150 countries confirmed. AK, our former SCM, has moved to

(*Continued on page 108*)

VE6-Land. AV recently returned from a trip to England and France. BO and GM are two new calls, both members having recently arrived from VE3-Land. CV, CR, and RY are all leaving for VE3-Land. LG is rebuilding his rig using a coffee-can VFO. WN is heard on 14 Mc. occasionally. Following are CO officers: BK, pres.; CZ vice-pres.; and AV secy.-treas. The Club is looking for a new shack. All club members are sporting club crests designed by CR. AL has a mobile rig installed and CZ has been testing a mobile rig. AO, at Lake LeBarge, has been heard quite frequently on 3.8-Mc. 'phone. DE has returned from a visit to his home in VO-Land. Ex-VE7SJ is a recent addition to the VE8 gang and is awaiting a new call.

PRAIRIE DIVISION

MANITOBA — SCM, A. W. Morley, VE4AM — Everyone who attended the Dauphin Hamfest has nothing but praise for PA and his co-workers. Nine mobile rigs were present, with CI winning the prize for the best one. JN won the c.w. contest, and DS the QSO Contest. Plan now to attend the next one, which will be held Sept. 7, 1952. 5BH now is signing 4AL at Rivers. JD had his ticket endorsed for 75- and 20-meter 'phone and promptly joined the 'phone net. 5MA now is 4MA in Transcona. DL3WT now is located at Whitemouth. FA, our PAM, has moved to VE3-Land. We need a new PAM. Are you interested? HG has new VFO and 804 working on 7 Mc. BARC officers for the coming year are FW, pres.; YW, vice-pres.; and Ken Morgan, secy.-treas. The Club had a picnic at Waggle Springs, which was enjoyed by hams from Deloraine, Hartney, Minnedosa, and Winnipeg. GW now is located at Sandy Lake. GV has new 35-watt rig on 75 meters. FP has left for the West Coast. JI is rebuilding to 814 final. DS and XYL and KN and OM visited the SCM. The 'phone net, on 3760 kc., opened with a bang on Oct. 1st with 14 stations reporting the first night.

SASKATCHEWAN — SCM, Harold R. Horn, VE5HR — New appointments: TE as Route Manager; BZ as SEC. Mac and Roy will be looking for your support and help so don't turn them down. PK has a new addition, a boy. JI and IJ now are VE3DLM and 3DLN, respectively. RJ and FL have a new HQ-129X. DR put up an 8JK beam. HT, Harold Tee, District Superintendent for Saskatchewan, Radio Division, Department of Transport, has retired and will be missed by many. We all wish you and Mrs. Tee good health and a well-earned rest, and hope to hear you sign VE7 soon. The Regina Club held a luncheon in his honor and farewell gifts were presented. JD now signs VE3AYR. MA now is 4MA and can be heard making smoke signals. AN met with serious injuries when a ladder he was on slid on the floor. YF is Saskatchewan reporter for Alberta's RF. FY is busy rebuilding the basement of his house. An amateur radio demonstration was put on from Fort Qu'Appelle on Nov. 6th from 7 P.M. to 9 P.M. which gave us an opportunity to show the civil defense what we are prepared to do in an emergency. Frequency was 3780 kc. Traffic: VE5YF 38, PJ 16, DS 11, TE 10, QL 9, DD 2, WJ 2.

Oh, softly sing a gentle hymn
For poor old Tom McStencil.
He loved to see those pretty arcs
He drew with a lead pencil.

Strays

G3AAE, who has been engaged in reactivating the RSGB Philatelic Section, has offered to act as liaison between American ham stamp collectors and their counterparts in Great Britain, to expedite the exchange of duplicates and general correspondence. Write, telling of your special philatelic interests, to J. Douglas Kay, G3AAE, Gothic House, Hadley Common, Barnet, Herts., England.

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73,
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W2AVA

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Happenings

(*Continued from page 38*)

Governing Amateur Radio Service, to permit use of narrow-band frequency or phase modulation for telephony on all amateur frequencies presently available for amplitude modulation for telephony.

3. The Commission proposes to amend Section 12.111(a) of Part 12, "Rules Governing Amateur Radio Service", to authorize use of narrow-band frequency or phase modulation for radiotelephony in the segments 3800 to 4000 kc, and 14200 to 14300 kc, of the regularly allocated amateur frequency bands, in lieu of the presently authorized segments 3800 to 3850 kc, and 14200 to 14250 kc, for that type of emission. The Commission does not propose to authorize the use of narrow-band frequency or phase modulation for radiotelephony in the authorized segments of the 1800 to 2000 kc amateur band, because of the priority of the Loran system of radionavigation and the existing limitations concerning operation of amateur stations in that band.

4. The proposed amendments, which are set forth in the attached appendix, are issued under the authority of Sections 4(i), 301 and 303 of the Communications Act of 1934, as amended.

5. Any interested party who is of the opinion that the proposed amendments should not be adopted, or should not be adopted in the manner set forth in the appendix hereto, may file with the Commission on or before January 2, 1952, a statement or brief setting forth his comments. At the same time, persons favoring the proposed amendments may file statements in support thereof. Within fifteen days from the last day for filing of original comments or briefs, comments or briefs in reply thereto may be filed. The Commission will consider such comments before taking action in the matter. If any comments appear to warrant the holding of an oral argument or hearing, notice of the time and place thereof will be given.

6. In accordance with the provisions of Section 1.764 of the Commission's Rules and Regulations, an original and six copies of all statements, briefs, or comments filed shall be furnished the Commission.

FEDERAL COMMUNICATIONS COMMISSION
T. J. Slowie.
Secretary

Adopted: 10-31-51
Released: 11-1-51

APPENDIX

SECTION 12.111(a) OF PART 12, "RULES GOVERNING AMATEUR RADIO SERVICE", IS PROPOSED TO BE AMENDED IN THE FOLLOWING PARTICULARS

1. AMEND PARAGRAPH (2)(ii) TO READ AS FOLLOWS:

(ii) 3800 to 4000 kc, using type A-3 emission and narrow-band frequency or phase modulation for radiotelephony, available to stations located within the continental limits of the United States, the Territories of Alaska and Hawaii, Puerto Rico, the Virgin Islands, and all United States possessions lying west of the Territory of Hawaii to 170° west longitude, subject to the further restriction that type A-3 emission, or narrow band frequency or phase modulation for radiotelephony, may be used only by an amateur station which is licensed to an amateur operator holding an Amateur Extra Class or Advanced Class license and then only when operated and controlled by an amateur operator holding an Amateur Extra Class or Advanced Class license

2. AMEND PARAGRAPH (4) TO READ AS FOLLOWS:

(4) 14000 to 14400 kc, using type A-1 emission and, on frequencies 14200 to 14300 kc, type A-3 emission and narrow band frequency or phase modulation for radiotelephony, subject to the restriction that type A-3 emission, or narrow-band frequency or phase modulation for radiotelephony, may be used only by an amateur station which is licensed to an amateur operator holding an Amateur Extra Class or Advanced Class license and then only when operated and controlled by an amateur operator holding an Amateur Extra Class or Advanced Class license.

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BEST TRADE-IN ALLOWANCE: Customers in all parts of the USA trade with me because I allow so much. Tell me what you have to trade and what you want. I also buy equipment.

TIME PAYMENTS: You can order anything on terms. I finance the terms myself to save you time and bother. Customers everywhere in the USA find my terms best. Write for details.

QUICK DELIVERY: Mail, phone, or wire your order. It will be shipped promptly. I can be reached nearly 24 hours a day, 7 days a week.

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PERSONAL ATTENTION: The Butler store is run by Bob Henry, WØARA, and the Los Angeles store by Ted Henry, W6UOU. We make the deals ourselves. We finance the time payments ourselves. That way we have the lowest overhead and can do more for you. That's why YOU AND I CAN DO BUSINESS. Write, phone, or visit either store. Export orders solicited.

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WØARA

Butler 1, Missouri
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LOS ANGELES 64
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"LARGEST DISTRIBUTORS OF SHORT WAVE RECEIVERS"

Calibrating V.H.F. Receivers

(*Continued from page 89*)

converter is peaked on the 50-Mc. band. The error will be negligible for ordinary purposes, however.

In the example given, Channel 4 and an intermediate frequency of 10 Mc. were used, but there are endless other possibilities. Channel 5 (81.75 Mc.) and an i.f. of 15 Mc. would do for a 50-Mc. converter. For 144 Mc., Channel 7 (179.75 Mc.) could be used with an i.f. of 17.875 Mc. Running

TABLE II

Television Sound Carrier Frequencies

Channel	*Sound Freq. (Mc.)*	*Channel*	*Sound Freq. (Mc.)*
2	59.75	8	185.75
3	65.75	9	191.75
4	71.76	10	197.75
5	81.75	11	203.75
6	87.75	12	209.75
7	179.75	13	215.75

the oscillator on the low side of the signal frequency results in many more combinations. With the many commercial services now operating in the v.h.f. range, all held to accurate frequency standards by law, the experimenter should be able to make use of this method in almost any location by suitable choice of test signal and intermediate frequency. Table II gives the sound carrier frequencies for the various TV channels.

Coax Feed

(*Continued from page 41*)

store resonance an inductive reactance of 26 ohms will have to be added in parallel. The required L is found from reactance charts to be approximately 1 microhenry. The coax line now sees a pure resistance of 73 ohms, which makes a good match with cable such as RG-11/U or RG-59/U.

In actual practice, a coil of approximately 5 microhenrys inductance can be placed at the antenna base in series with the whip, as shown in Fig. 2C. The center conductor of the coax transmission line is tapped up on the coil a distance corresponding to an inductance of 1 μh., the antenna is then energized at the desired operating frequency and the center loading coil is adjusted to resonance. Adjustment becomes easy if an s.w.r. bridge is used, since all that it is necessary to do is to take trial positions of the tap on the coil at the base, each time adjusting the center coil for minimum s.w.r., until the combination is found that brings the s.w.r. closest to 1 to 1.

In designing the writer's antenna it was mandatory to use coax feed in order to have access to the transmitter at the instrument panel. Fig. 4 shows the final design, which employs shunt feed. This antenna has given highly satisfactory service, QSOs over several hundred miles with S9 reports being the rule rather than the exception.

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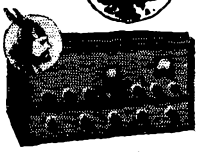


VIKING 1 XMTR KIT

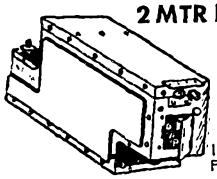
115 Watts cw, 100 Watts AM Phone Output. Complete details on Page 67, *July QST*. VIKING 1 Transmitter Kit, less tubes, crystals, mike, key — Amateur Net..... $209.50

WIRED, TESTED, GUARANTEED, less tubes, crystal, mike, key..... $259.50

TUBE KIT for VIKING 1 XMTR (subj. to availability) 829 final..... $22.50

4D32 final..... $28.50

NEW LOW PRICE
ARC-5/R28
2 MTR RCVR



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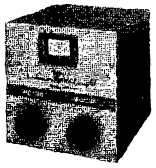
FREE with each order for ARC. 5/R28 Receivers, one copy of Vol. 2 "Surplus Radio Conversion Manual". (Regular Price $2.50.)

VIKING VFO KIT



Complete details on pages 68–69 of September *QST*.

Complete Kit, less tubes. Amateur net..... $42.75

Wired, tested, guaranteed, with tubes..... $62.75

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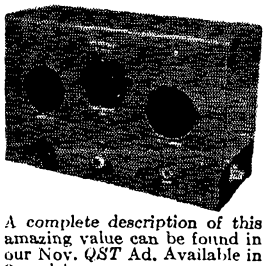
EXCLUSIVE WITH NIAGARA



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Either model with tubes less mike, xtal, pow. sup. $119.95

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NIAGARA'S GUARANTEE OF SATISFACTION

All items ordered must meet with full approval or your money back.

Automatic Key Design

(Continued from page 45)

When the ratio approximates 3-to-1 in terms of dot length, an ohmmeter connected across the keyed circuit terminals should register midscale on dots when the spacing control is correctly set. On dashes, the reading should be ¾ scale.

It does not follow that the ohmmeter can be used to *find* correct ratio setting with this circuit. Other than a 3-to-1 ratio may show a ¾-scale ohmmeter reading because of the effect of ratio adjustment on the spacing characteristic. Once adjusted, the ratio control requires no further attention.

The weight of the completed key is 5½ pounds — ample to "stay put" under the pounding of a normal fist, yet light enough in terms of portability.

Hundreds of operating hours, both amateur and commercial, have been run up on keys utilizing a design based on this one. The reliable performance under a wide variety of conditions is ample recommendation for the individual undertaking the construction of a compact automatic key.

The End-Fed Hertz

(Continued from page 49)

the proper ratio of capacity and inductance in the coupler, and with the antenna coupler tuned to resonance, changing the frequency of the transmitter a bit (say, 25 kc. on 7 Mc.) shouldn't require any retuning of the antenna coupler or of the output amplifier. Severe pulling of the amplifier tuning with changes in the antenna coupler tuning indicates incorrect coupling. Some experimentation may be necessary before hitting the correct combinations.

If the coaxial line used as a link between transmitter and antenna coupler heats up, it is a surefire indication that the coupling is incorrect.

When your rig is properly shielded and filtered already, you need not fear much TVI when using the coupler. *Total* TVI elimination may require a low-pass filter between transmitter and coupler in some instances. At W4ADE we had no difficulty with TVI while using the coupler alone. And in the last installation, the antenna was placed only 10 feet from the neighbor's TV antenna! The amount of TVI depends, of course, upon the channel and the strength of the TV signal.

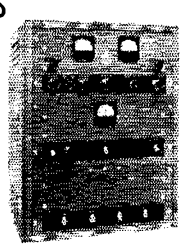
You will find many other hams who have used the end-fed Hertz successfully and repeatedly, so we do not stand alone in recommending it for certain uses. If your antenna problems need simplification, by all means do not overlook the possibilities of this skywire. A fellow may have one-watt input or a kilowatt input, but without an antenna that works he resembles an elephant fallen into a pit — he can't get out very well.

Fellows...

one of the world's best buys is still a WRL TRANSMITTER...

ask any Globe King Owner

Leo I. Meyerson WØGFQ



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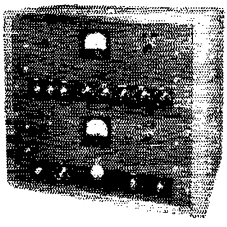
KIT FORM **$329.50** and one set of coils. WIRED **$349.50**



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Name_____
Address_____
City_____ State_____

How's DX?

(*Continued from page 66*)

was a recent visitor to West Hartford ARRL diggins while on a business trip to this country . . . . People have been seeing not only flying saucers lately but bona fide QSLs from ET9X. Try a line anent same to K2AJ . . . . According to KH6WW, KH6QY departed for Ponape, Carolines, toting a 20-watt 7-Mc. rig with crystals for 7040 and 7090 kc. He is to be permanently stationed on that island . . . . VS1AY intends to include League Headquarters in his U. S. A. travels and Stan will be in this country for the better part of a year. While here he may be reached % Commonwealth Fund, 41 E. 57th St., New York 22, N. Y. . . . . At last count, the FEARL had issued 19 WAJAD awards and 48 WFJS certificates. Incidentally, if you find yourself in Japan with some time to kill, the number to call to get information on amateur activity in Japan and Iwo Jima is Yokohama 2-0426. Present communications managers in their respective districts are JA3AH, JA4AP, JA5AA, JA7AR, JA8OT and JA9LM while JA2OM assumes the FEARL presidency. With the conclusion of the Japanese peace treaty, it is expected that J nationals will shortly be returning to the air . . . . Notes from the No. Calf. DX Club's *DXer:* 3A2AB, while visiting W6AM, mentioned intentions of taking in Clipperton and Cocos Islands. There are reported to be afoot some half dozen DXpeditions of similar nature including a VS5 journey by WØELA . . . . W4RQR (ex-KH6DD) has gone to California as W6TZB and W4LAP was reported en route to Germany for a two-year stint and a DL4 label, we see in the Virginia Section Bulletin . . . . Excerpts from the West Gulf Division DX Club Memoranda assembled by W5KUC: FU8AA will be putting New Hebrides back on the air about the end of the year and HC8GI is still planning a TI9 trip. . . . VR4AB is providing the only contemporary activity in his locale but, alas and alack, is on shipboard. . . . KH6KL remarked that he and other KH6s are often operating portable-VR3 and portable-KB6 on week ends; make sure you get the complete tag on these guys. . . . One TI2RU is another tentative traveler to Cocos Island. . . . There definitely are some CR8s active but they may have taken this underground-antenna thing seriously . . . . More on the VS5 situation: Wøs EFK and ELA intend to put VS4ELA (Borneo), VS5ELA (Sarawak) and VS5ELB (Brunei) on the air before you read this and operation will be strictly 14-Mc. c.w. WØELA handled the licensing red tape successfully while WØEFK was constructing the equipment in Tokyo. This jaunt will knock off three tough birds with one stone and all fingers should be crossed for good conditions.

—•••—

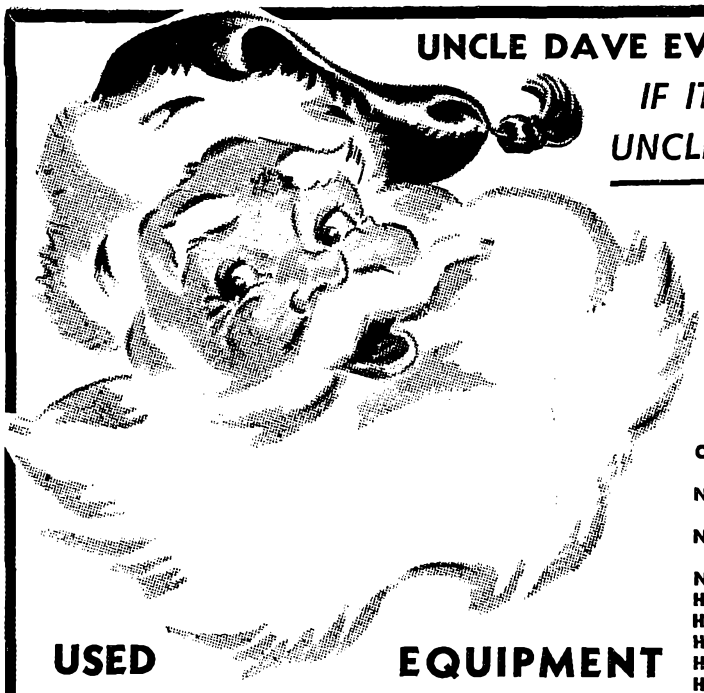
Speaking of Borneo, Jeeves likes to tell of a friend he once had who hailed from that area and with whom he didn't get along too well. The fellow had once been voted by his tribe as the young man most likely to get a head.

Field Day Results

(*Continued from page 63*)

W8AKA/8	(nonclub group)	168-	A- 5-	1512
W8RM/8	Perry Radio Club	144-	AB-10-	1311
W8VEY/8	Tri-County Radio Assn.	115-	AB-10-	855
W8URD/8	Case Institute of Technology Radio Club	228-	AB- 7-	758
W9EDK/9	Phoamblowers & Brass-pounders	661-	A- 8-	6174
W9AIU/9	Egyptian Radio Club	538-	A-12-	5067
W9APU/9	Rock River Radio Club	623-	AB-12-	4782
W9CAF/9	Chicago Amateur Radio Club	447-	A-22-	4248
W9BA/9	St. Clair Amateur Radio Club	216-	AB-32-	3816
W9GJY/9	Neenah-Menasha Amateur Radio Club	480-	AB- 4-	3474
W9OLM/9	The Illinois Valley Radio Assn.	321-	A- 5-	2907
W9ZFJ/9	(nonclub group)	284-	AB- 5-	2427

(*Continued on page 118*)



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Hallicrafters HT-9 Transmitter with full set of coils and 11 crystals (like new)	$375.00
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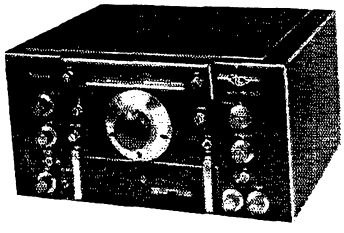
Hammarlund Super Pro SP-400X complete with power supply and speaker (like new)	300.00
Hammarlund Comet Pro with coils and speaker	65.00
Millen 90281 power supply input 115 VAC—output 700 VDC @ 235 ma 6.3 V @ 4 amp	85.00
1 Millen 90881 RF Power amplifier	59.50
1 Hallicrafters SX-43 less speaker (like new)	125.00
1 "E" coil only for National HRO-7 broadcast band 900 to 2000 kc	10.00
Mallory VP555H Vibropack input 6VDC output 300 VDC @ 200 ma heavy duty	34.32

Collins 75A2 Receiver with speaker	$440.00
National NC-183T with speaker	295.00
National NC-125 with speaker	160.50
National SW-54	49.95
Hallicrafters S-38B	49.50
Hallicrafters S-40B	99.95
Hallicrafters S-53A	79.95
Hallicrafters S-72	109.95
Hallicrafters S-72L	119.95
Hallicrafters S-76 less spkr.	169.50
Hallicrafters S-77	99.95
Hallicrafters SX-62 less spkr.	289.50
Hallicrafters SX-71 less spkr.	199.50
Hallicrafters R-46 speaker to match, S-76, SX-62, and SX-71	19.95
Hammarlund HQ-129X with speaker	214.00
RME-50 with speaker	187.50



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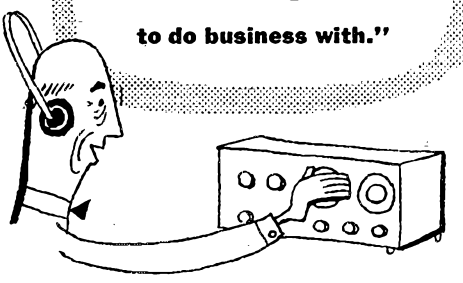
K9NRD/9	Quad-City Amateur Radio Club	149-	B-15-	894
W9AEF/9	Whiteside VHF Radio Net	30-	AB- 4-	207
WØRA/Ø	St. Paul Radio Club	1049-	A-14-	9702
WØJKE/Ø	Ak-Sar-Ben Radio Club	419-	A-28-	3996
WØRVG/Ø	Heart of America Radio Club	336-	AB-25-	3402
WØDCW/Ø	Suburban Radio Club of St. Louis	342-	A-17-	3078
WØBLK/Ø	Black Hills Amateur Radio Club	272-	A-14-	2448
WØINR/Ø	Panhandle Radio Club	246-	B- 7-	1476
WØBAB/Ø	Boone Mike and Key Club	118-	A-11-	1287
WØHUG/Ø	Rolla Amateur Radio Assn.	143-	A-12-	1287
KP4KP/4	Borinquen Amateur Radio Club	209-	B-11-	1404
KP4NW/4	Metropolitan Radio Amateur Club	51-	A-22-	684
KZ5KZ/KZ5	(nonclub group)	516-	B-45-	3096
VE1FO/1	Halifax Amateur Radio Club	271-	A-15-	2139
VE1RC/1	(nonclub group)	260-	A- -	1854
VE2N1/2	Lakeshore Amateur Radio Club	452-	A-12-	4203
VE3NW/3	Quinte Amateur Radio Club	391-	B-12-	2502
VE3DNS/3	Blue Arc Amateur Radio Club	171-	A- 5-	1989
VE3AMM/3	Peterborough Amateur Radio Club	283-	B- 8-	1848
VE3MW/3	Thumb Area Amateur Radio Assn.	124-	A- 5-	1116
VE7ACS/7	University of British Columbia Radio Operators Assn.	321-	AB- 6-	2376
VE7AQL/7	British Columbia Electric "Ready Watts"	278-	AB- 6-	1821
VE7AV/7	Club 13	85-	A- 6-	990
Four Transmitters Operated Simultaneously				
W1OSA/1	Pittsfield Radio Club	374-	A-18-	3591
W1RRX/1	Hampden County Radio Club	450-	AB-17-	3237
W1IA/1	The South Shore Amateur Radio Club	249-	A-30-	2466
W1FPS/1	Tri-County Amateur Radio Club	408-	ABC- 6-	1632
W1SE/1	Old Colony Amateur Radio Assn.	123-	AB- 9-	972
W1AWQ/1	Oxford County Amateur Radio Assn.	83-	AB- 6-	501
W2DAY/2	Northern New Jersey Radio Assn.	864-	A-87-	8046
W2QW/2	Raritan Valley Radio Club	845-	A-12-	7830
W2GLQ/2	Nutley Amateur Radio Society	855-	A-18-	7470
W2FUS/2	Morris Radio Club	682-	A-16-	6363
W2UBW/2	Mid-Island Radio Club	569-	A-15-	5346
W2GIZ/2	Union County Amateur Radio Assn.	548-	A-12-	4653
W2KOJ/2	Watchung Valley Radio Club	401-	A-20-	3934
W2GGN/2	Queens Radio Amateurs	570-	AB-11-	3689
W2AFU/2	Ocean County Amateur Radio Assn.	470-	AB-19-	3258
W2UKQ/2	Clayton Radio Club	259-	ABC- 7-	1731
W2ZKS/2	Bayonne Police Athletic League Radio Club	186-	AB-10-	1260
W2MPL/2	The Empire City Radio Club	187-	B-10-	1122
W3RCN/3	Rock Creek Amateur Radio Assn.	711-	A-58-	6624
W3PGA/3	Aero Amateur Radio Club	461-	AB-17-	3975
W3PGO/3	Baltimore Signal Depot	556-	B- -	3336
W3USA/3	Anne Arundel Radio Club	127-	A- 7-	1143
W3NMV/3	Mercer County Radio Assn.	113-	AB- -	858
W3OHX/3	Hazleton Amateur Radio Club	156-	ABC- 9-	621
W4QEE/4	Mobile Amateur Radio Club	320-	AB- 8-	2745

(*Continued on page 120*)

Ask any Old Timer about Lafayette

(Chances are we sold him the parts for his first rig over 30 years ago.) *He'll tell you:* "Lafayette is a good place to do business with."



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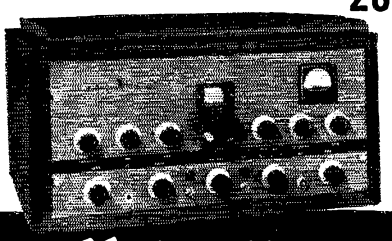
JOHNSON VIKING 1 Transmitter Kit

Here is a rig that gives you that crisp clean CW note and the well-modulated phone signal of a commercial transmitter — at a price you can afford to pay. 115 watts CW, 100 watts AM phone output. Front panel band-switching; no plug-in coils. 10-position Xtal switch for rapid QSY. Provision for optional VFO input. All stages metered. 160, 80, 40, 20, 15 and 11-10 meter operation. Tubes to be used: 3-6AU6; 1-6AQ5; 2-807; 1-4D32 or 829B. This kit is complete in every detail, including wiring harness, drilled and punched chassis, panel and all parts.

Viking 1 Transmitter Kit (less tubes, crystals, mike and key). Shpg. wt.: 90 lbs. $209.50

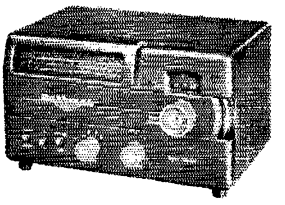


Give it for Xmas!

NATIONAL'S "Mighty Midget" SW54

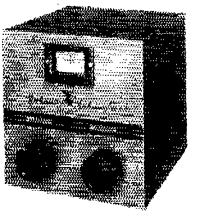
The hottest little low-cost receiver on the market. (Makes a wonderful gift to get the new ham started). Covers from 540 kc. to 30 mc. with surprising sensitivity. For standard AM, foreign and domestic shortwave, police, ships, aircraft and amateur reception. Measures only 11" x 7" x 7". Complete with latest miniature tubes. Shpg. wt. 14 lbs.

$49.95



JOHNSON VIKING VFO Kit

Ideal for use with the Viking 1. High stability, cleanest keying. Accurate frequency calibration (all bands). 5" calibrated dial with 6:1 reduction. Simple assembly; build it in an evening. (Tubes to be used: 1-6AU6, 1-0A2). Complete kit, less tubes: Shpg. wt.: 7 lbs. **$42.75**



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REctor 2-8600	HUbbard 2-7850	MArket 2-1661	FOrdham 7-8813

W4GNF/4	Greensboro Radio Club	458-	A-30-	2460
W4TL/4	Tallahassee Amateur Radio Club	432-	ABC-13-	1716
W4KEK/4	Peninsula Amateur Radio Club	177-	A- 8-	1593
W5NXE/5	Los Alamos Amateur Radio Club	511-	AB-21-	4596
W5SC/5	San Antonio Radio Club	481-	A-14-	4329
W5MPZ/5	Sandia Base Radio Club	449-	AB-15-	3993
W5RFA/5	Jackson Amateur Radio Club	354-	A- -	2961
W5IAS/5	Tulsa Amateur Radio Club	437-	AB-14-	2853
W5SJZ/5	Convair Amateur Radio Club	292-	AB-18-	2250
W5PGI/5	Ardmore Amateur Radio Club	119-	B-11-	864
W5PGE/5	Amateur Radio Club of Hattiesburg	111-	B- 6-	666
W6HDY/6	Citrus Belt Amateur Radio Club	656-	A-16-	6579
W6PD/6	The Foothill Mobile Net	918-	B-25-	5658
W6CIS/6	North Peninsula Electronics Club	485-	A-20-	4590
K6FAV/6	McClellan Amateur Radio Society	534-	AB-27-	4230
W6GGK/6	San Diego Amateur Radio Club	409-	A-14-	3906
W6NWG/6	Palomar Radio Club of No. San Diego County	339-	A-16-	3276
W6PXB/6	Placer Radio Club	87-	AB- 6-	942
W6CKV/6	Golden Empire Radio Club	29-	AB- 4-	465
W7DK/7	Radio Club of Tacoma	460-	A-25-	4365
W7NL/7	North Seattle Amateur Radio Club	460-	A-17-	4365
W7TV/7	West Seattle Amateur Radio Club	421-	A-29-	4014
W7GV/7	Tucson Radio Clubs	346-	AB-24-	2700
W7MWQ/7	Radio Club of Arizona	183-	A-10-	1872
W7NNP/7	Walla Walla Valley Radio Club	1359-	A-15-	1584
W7KYV/7	Cascade Radio Club	259-	B-18-	1554
W8JIN/8	Ohio Valley Amateur Radio Assn.	1016-	A-15-	9369
W8TO/8	Columbus Amateur Radio Assn.	722-	AB-25-	4590
W8AW/8	Edison Radio Amateurs' Assn.	432-	A-16-	4113
W8ACW/8	Genesee County Radio Club	723-	ABC-25-	3615
W8TT/8	Lake Geauga Amateur Radio Club	433-	AB-15-	3351
W8DCN/8	Ann Arbor Radio Amateurs	418-	AB-12-	2751
W8WSX/8	CARMARS Radio Club of Toledo	265-	A-21-	2664
W8FEZ/8	Lorain County Amateur Radio Assn.	236-	A-26-	2349
W9CWP/9	York Radio Club	853-	A-20-	7902
W9DDR/9	Joliet Amateur Radio League	609-	A-18-	5688
W9ESJ/9	Milwaukee AREC	662-	AB-28-	5406
W9DXU/9	Hamfesters Radio Club of Chicago	538-	A-16-	5067
W9JZA/9	Lake County Amateur Radio Club	598-	AB-20-	4956
W9UIM/9	Door County Amateur Radio Club	405-	A-10-	3435
W9KVE/9	Tri-State Amateur Radio Society	289-	AB-79-	2448
W9ART/9	Green Bay Mike & Key Club	323-	AB- 4-	2154
W9AML/9	Central Illinois Radio Club	166-	A-40-	1494
W9MKS/9	Starved Rock Radio Club	144-	B-13-	1026
WØFZO/Ø	Sioux City Amateur Radio Club	551-	B-30-	4119
WØGIM/Ø	Cedar Rapids Radio Club	145-	A-20-	1566
WØBXR/Ø	Davenport Radio Amateur Club	142-	AB-12-	1095
WØSOE/Ø	Wichita Amateur Radio Club	242-	C- 9-	534
VE1LC/1	Loyalist City Amateur Radio Club	290-	AB-10-	2610
VE2IZ/2	Le Club De Radio Amateur De Hull	250-	A-11-	2511
VE2QN/2	A.R.R.L. Quebec & District Area Emergency Corps	63-	A-14-	792

(Continued on page 122)

BENDIX RADIO DIVISION

Bendix
AVIATION CORPORATION

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● **LABORATORY TECHNICIANS**

Opportunity to associate with Bendix scientists in laboratory development of high power radar and communication electronic gear. Requirements include working familiarity with electronic components and basic circuits. Salaries from $3100 to $3800.

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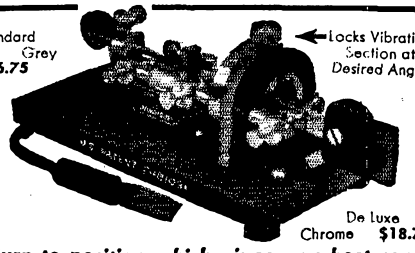

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See your dealer, or write for brochure. Try a Dow-Key on your rig 10 days—purchase price refunded if desired

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VE3WD/3	Frontier Radio Assn.	590-	A-20-	5535
VE3ZM/3	Guelph Amateur Radio Club	153-	A-10-	1611
VE3AT/3	London Amateur Radio Club	166-	B-12-	971
Five Transmitters Operated Simultaneously				
W1OMI/1	El-Ray Radio Club	698-	AB-17-	4920
W2BVL/2	Nassau Radio Club	683-	A-15-	6381
W2GLO/2	Levittown Amateur Radio Club	450-	A-15-	4050
W2US/2	(nonclub group)	436-	AB-11-	3597
W2PF/2	FTR Amateur Radio Club	337-	AC-27-	2151
W2DPQ/2	Huntington Radio Club	489-	AB-25-	3270
W2SBV/2	Elmira Amateur Radio Club	287-	AB- 9-	2031
W3VRZ/3	Beaver Valley Amateur Radio Assn.	836-	A-10-	7749
W3NA/3	The DX Club	669-	AB-16-	5108
W3MTE/3	Chesapeake Amateur Radio Club	542-	AB-19-	4218
W3PIQ/3	Brasspounders and Modulators Club	279-	A-20-	2736
W3LTK/3	Radio Assn. of Erie	305-	AB-40-	2610
W4KKG/4	Amateur Radio Transmitting Society	477-	A-40-	4293
W4MQN/4	Atlanta Radio Club	391-	AB-14-	2844
W5MYI/5	The Santa Fe Radio Club	233-	AB-10-	3756
W5SRW/5	Mesilla Valley Radio Club	98-	ABC-17-	1461
W6MGJ/6	Helix Amateur Radio Club	606-	A-10-	5679
W6MSO/6	The Inglewood Amateur Radio Club	557-	A-16-	5013
W6CXO/6	Highfrequency Amateur Mobile Society	399-	A-21-	3825
W6OEI/6	Tamalpais Radio Club	465-	AB-13-	3552
W6LMN/6	San Mateo County Amateur Radio Club	308-	A-15-	3015
W6KU/6	Modesto Amateur Radio Club	329-	A-14-	2961
W6LUF/6	Mt. Diablo Amateur Radio Club	213-	A-18-	2142
W6HWF/6	Shasta County Amateur Radio Club	121-	AB-7-	1074
W7KYC/7	Portland Amateur Radio Club	492-	B-15-	2952
W7RA/7	Utah Amateur Radio Club	421-	ABC-26-	2895
W8ID/8	Tiffin Amateur Radio Club	329-	B-16-	1974
W9SWQ/9	Four Lakes Amateur Radio Club	759-	A-29-	7092
W9RJY/9	Ft. Wayne Radio Club	516-	A-60-	4869
W9CEQ/9	Fox River Radio League	412-	A-15-	3708
W9DUK/9	Delaware Amateur Radio Assn.	445-	AB-21-	3576
W9HRM/9	Milwaukee Radio Amateurs' Club	389-	AB-35-	3357
W9IAW/9	Twin City Radio Club	125-	AB- 6-	1269
W9WQ/9	Wheaton Community Radio Amateurs	124-	AB- 8-	801
WØSEE/Ø	Council Bluffs Radio Operators Club	288-	AB-11-	1896
VE1ND/1	Fredericton Amateur Radio Club	411-	A-12-	3942
VE3CY/3	Kitchener Waterloo Amateur Radio Club	619-	A-19-	5796
VE3BRR/3	Nortown Amateur Radio Club	542-	A-30-	5112
VE6KX/6	Calgary Amateur Radio Assn.	404-	A- 8-	3726
Six Transmitters Operated Simultaneously				
W1GLA/1	Framingham Radio Club	340-	A-16-	3060
W1TKA/1	Stamford Radio Club	326-	A-16-	2553
W1SYE/1	Newport County Radio Club	317-	AB-12-	2298
W2VDJ/2	Lakeland Amateur Radio Assn.	1164-	A-32-	10,737
K2CW/2	Somerset Hills Radio Club	882-	A-20-	8172
W2GTD/2	Ridgewood Amateur Radio Club	818-	A-15-	7605
W2GM/2	Albany Amateur Radio Assn.	369-	AB-15-	3519
W3KX/3	Electric City Amateur Radio Club of Scranton	933-	A-20-	8622
W6CG/6	Royal Order of Suds Club	1012-	AB-20-	6517
W6CTH/6	San Francisco Radio Club	549-	A-14-	184

(*Continued on page 124*)

W6QE/6	Tri-County Amateur Radio Assn.	492-	A-15-	4653
W6UW/6	Santa Clara County Amateur Radio Assn.	502-	AB-25-	3216
W6JN/6	Sacramento Amateur Radio Club	357-	AB-20-	2445
W7NZA/7	Amateur Radio Assn. of Bremerton	204-	A-15-	1836
W7IE/7	Oregonian Amateur Radio Society	168-	A-10-	1809
W8LJ/8	Dayton Amateur Radio Assn.	480-	B-22-	3030
W8RXY/8	Central Michigan Amateur Radio Club	366-	AB- 8-	2628
W8VTA/8	(nonclub group)	264-	AB- 7-	2568
W9SW/9	Chicago Suburban Radio Assn.	760-	A-16-	7083
VE3BHS/3	Mohawk Amateur Radio Society	456-	A-15-	4104
Seven Transmitters Operated Simultaneously				
W2SXY/2	Fort Stanwix Amateur Radio Club	394-	B-18-	2364
W5OMG/5	Ark-La-Tex Amateur Radio Club	264-	AB-24-	2091
W6GER/6	Soledad Radio Club	846-	A-14-	7866
W6AEX/6	Society of Amateur Radio Operators	759-	A-25-	7056
W6OTX/6	Palo Alto Amateur Radio Assn.	459-	AB-12-	4125
W9AP/9	North Suburban Radio Club	1467-	A-31-24,300	
W9JP/9	Indianapolis Radio Club	706-	AB-25-	5490
VE3BER/3	Clinton Amateur Radio Club	890-	A-20-	8271
Eight Transmitters Operated Simultaneously				
W2GSA/2	Garden State Amateur Radio Assn.	1593-	AB-35-14,070	
W5KA/5	Austin Amateur Radio Club	491-	AB-25-	3078
W6HTB/6	North Bay Amateur Radio Assn.	677-	AB-20-	5154
VE3JJ/3	West Side Radio Club	1143-	A-27-10,656	
VE3BNG/3	Hamilton Amateur Radio Club	955-	A-30-	8964
VE3DJS/3	Niagara Peninsula Amateur Radio Club	295-	AC-25-	2415
Nine Transmitters Operated Simult neously				
W2OM/2	Tri County Radio Assn.	1597-	A-30-14,598	
Ten Transmitters Operated Simultaneously				
W3FRY/3	Frankford Radio Club	2375-	A-27-33,120	
W6GAL/6	Mil-Cities Radio Club	1583-	ABC-37-36,780	
W9IT/9	Northwest Amateur Radio Club	1289-	A-40-14,753	

CLASS B

Grouped in this special listing are the scores of stations manned by one or two operators. Figures following the calls indicate number of contacts, power, and final score.

W1NXX/1	151-	A-2376	W3NUG/3	63-	A- 189
W1HA/1 W1RAN	164-	A-1701	W4MGT/4 W4MWR	284-	B-1545
W1MEP/1	22-	A- 297	W4LRO/4	54-	A- 540
W1PQW/1	72-	A- 216	W4FOX/4		
W2FBA/2 W2JBQ	341-	A-4941	W4ROZ	38-	A- 513
W2RHQ/2 W2EMW	358-	A-3528	W4AYV/4 W4AFH	29-	B- 336
W2RJJ/2 W2HDO	100-	A-1125	W4SAT/4	1-	A- 3
W2UJS/2	35-	A- 810	W5IER/5 W5REV	166-	A-1494
W2PEY/2 W2BJZ	50-	A- 450	W5MTL/5 W5AJA	134-	AB-1236
W2VLV/2 W2RHQ	26-	A- 351	W5OLD/5 W5OGS	137-	B-1233
W2CUD/2	29-	A- 261	K5FBA/5[1]	153-	B- 918
W2FUL/2	12-	A- 162	W5RGA/5 W5QOF	44-	A- 640
W2EXE/2	33-	B- 66	W5RSD/5[2]	46-	A- 414
W3FSW/3 W3QLX	118-	B-1062	W5INL/5 W5JCC	63-	B- 378
W3MCD/3	112-	A-1008	W5RWJ/5 W5QKQ	119-	B- 288
W3CAB/3	72-	A- 873			
W3NMA/3	23-	A- 311			

(Continued on page 126)

K5NRL/5[3]	26-	A- 234	WØRFT/Ø	100-	A-1350
W6KEV/6	71-	A- 959	WØNYX		
W6DWG/6	26-	A- 477	WØTFW/Ø	115-	A-1035
W6ELG			WØUPB		
W6JVE/6	8-	A- 449	WØFDP/Ø	33-	A- 783
W6JPM/6	70-	B- 420	WØRUA/Ø[5]	94-	B- 714
W6LKC			WØUER/Ø	55-	AB- 443
W6PFE/6	16-	A- 216	WØAPL/Ø	14-	A- 126
W7LEP/7	80-	A-1080	KL7CZ/7	46-	A- 621
W7MJY			VE1VW/1	86-	A-1499
W7QAP/7	66-	A- 891	VE1AAM/1	18-	A- 581
W7PKU			VE1AAU		
W7JU/7	34-	A- 824	VE2ACN/2	61-	A- 224
W7LVB/7	26-	A- 716	VE2AAU		
W7GAT			VE3KE/3	319-	A-3096
W7OSQ/7	43-	AB- 498	VE3EK		
W7JMH			VE4RP/4	7-	A- 95
W7HNI/7	143-	AB- 291	*Two Transmitters*		
W7LVU/7	8-	A- 104	W4LNE/4	49-	AB- 546
W8TQ/8[4]	200-	A-3038	W4PJG		
W8IVC/8	163-	A-2201	W6AOA/6	535-	A-5040
W8CVM/8	57-	B- 342	W6BXL		
W8EOW/8	27-	A- 243	W6FZV/6	98-	C- 294
W9UKT/9	236-	A-3537	W6KDS		
W9IU			W7FOM/7	43-	A- 945
W9FAU/9	86-	A-1512	W7CJB		
W9FZM/9	67-	A- 603	W9TRU/9	112-	AB-1416
W9JQT			W9OME		
W9BTQ/9	25-	A- 450	WØBRA/Ø[6]	2-	C- 72
W9GIP			VE1DA/1[7]	7-	A- 828

CLASS C

Grouped in this tabulation are the scores of entrants in the mobile class. Figures following the call listings indicate number of contacts, power, number of participants at each mobile station and final score.

W1SAG/1	34-	A- 1- 810	W3BBU/3	13-	A- 1- 176
W1PXL/1	13-	A- 1- 540	W3KKH/3	5-	A- 1- 68
W1BDI/1	11-	AB- 1- 342	W3QHD/3[10]	1-	A- 2- 14
W1FKI/1	24-	A- 1- 324	W4TH/4	42-	A- 1- 986
W1QVF/1	10-	A- 1- 135	W4SJK/4	42-	A- 1- 945
W1BB/1	8-	A- 1- 108	W4LKD/4[11]	41-	A- 3- 891
W1TAY/1	8-	A- 1- 108	W4IUJ/4	33-	A- 1- 864
W1MGP/1	4-	A- 1- 54	W4DWD/4	26-	A- 1- 689
W1SXJ/1	4-	A- 1- 54	W4OBW/4	17-	A- 1- 607
W2UCV/2	20-	A- 1- 608	W4HDX/4	15-	A- 1- 540
W2EWN/2	12-	A- 1- 513	W4HWA/4	15-	A- 1- 540
W2OQN/2	12-	A- 1- 513	W4PQX/4	13-	A- 1- 513
W2CQD/2	29-	A- 1- 392	W4SMR/4	10-	A- 1- 500
W2ABX/2	20-	A- 1- 270	W4AAP/4	10-	A- 1- 486
W2YOG/2	17-	A- 1- 230	W4MVJ/4	6-	A- 1- 459
K2BC/2	16-	A- 1- 216	W4JQ/4	3-	A- 1- 378
W2YYM/2	12-	A- 1- 162	W4EJC/4	13-	A- 3- 176
W2NCG/2	9-	A- 1- 122	W4HIY/4	10-	A- 1- 158
W2OZU/2	9-	A- 1- 122	W4BAQ/4	8-	A- 1- 108
W2JGP/2	8-	A- 1- 108	W4JCJ/4	7-	A- 1- 95
W2KLA/2	7-	A- 1- 95	W4KYT/4	3-	A- 1- 41
W2WUD/2	7-	A- 1- 95	W4SBB/4	3-	A- 1- 41
W2ORX/2	6-	A- 1- 81	W5DAH/5	92-	A- 2-1580
W2ICA/2	5-	A- 1- 68	W6GAU/6	27-	A- 1-6818
W2EGP/2	13-	C- 1- 57	W6HOA/6	27-	A- 1-6804
W2EUI/2	4-	A- 1- 54	W6JHT/6	10-	A- 1-6089
W2PHD/2	4-	A- 1- 54	W6MBA/6[12]	274-	A- 2-4050
W2IHR/2	3-	A- 1- 41	W6GJC/6	124-	A- 1-2012
W3NXX/3	76-	A- 1-1026	W6ZVD/6	89-	A- 1-1539
W3AXE/3	46-	A- 1- 959	W6N8X/6	73-	A- 1-1337
W3FMG/3	46-	A- 1- 958	W5RRD/6	71-	A- 1-1296
W3BII/3	64-	A- 1- 864	W6ELB/6	21-	A- 1-1256
W3GBB/3	62-	A- 1- 837	W6IUC/6	86-	A- 1-1188
W3AAX/3	28-	A- 1- 716	W6PGM/6	53-	A- 1-1080
W3IFW/3	49-	A- 1- 662	W6OKH/6	38-	A- 1- 851
W3EGI/3[8]	18-	A- 2- 594	W6WBG/6	44-	A- 1- 635
W3QQZ/3[9]	37-	A- 2- 490	W6EFB/6	6-	A- 1- 419
W3FDJ/3	35-	A- 1- 473	W6ALD/6	3-	A- 1- 378
W3NKY/3	35-	A- 2- 473	W6GZR/6	18-	A- 1- 243
W3HNT/3	29-	A- 1- 392	W6NCP/6	7-	A- 1- 95
W3FVK/3	27-	A- 1- 365	W6RUC/6	5-	A- 1- 68
W3MQF/3	25-	A- 1- 338	W7MSI/7	12-	A- 1-1620
W3II/3	23-	A- 1- 311	W7JFO/7	9-	A- 1-1215
W3BDV/3	22-	A- 1- 297	W8FAT/8	43-	A- 1-1026
W3AFR/3	15-	A- 1- 203	W8DTD/8	34-	A- 1- 797
W3JAS/3	15-	A- 1- 203	W8AJW/8	23-	A- 1- 689

(Continued on page 128)

W8BDZ/8	26- A- 1- 689	W8FJX/8	6- A- 1- 419
W8VK/8	25- A- 1- 675	W6HPJ/6	6- A- 1- 419
W8BWC/8	17- A- 1- 594	W8VM/8	5- A- 1- 405
W8FBZ/8	15- A- 1- 554	W8ZJQ/8	3- A- 1- 393
W8ZEU/8	11- A- 1- 500	W8BUS/8	2- A- 1- 365
W8FKS/8	11- A- 1- 486	W8LYD/8	1- A- 1- 365
W8LEX/8	10- A- 1- 486	W8BBX/8	1- A- 1- 351
W8ET/8	9- A- 1- 473	W8SDV/8	1- A- 1- 351
W8AGA/8	9- A- 1- 459	W8ZAZ/8	22- A- 1- 297
W8BVD/8	8- A- 1- 459	W9FKC/9	43- B- 1- 612
W8VUI/8	9- A- 1- 459	W9JM/9	34- A- 1- 459
W8CZW/8	8- A- 1- 446	W9EBZ/9	16- B- 3- 144
W8QAV/8	8- A- 1- 446	WØGSR/Ø	7- A- 1- 95
W8ZSD/8	8- A- 1- 446	WØBUL/Ø	6- A- - 81
W8GMK/8	7- A- 1- 432	WØGCP/Ø	2- A- 1- 27
W8GTC/8	7- A- 1- 432	VE3IR/3	33- A- 1- 783
W8NGY/8	7- A- 1- 432	VE7FB/7	17- A- 1- 324

CLASS D

Grouped in this tabulation are the scores of home stations operated from emergency power.

W1AW	159	W2TYC	25
W1OAK	10	K5NRJ [14]	190
W1NKW	7	W6NCP	13
W1BGJ	3	W7AIG	10
W2VBH [15]	118	W7NWP	6
W2RGX	101	W8DAE	54

CLASS E

Grouped in this tabulation are the scores of home stations operated from commercial power sources.

W1ICP	6	W6LRE	5
W2ICE	96	W6OJW	1
W2GCA	84	W7HDM	13
W2GRH	73	W7JAZ	11
W2HY	56	W7NWP	2
W2UAP	32	W8LCY	43
W2CVW	17	W8FRD	23
W2VMX	16	W8YPT	12
W2GCU	2	W8WRN	2
W3AD	48	W9GQM	100
W3NCJ	8	W9AZR	84
W4SMF	70	W9MRC	33
W4OGG	41	W9GQL	24
W4SCU	11	W9SFR	22
K5FBB [16]	105	W9TAL	10
W5VIM [16]	48	W9AQU	1
W5EMY	5	KL7MF	39
W6AYZ	201	VE1EK	88
W6GPB	124	VE2ANO	31
W6KEK	70	VE2GU	16
W6OHX	45	VE2XR	8
W6KLS [17]	43	VE2QM	4
W6EJA	35	VE3AUU	30
W6NSK	34	VE3DAV [18]	4
W6AM	28	VE4PK	9
W6AOI	19		

[1,2,5,6,7] Two oprs. Call of second opr not reported. [3] K5NSW opr. [4] W8BZT and W8ZQU oprs. [8] W3PUG second opr. [9] W3QUG second opr. [10] W3EGI second opr. [11] W4AHK, W4HPY, W4LKD oprs. [12] W6CMN second opr. [13] W2WFU second opr. [14] W5PCL opr. [15] W1RLA, W5PNM, W5SGM, W6WGK oprs. [16] W5OBE second opr. [17] W6KPR second opr. [18] VE3DEA opr.

On the TVI Front

(Continued from page 67)

Organization of New York "to return amateurs to the air and bring the TVI problem to the attention of the public, dealers, servicemen, and manufacturers." As a starter, the new organization invites reports from local hams in instances where a complaint is received — after adequate attention to harmonics — from a TV set owner living at a point farther away than the site of a receiver that is *not* affected. Contact Secy. R. S. Miller, W2DIC, 241-02 86th Road, Bellerose 6, N. Y.

50 Mc.

(*Continued from page 66*)

W. Massachusetts

W1GJO	1919–101–19–AB
W1DRF	231– 33– 7–B

New Hampshire

W1FZ	4104–143–24–ABCD
W1MHL/1	930– 62–15–AB
W1LTO[2]	728– 56–13–AB
W1QJH	44– 11– 4–B

Rhode Island

W1KCS	975– 75–13–AB
W1SGA	175– 35– 5–AB

Vermont

W1MEP[2]	84– 21– 4–B
W1CGX	72– 12– 6–AB

NORTHWESTERN DIVISION

Washington

W7BYK	27– 9– 3–AB
K7WAY	14– 7– 2–D

PACIFIC DIVISION

Santa Clara Valley

W6GCG	846– 94– 9–AB
W6ZBS	305– 61– 5–B
W6GQZ	246– 41– 6–AB
W6LRS	115– 23– 5–B
W6GIW	42– 14– 3–B
W6TB	30– 10– 3–B

East Bay

W6AJF	684– 76– 9–AB
W6IMC	136– 34– 4–B

San Francisco

W6MHF	405– 81– 5–B
W6LOZ	395– 79– 5–B
W6DTV	250– 50– 5–B
W6BAZ	100– 25– 4–B

Sacramento Valley

W6KYO	92– 23– 4–B
W6PIV	60– 15– 4–B

San Joaquin Valley

W6FYM	279– 31– 9–AB

ROANOKE DIVISION

Virginia

W4HBD	156– 39– 4–B

ROCKY MOUNTAIN DIVISION

Wyoming

W7OWZ	8– 4– 2–B

SOUTHWESTERN DIVISION

Los Angeles

W6NLZ	488– 37– 8–ABCDEF
W6HZ	168– 42– 4–AB
WN6NJU	7– 7– 1–B
W6GEB	6– 6– 1–B

WEST GULF DIVISION

Northern Texas

W5IRP	24– 8– 3–B

Southern Texas

W5FSC	135– 27– 5–AB
W5AYU	81– 27– 3–B
W5FBT	72– 24– 3–B
W5NHB	34– 17– 2–B
W5BHO	12– 12– 1–AB
WN5TFW	6– 3– 2–B

CANADA

Ontario

VE3BQN	999– 95– 9–ABCD
VE3AIB	763–109– 7–AB
VE3ANY	584– 73– 8–AB
VE3DFW	476– 68– 7–AB
VE3AXT	450– 76– 6–AB
VE3EAH	430– 86– 5–AB
VE3ANY	365– 73– 5–AB
VE3DIR	304– 76– 4–B
VE3BUO	250– 50– 5–AB
VE3DKK	240– 40– 6–B
VE3DER	160– 40– 4–AB
VE3BF	152– 38– 4–B
VE3IZ	124– 31– 4–AB
VE3DHL	120– 40– 3–A
VE3AZV	108– 36– 3–A
VE3DHP	84– 28– 3–AB
VE3UT	75– 25– 3–B
VE3IR	57– 19– 3–B
VE3DAT	56– 28– 2–A
VE3ATB	50– 25– 2–A

[1] Headquarters Staff; not eligible for award.
[2] More than one operator; not eligible for award.

Correspondence

(*Continued from page 69*)

tress was probably transmitted by an amateur, has caused me to have the matter investigated and as a result I have the following information to offer.

The false report circulated on September 9th of an Air Force bomber in distress over the Atlantic was perpetrated by an airman on duty in the control tower at Tinker Air Force Base, Oklahoma. As soon as these facts were determined, this information was given to the press.

I have checked with the Director of Air Force Public Relations and with the Chief of the Air Force Press Desk, Office of Public Information, Department of Defense, and find that the statement attributed to a "high Air Force official" was not authorized by the Air Force and no such statement emanated from official Air Force public information sources. . . .

The Air Force and the Department of Defense are keenly aware of the vital emergency communications potential resulting from the activities of amateur radio operators throughout the world. The value of the communications potential was officially recognized in November 1948 with the establishment of the Military Amateur Radio System (MARS). Under the MARS organization, amateur radio

(*Continued on page 134*)

(Continued from page 130)

operations are coördinated with those of the military communications systems of the Army and the Air Force and serve to provide an additional source of trained radio communication personnel in the event of a local or national emergency.

— Ivan L. Farman
Brigadier General, USAF
Acting Director of Communications

COLLEGE C.W. NET

Franklin & Marshall College
Lancaster, Penna.

Editor, *QST:*

Here at Franklin & Marshall College we are especially interested in a c.w. net for the colleges of this country, and those of our neighbors. The U. S. colleges have a 'phone net on 75 meters but there is no such c.w. net on any band. We feel a c.w. net for intercollegiate traffic *and* rag chewing is appropriate at the present time.

— Lanny Yudell, W2DUW/3

December 1926

. . . The trend toward shielded receivers is reflected in articles by F. J. Marco, 9ZA, and McMurdo Silver and Kendall Clough.

. . . P. C. Oscanyan, jr., 2AZA, in charge of radio for the University of Michigan Greenland Expedition, reports 125 American amateur stations heard on 40 meters at the Arctic location.

. . . A new edition of *Amateur Radio Stations of the United States*, 25¢, is announced by the Government Printing Office.

. . . Technical Editor Robert S. Kruse begins a new series of articles on "How Our Tube Circuits Work."

. . . Excellent progress is being made by experimenters in the 5-meter field. 2AUZ's 210 transmitter has been heard in Hammond, Ind.

. . . With Stuart F. Wainwright, 6BVG, serving as operator, the yawl *Poinsetta* successfully maintained communication via amateur radio during the recent Trans-Pacific Yacht Race.

. . . Detector action in vacuum tubes is explained by Lloyd P. Smith.

. . . Typewriter springs, Ford tungsten contacts, and Burgess battery binding-post tops are pressed into service in the home-made break-in relay of M. S. Brainard, 8LO.

. . . The organization of the International Amateur Radio Union is being revised, the idea being that eventually the Union will become a federation of independent national transmitting-amateur societies.

HAMFEST CALENDAR

NEW JERSEY — Friday evening, November 30th, at the Valley Inn, Sterling — annual shindig of the Somerset Hills Radio Club. Buffet supper, entertainment and dancing are programmed. YLs and XYLs are especially invited. Accommodations are limited so make reservations in advance through Secy. James Pentland, W2VGO, 99 N. Passaic Ave., Chatham, N. J.

Answer to **QUIST QUIZ** *on page 47*

B can stand a little brushing up on basic 'phone theory. Clamp-tube modulation is just one of many methods for obtaining an *amplitude-modulated* signal, and the S-meter shouldn't kick with *any* properly-adjusted a.m. rig (except in the special cases of controlled-carrier and double- or single-sideband reduced-carrier signals). The simple forms of clamp-tube modulation do not provide controlled carrier — the kick at the S-meter probably comes from severe distortion of the modulating signal.

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.

(3) The Ham-Ad rate is 30¢ per word, except as noted in paragraph (6) below.

(4) Remittance in full must accompany copy. No cash or contract discount or agency commission will be allowed.

(5) Closing date for Ham-Ads is the 25th 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 non-commercial in nature and is placed and signed by a member of the American Radio Relay League. 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, if by a member of the American Radio Relay League take the 7¢ rate. An attempt to deal in apparatus in quantity for profit, even if by an individual, is commercial and all advertising by him, 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 signature and address be printed plainly.

(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, 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., 719 World Bldg., New York City.

MOTOROLA used equipment communication equipment bought and sold, W5BCO, Ralph Hicks, 204 E. Fairview, Tulsa, Okla.

SUBSCRIPTIONS. Radio publications a specialty. Earl Meade, Huntley, Montana. W7LCM.

QSL'S-SWL's. Mead, WØKXL, 1507 Central Avenue, Kansas City, Kans.

LEARN Morse Code in just 8 hours! Code-Voice Record method gets you ready for Novice Class license, good Army job in radio. You get 4 sides of code instruction on two 10-in. 78 RPM Vinylite records in handsomely illustrated, completely detailed album. Send only $4.00. Money-back guarantee. Dept. Q1, The Raybrun Company, Box 66, Orangeburg, N. Y.

5-Element 2-meter beams. Riverside Tool Co., Box 87, Riverside, Ill.

WANTED: Old radio magazines and catalogs prior to 1921. Send list and prices — or will trade. Vance Phillips, W6GH, Hope Ranch, Santa Barbara, Calif.

WANTED: Teletype 1/40th HP synchronous motor W6ITH, Moraga, Calif.

QSLS, SWLS. C. Fritz, 1213 Briargate, Joliet, Illinois.

WANTED: March and May 1916 QSTs. 200 copies for sale 1920 to 1951 at 25¢. WØMCX, 1022 N. Rockhill Rd., Rock Hill 19, Mo.

WANTED: Your surplus radio receivers, transmitters, ARC-1, ARC-3, ART-13. We buy anything. What have you? Tom Allen, 562 Atlantic Ave., Brooklyn 17, N. Y.

QSLS! Taprint, Little Rock, Mississippi.

WANTED: Indices to QST volumes 6 to 19, both inclusive. Also "Pink Sheet" one-page supplement to October, 1919 "QST" announcing lifting of transmission ban, and April, 1919 8-page pamphlet entitled "Getting Together Again", mailed to League members before publication of "QST" resumed after World War I. Also complete files, odd lots, or single copies of Southern Edition QST's. Jan. 1936 to Dec. 1939, both inclusive, and Western Edition, years 1936 and 1941. Must have both covers and be in very good condition. Sumner B. Young, WØCO, Route 3, Wayzata, Minn.

WANTED: Radio officers for Merchant Marine. $400 per month or more. Men who hold or who formerly held 1st Cl. 2nd Cl. or TLT radiotelegraph license and 6 months ship radio operating experience. Radio Officers Union, 1440 Broadway, New York, N. Y.

PLATE transformers. New. Kenyon secondary 4520 volts ct primary 110 v, 60 cycles, 1450 watts, weight 75 pounds. $39.50 each, two for $75. F.o.b. Kansas City, Mo., Art Wearth, 6014 El Monte, Mission, Kans.

QSLS: Uncle Fred's QSLs. Three colors and up. Rainbow map QSLs. Special DX QSLs. Bargain QSLs. Samples rushed, 10¢. Uncle Fred, Box 86, Lynn, Penna.

WANTED: DeForest Responder, Arc Radiophone, Audion Boxes, Marconi Coherer, Magnetic Detector, Type D, E & Multiple Tuners; other gear prior to 1920. Franklin Wingard, Rock Island, Illinois.

FOR Sale: 1 KW-TVI, $450. F.o.b. Dr. West, Box 2423, Norfolk, Va.

COLOR Television patents. Study firsthand information, including Columbia system. Use this comprehensive patent search report. Send $1.00. Patent Service, 945-Q Pennsylvania Ave., Washington 4, D. C.

WANTED: HRO with coils. For sale: 45 colt with super holster, 22H&R target revolver 6" barrel with holster, BC312E with mfgrs built-in 110 VAC power supply. All excellent condx. E. Hanlon, 1551 Washington St., E. Charlestown, W. Va.

FOR Sale: BC610-C xmittr with BC614-D speech amplifier with all tubes contained. Like new and in original state as built at Hallicrafters. Excellent op. condx. All coils and tuning units for all bands. Guarantee everything as stated in this ad. Will throw in as extra, a BC610 modulation xfrmr, 250THs, 100THs and 807s. Make me an offer. W3MB, Reading, Pa. 53 Crestwood St.

SELL: Four 304 TL tubes. Unused, clean, but not in factory cartons. Highest biddr. Milan Leggett, W5LRI, 2518 Jeffries, Dallas, Texas.

SELL: RCA Model 158, 5-in. oscilloscope, excellent, with 2 spare c.r. tubes, $75. Paul Lee, W4RXO, Box 116, Isle of Palms, S. C.

FOR Sale: VFO, very stable, converted 459. Keying relay, variable output, enclosed voltage regulated pwr supply, commercial appearance. Can be used for low power xmittr. A bargain at $50. B. F. Horn, P.O. Box 493, Abilene, Texas.

BEST offer, money or swap. Takes two excellent condx BC-222's. Need Q5'er, etc. WØQAM, 816 Hodge, Ames, Iowa.

FOR Sale: Lysco 600. $90. W1OER.

FOR Sale: Millen 98010 HF xmittr, Sonar VFX 680, Gonset 6 meter converter, all in new condition. Will sacrifice all or part for cash. Make offer. I may take you up. Write for details & pix. Joe Roberts, Conway, Arkansas.

QST Aug. '45 issue wanted. State condx. W8HKW, 19928 Lichfield Rd., Detroit 21, Mich.

WANTED: Single-control, bandpass xmittr from '51 Handbook; also power supply. Cash. Doug Jones, 46 Morse St., Hamden, Conn.

WANTED: Rceivr APR-4 and tuning units: TN 16, 17, 18, 19 and 54. Advise price and condition. W2MLP, Jim Cosgrove, 614 Springdale, East Orange, N. J.

SELL or trade Gonset 10–11 converter in gud condx. $25. W6FXU, 906 Florida Ave., Huntington Beach, Calif.

NEW YORK vicinity: Johnson Viking wired, A-1 condx, with tubes, 829 final, $250 or make offer. Gene Ribas, W2GEX, 1500 Bergen Blvd., Fort Lee, N. J.

FOR Sale: Mark II transmitter with dynamotor, mike, fones & cabls. Best offer over $25. Emil C. Pattin, W2DCL, 67 Liberty Place, Palisades Park, N. J.

WANT old wireless books, catalogs, tuners, crystal detectors, audion panels, switches, keys, gaps, etc. Have LM-7 freq. meter with mod. orig. book and xtal, maintenance manual, excellent. Also cash. George Applegate, W2IA, 1572 Pennington Road, Trenton, N. J.

FOR Sale: Used Milleu variarm VFO and new Millen R-9er, $32. W1NLM, Bethel, Conn.

WILL pay premium prices for QST issues of October, 1928, and March and June 1938. Monte Cohen, W1IHQ, Box 330, Chicopee, Mass.

WITH speaker: NC173 $135, NC57 and meter, $75; SX28, $119. S-40 and meter, $65. Like new HQ-129X, $135, RME45C, $115. Hickok 277X, $85. Never used VHF152A, $59; HF10–20, $59; DB22A, $49. 10-day trial. Electronic Labs, 2444 "D", Lincoln, Nebraska.

USED equipment: RME DB-20, $29.50; DB-22A, $39.50; HF10–20, $59.50; VHF152A, $59.50; S-40A, $69.50; S-72L, $79.50; Policalarm PR8 or PR31, $29.50; Sonar SRT-75, $149.00; VFX-680, $45; AMP-50 $29.50; Lysco 600, $99.95; others. Write for latest list to Carl Evans, W1BFT, Evans Radio, Concord, N. H.

TOP cash for APR-4 units and parts; Microwave Test Equipment, ARC-1, ARC-3, ART-13, etc.; TS-34 and other "TS-"; good quality laboratory equipment; manuals, tubes, meters and parts. Will also trade TV, SX-28, VTVM, astronomical telescope, etc. Littell, Farhills, Box 26, Dayton 9, Ohio.

MOBILE station: TBS-50-C, Lysco 381, Gonset 3–30, PE-103, Master Mobile antenna (bumper mount), 20 and 75 coils, coaxial relay with auxiliary contacts, cable and fittings, spare set of tubes. $200 complete F.o.b. W4OCN. M. E. Dunn, Gen. Delivery, N.A.T.T.C., Jacksonville, Florida.

WANTED: BC-348 rcvr, recent model, in good shape, unconverted. W1TDD/3, 23 Barclay, College, Haverford, Penna.

KILOWATT 300 Ohm line, Amphenol, heavy, 15¢ foot, RG11U approved, 15¢ foot. RG59U, 7¢ foot. W2AJG, Ed Abbo, 29 Crescent Lane, Roslyn Heights, L. I., N. Y.

VFO Millen all-band, slide rule dial, complete, like-new: $50. Walter Sackett, 1249 4th Ave., S.E., Cedar Rapids, Iowa.

PHONE patch schematics, practical discussion, $1.00. W1MRK, Nichols.

FOR Sale: Dynoptimum, RCP, tube checker with latest roll chart — used — in good condition: $25.00. Will trade for ham gear. M. E. West, Rt. #2, Lenoir, North Carolina.

SELL BC348Q receiver, converted. Best offer, over $50. W8YOA, 2836 Detroit, Toledo, Ohio.

SELLING cheap: 500-watt R.f. section in swell shape. Also ARC-5 7–9 Mc with husky power supply. Answer all letters. Walt Berry, WØYNL, 202 3rd St., Madrid, Iowa.

SELLING out: BC610 factory modified for 10-meters, $550 complete with speech amplifier; SX28A, $125; National NC240D, $115; RME 152A converter, $55. All immaculate and in perfect condition. Act fast! W2UKK, 2465 Knapp Street, Brooklyn 35, N. Y.

FOR Sale: New Raytheon 1470 CT-1200 mil $5, 1039CT 363 mil, $2.50, trade almost new Speedy paint sprayer and motor for receiver, also trade new Trojan 1 to 12 battery charger for receiver. Want to buy complete station, also xmitter (Viking or similar), need S72 also S40B, also Policalarm, Monitoradio. No dealer. Blum, 2661 Dibblee Ave., Columbus 4, Ohio.

SELL: TCS equipment, 164E Dumont 'scope, SF-1 radar complete, BC-610-E, PE-55 Dynamotor, Sonar driver rectifier power supply, TBL-13 transmitter. Want: ART-13, DY-12 dynamotor, ARC-1, BC-221, BC-654, PE-103, PE-104, T. Clark Howard, 46 Mt. Vernon St., Boston 8, Mass. (W1AFN).

WANTED: WRL transmitter, Collins VFO and 32V2. For sale: Weston photo-cell and micro-relay. (Current from cell actuates relay). B&H sound projector. Box 382, Newark, N. J.

SELL: 75A1 and 32V1 with Astatic D-104 mike, speaker, all like new. Best offer over $550.00 takes them. Captain Norman Gertz, Signal Co., 3rd Marine Brigade, Camp Pendleton, Oceanside, Calif.

WANTED: Vibrapacks 6v input, 300v/100 Ma. output. W1BB.

FOR Sale: Meissner 150-B xmitter without signal shifter VFO. Converted for 10 and 20 xtal microphone input. Spare 813. $150 F.o.b. Dr. C. R. Crosby, R.F.D. Chatham, Mass. W1QP.

NEED 4D32 tubes. Cash or trade. W9OSR, 119 W. Washington, Champaign, Ill.

HAND-painted call-letter ties, brown, blue, green, maroon — $3.50. Farr, R.D. #1, Paxinos, Pa.

SELL or trade: APA-10 Panadaptor converted 110 Vac operation. Good condx. Input 455 Kc, 5.2 Mc., 30 Mc. Make offer. W5JFQ, 512 Karnes, Fort Worth, Texas.

ONE used 7B Collins Radio amplifier and P-Pak using 6L6 input PP. IPA-PP, 2A3sPP output panel mounting for racks about 2 units, $50.00 F.o.b. One used Gates ampifier and P. Pack, using 2A3s PP output panel mtg for racks above. 1 unit. Price: $50.00 F.o.b. Eugene J. Krusel, 928 Curtiss St., Downers Grove, Ill.

866A kit, 2 tubes, sockets, trans. $6.98. 1N34, 69¢. Sell your surplus tubes and equipment. Snooperscope, infrared "Sees in dark" tube, Data, $4.98. Free Tabogram, "TAB", 109 Liberty St., New York City, N. Y.

MERRY Xmas and a Happy New Year from WØCVU, "Iowa's Most Truthful Station". Using new Collins Kilowatt KW-1 and 75-A2 receiver. 38 years on the air from one QTH.

SELL: Proc. IRE, Electronics, QST runs. Past ten years. Make offer. W3OXO, 308 Weatherbee Road, Baltimore 4, Md.

REX Bassett, Incorporated can no longer deliver Amateur Crystals because of high volume high priority production for defense of our country. We don't like it any better than you do but we must help lick them first.

WANTED: Bargains in transmitters, receivers, test-equipment and miscellaneous gear. What have you? W5ZZ, 718 N. Broadway, Oklahoma City, Oklahoma.

RADIO officers, $600+ monthly earnings, plus top union conditions. Men with 6 months American Merchant Marine radio operating experience since Jan. 1935 can obtain special FCC license to sail immediately. Men with FCC radiotelegraph 2nd class license and 6 months sea time on Navy ships as radiomen can also qualify. Phone, wire, or write American Radio Assn., CIO, 5 Beekman St., NYC, Cortlandt 7-6397.

QSL and SWL cards. Samples. W1SQF, Minner, Candia, N. H.

WANT: 6v dynamotor about 300 v. 250 Ma. output tube tester, Millen GDO. Will buy or trade. Have tremendous stock of tubes, parts, also BC-1147 Federal communications receiver 2 RF stages. Morton Savada, 1115 Broadway, New York 10, N. Y.

NEW crystals for all commercial services at economical prices; also regrinding or replacement crystals for Broadcast, Link, Motorola, G-E and other commercial types. Over 16 years of satisfaction and fast service! Eldson Electronic Co., Phone 3-3901, Temple, Texas.

FOR Sale: Pair 833A's. Will trade for pair 4-125A's. W8QHV, 740 So. Downing St., Piqua, Ohio.

HAMS attention! Want new in original cartons complete Workshop 10-20 beam, including elements, rotator, selsyns, direction indicators, boom, etc. State price. WØCVU, P. O. Box 224, Cedar Rapids, Iowa.

WANTED: Two 304TL's, WNITTC, Millers Falls, Mass.

LOOKING for QSTs, Dec. 1915 through 1919. Call Books, any year. Early wireless catalogs prior to 1925. Year Book Wireless Telegraphy. Electrical Experimenter June 1913. Collins Wireless Bulletin. Electrician & Mechanic. Modern Electrics. ARRL List of Stations, Blue Book List of Calls. Early ARRL Wall Map, ARRL Handbooks, 1926, 1937, 1942, 1947. Robert L. Willits, W1PN, Box 26, Hyannis, Mass.

310B3, Collins; perfect condition; $200. W3OPH.

TRADE: $130. Lord Elgin men's 14 kt. gold wrist-watch, new, for equivalent in transmitting gear, mobile or fixed or measuring gear or what have you. A. W. Andersen, Box 644, Viborg, So. Dakota.

SELL: Twin-dynamotor power unit, input 12 volts, output 220 volts 100 mils and 440 volts 180 mils. Complete unit with filters, ready for use. $35. W4RXO, Box 116, Isle of Palms, S. C.

SELLING out complete station of W4DSI. 1-BC610 modified for 10, 20, 40, 80 on 10 meters, uses 2E26 instead of 616, separate 600 volt 300 mill supply for plate and screen of 807; 100 ft ea. RG8U; RG11 coax cable; 1 40-meter folded dipole ant.; 1 Electro Mechanical VFO; 1 key-click filter with power supply and 1 National NC200 receiver. $500 for the works. 1 Rek-O-Kut 16 in. transcription turntable with overhead record-cutting lathe, Presto 1-D cutting head, Barber Howard transcription arm with G-E Reluctance pick-up. Will include 25 red Audio discs, $250. W4DSI 2563 Hogan Rd., Rt #1, Atlanta, Ga.

FOR Sale: ART-13 with 115 v.a.c. supply, Meck T-60, Hallicrafters SX-71, Hammarlund Super-pro, 350 watt 115 v.a.c. Onan generator, wire recorder. Want: Meissner signal shifter. W4OJD, 1301 Gunby, Tampa, Florida.

FOR Sale: BC344; AC model, good condx, $25; SCR522 converted, plus A.C. power supply, $30; SCR522 mobile with 12 v. dynamotor plus cables and controls, $20. F.o.b. Belding, Michigan. Charles Rose, W8JUB, 814 Pearl St.

QSL's, SWL's: 100, $1.85 up. Samples, 10¢, refunded when ordering. Griffeth, W3FSW, 1042 Pine Heights Ave., Baltimore, Md.

HOUSECLEANING: VHF152A; QS-er, broadcast, 160-meter Command receivers; 3" modulation 'scope; Triplett modulation carrier-shift meter; 80, 11-meter Novice crystals; complete Novice transmitter; DB-22A; G.R. 5" 'scope; F-19/UPR 80 to 300 megacycle and F-20/UPR 300 to 3000 megacycle wavemeters; Mallory Inductuner; Code practice oscillator; panel meters; surplus equipment manuals; transformers, chokes, condensers; detailed listing, prices, on request; everything guaranteed. W9DPL, Howard Severeid, 2431 East Riverside Drive, Indianapolis 23, telephone Winthrop 2184.

WANTED: TG-29 telegraph repeater. I-193-A relay test set. W6ITH, Moraga, Calif.

WANTED: Surplus: bug, model J36, in good condition. R. Vahiro, W6OKD, 13536 Yukon, Hawthorne, Calif.

QSLS? SWLS? Modernistic? Cartoons? Photographic? Rainbow? QSL samples, 10c. Sakkers, W8DED, Holland, Michigan.

WANTED: Wireless Specialty, Marconi, Electro Importing, DeForest, Clapp-Eastham Apparatus, Electrical Experimenters, Wireless Age, Modern Electrics, "Ultimate" bug, crystal detectors, tuning coils, Year Book of Wireless Telegraphy and Telephony for 1913, 1914, 1915. L. Rizoll, W1AAT, 100 Bay View, Salem, Mass.

CHRISTMAS ties: Hand-painted call-letters. Choice of colors, $2.50. W. F. Yates, W9LIQ, Box 347, Heyworth, Ill.

TRADE New 833A for new 4-250A. W8FHD.

328A Tube, Federal. Used approximately 2000 hours, reasonable offer accepted. W1BTJ.

WANTED: 25 $\mu\mu f$ 32Kv vacuum condensers, similar to type used in BC610 transmitters, Eimac, Amperex, etc. Also approximately 001 6,000 volt bypass condensers, cast aluminum ends or bakelite cases. W9AU.

HQ-129X with speaker, built-in freq. standard plus National Select-O-Ject. Excellent condition. First check for $170. W9NN, 524 Crestwood Drive, Des Plaines, Ill.

SELL: National receivers: 1-10 with coils; FB7 with 10-40-80 meter coils; tubes, speakers, power supplies. State offer. Have other items. W3JE.

75A triple conversion per December 1950 CQ. Three BC453, 85 Kc I.F.s and 415 KC xtal $9.50. W9GBT.

WANTED for cash: control units, plugs, racks and Technical Manual for the ARC-5 VHF receiver, transmitter and modulator. Write "Doc" Hagerthy, W1RVM, Scarboro, Maine.

WANTED: Small high-school radio club, with still smaller resources wants to buy 20-meter beam and rotator motor, cheap. Any help? W6YMY.

RECORDING equipment: One Presto dual-speed thirteen inch turntable, overhead lathe feed, synchronous hysteresis motor; one Presto triode mike preamplifier, 200 ohm input; one Presto triode recording amplifier, 200 ohm input. Excellent mechanical and electrical condition. Each piece in separate carrying-case. All three pieces, ready for high fidelity recording, $360.00. Gerson Bender, 3451 Stocker Street, Los Angeles 8, Calif.

BARGAINS: extra special! Motorola P-69-13 Mobile receivers, $29.50; SCR-522, $29.50; Globe King, $315.00; HT9, $199.00; HRO7, $199; Temco 75GA, $225; Collins 32MA, $99.50; Collins 75A1, $295; HRO-5T, $175.00; Hallicrafters S-47, $119; RME-45, $99; Meissner EX shifter, S-40A, $69.50; VHF152A, $69; HF-10-20, $59; SX-24, $69; Globe Trotter, $57.50; New Meissner signal calibrators, $24.95; MB611, $29; 90800 exciter, $29.50; XE10, $14.95 and many others. Large stock of trade-ins. Free trial. Terms financed by Leo, WØGFQ. Write for catalog and best deal to World Radio Laboratories, 740-44 West Broadway, Council Bluffs, Iowa.

WANTED: More used receivers and transmitters. Write for our cash or trade-in offer. Write, too, for list of reconditioned bargains including S-38, $29; S-53, $49.00; S-40A, $69.00; HT18, $79; SX43, $119.00; SX71, $149.00; SX-42, $199.00; SX-62, $199.00; SW54, $35.00; NC57, $69.00; HFS, $99.00; NC-173, $139.00; HRO5TA1, $159.00; HRO7, $189.00; NC183, $199.00; HQ-129X, $139.00; DB20, $29.00; DB22A, $49.00; HF-10-20, $49.00; VHF152A, $59.00; RME-84, $69.00; RME-45, $89.00, SX-25, SX-28, SX-28A, SP400X, HRO50T, Collins 75A1, others. Shipped on approval. Terms. Henry Radio, Butler, Mo.

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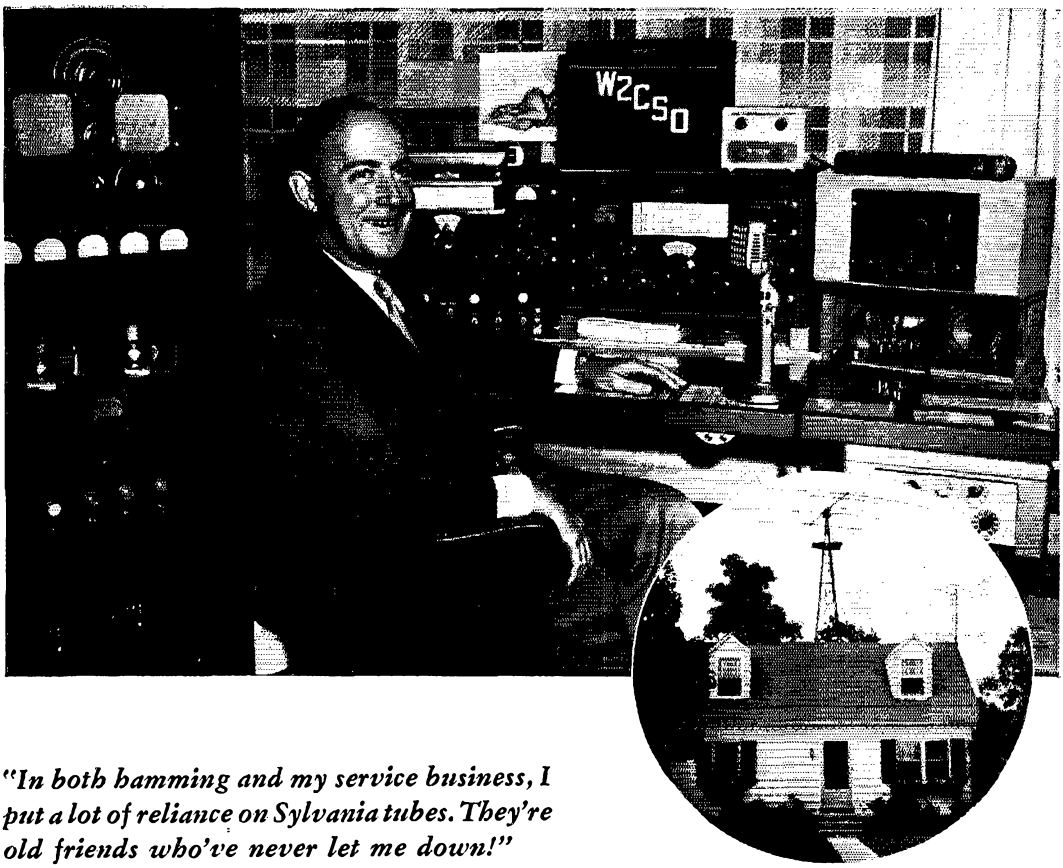

"In both hamming and my service business, I put a lot of reliance on Sylvania tubes. They're old friends who've never let me down!"

Charlie Hamilton is a busy man, with no time on his schedule for tube failures. Besides his own rig, he cares for a lot of others—commercial and public service, mobile and marine. You can appreciate the value of Sylvania dependability when dependability is your business!

Showing W2CSO's interlaced 10-20 beam to which Charlie hitches a KW final. He has 202 countries confirmed. He is DXCC, of course—plus WAC, OO, ORS, A-1 op and has a 1st class commercial ticket. QTH is Locust Valley, L. I.

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FOR THE BEGINNER

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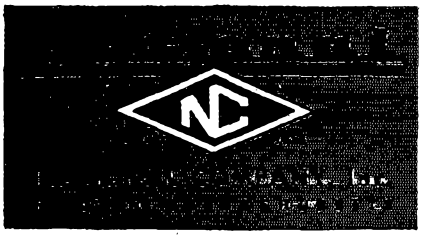
Covers 550 kcs. — 36 mcs. in 4 bands. Voice, CW, NFM (with adapter). Edge-lighted, direct-reading scale. Amateur, police, foreign, ship frequencies clearly marked. National Select-O-Ject built-in (rejects any selected audio frequency 45 db — boosts 38 db). Three microvolt sensitivity (for 10 db signal/noise ratio on 10-meter band). S-meter. AVC, ANL, ant. trimmer. Variable CW pitch control. Separate R.F. and audio gain controls. Volt. reg., stabilized oscillator. Jack for phono or NFM Adapter. Audio essentially flat to 10,000 c.p.s.



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