

# QST

February 1958

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# amateur

# radio



FEBRUARY

2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

• 1958 RESOLUTIONS

1. No hay wire.
2. Get beam rotator working.
3. Clean up TVI.
4. Clean up oil burner QRM.
5. Install TR switch.
6. Install ant. patch panel.

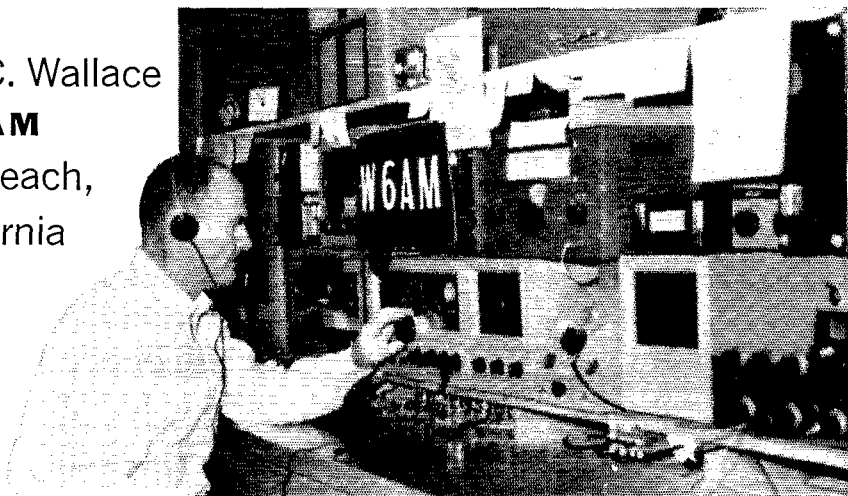
# "IF YOU CAN'T HEAR THEM ... YOU CAN'T WORK THEM!"

says Don C. Wallace

**W6AM**

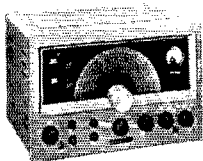
Long Beach,  
California

Don Wallace  
at the controls of W6AM

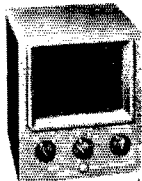


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"I have concentrated on antennas, low noise level and DX for the past ten years as well as versatile inside equipment arrangements. It has worked out very well, especially with the RME equipment." says Don Wallace.



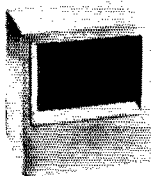
RME 4350A  
RECEIVER



RME 4301  
SIDEBAND  
SELECTOR



RME DB23  
PRESELECTOR



RME 4302  
SPEAKER

DON HAS USED RME EQUIPMENT SUCCESSFULLY FOR YEARS. RME has kept W6AM consistently on the top 10 DXCC CW and phone listings. In contest work, W6AM also has been highest DX CW scorer west of the Mississippi and at times high scorer nationally for multiple operation in DX contests, CW and phone. RME is proud to be a part of W6AM's accomplishments. *Why don't you look into the excellent performance characteristics of RME equipment? It's the first choice of hams everywhere!*

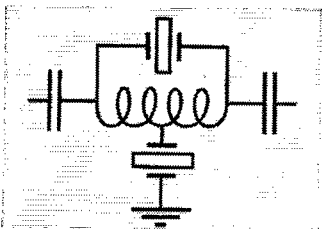
Shown in operation in this photo are an RME 4350 Receiver with an RME 4301 Sideband Selector, an RME 45 which has been used for the past fourteen years, two RME DB23 preselectors and two RME DB22's. A Great Circle map with 24 rhombic directions is just over the RME 4350 and the matching RME 4302 speaker.

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 WEIGHT — 16 pounds.  
 POWER OUTPUT — 100 watts.  
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\*\$690 with power supply.

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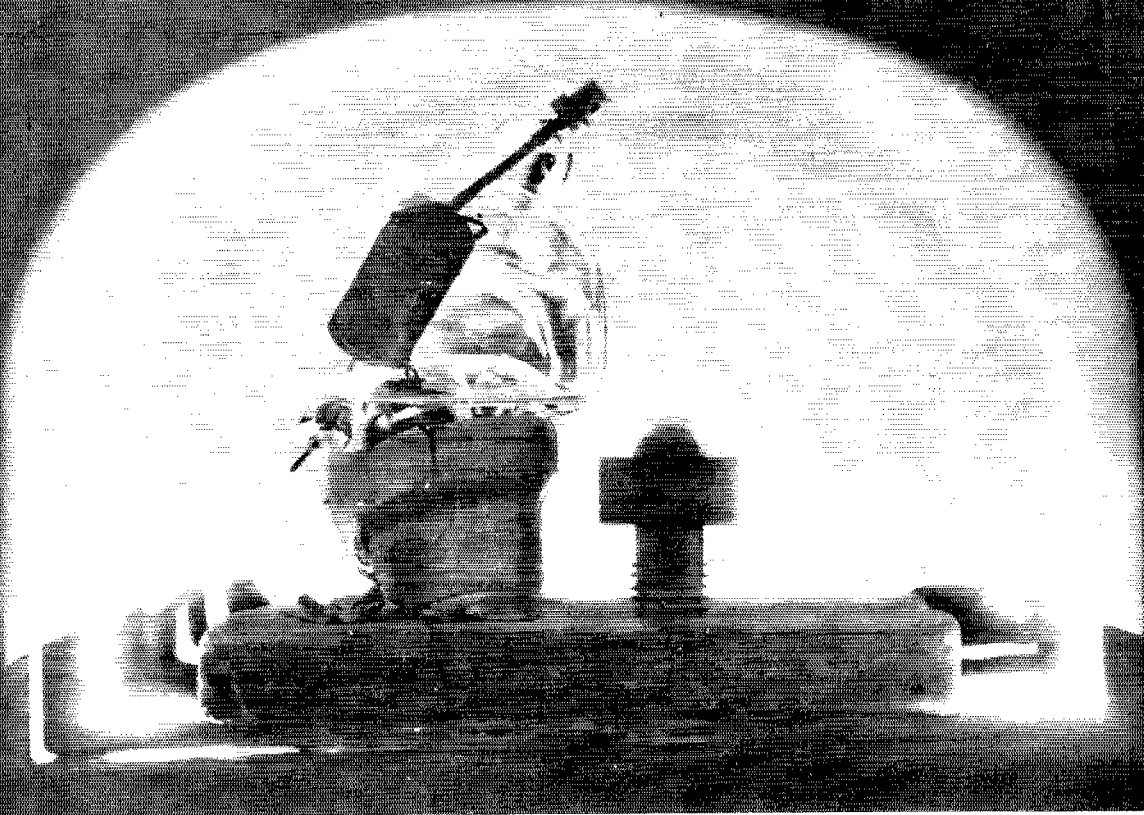
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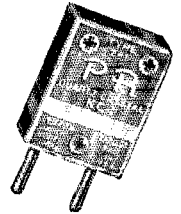
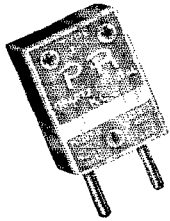
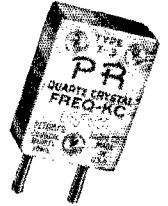
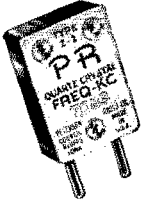
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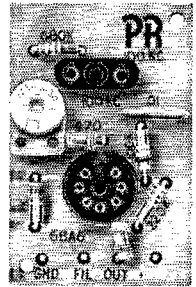
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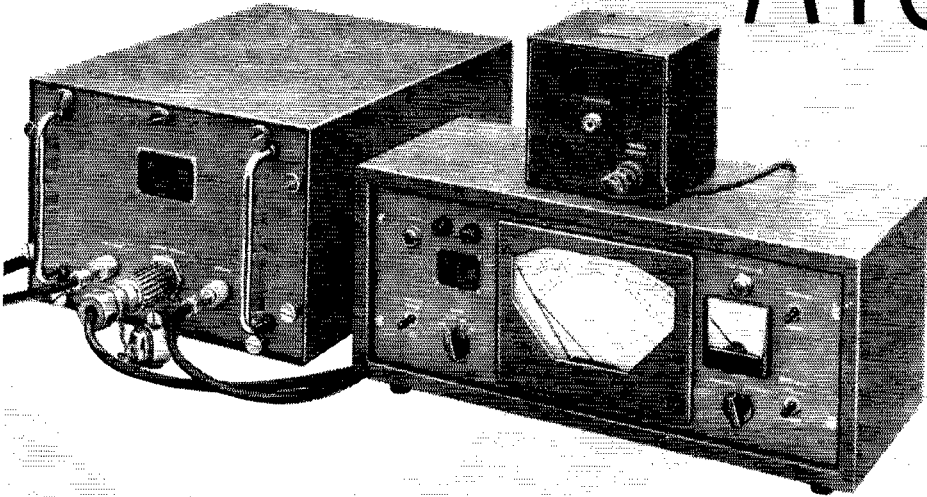
\*Official appointed to act temporarily in the absence of a regular official.



# ANTENNA TUNING SYSTEM

MODEL

# ATS

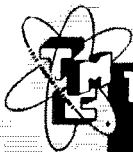


The Model ATS was developed to satisfy the long standing need for a more efficient and versatile coupling system for the relatively short vertical antennas used aboard ship, mobile vehicle, airport installations, etc. The use of a new TMC V.S.W.R. meter design in the CONTROL MONITOR makes transmitter tuning much easier and in most cases will permit increased power to be applied to the antenna. At this point, it should be noted that while the ATS makes it possible to more efficiently couple to the short antenna system it cannot increase the radiation efficiency of such an antenna.

The RF TUNER contains a helical transmission line as the reactance tuning element and its electrical length is adjustable by a motor driven short. This variable reactance matches the antenna reactance for minimum V.S.W.R. The antenna resistance is properly matched by means of a ferrite core tapped auto-transformer. The proper tap is selected by a motor driven 4-position resistance selector switch.

The CONTROL MONITOR is equipped with a special meter which continuously displays Forward Power, Reflected Power, and, the V.S.W.R.

THE STANDARD WAVE COUPLING UNIT consists of a precision balanced RF bridge and is calibrated to operate in conjunction with a 50 or 70 ohm coaxial line.



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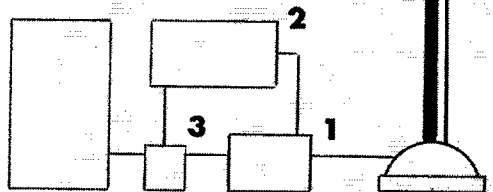
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WRITE FOR  
BULLETIN 209



# THE AMERICAN RADIO RELAY LEAGUE, INC.,

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

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

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

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

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# "It Seems to Us..."

## RADIO CLUBS

Amateurs are a sociable lot — the nature of our hobby sort of calls for this qualification — and nowhere is this more evident than in the local radio club. There are more than a thousand such clubs affiliated with the League, from Goose Bay, Labrador, to Guam, from the Canal Zone to Anchorage. The clubs range in size from less than a dozen to almost three hundred members, and the members range in age from 7 to 92, at least. The activities carried on by these clubs are almost as varied as their sizes and locations, but they all serve to increase our enjoyment and knowledge of amateur radio.

Take our famous, fictitious Catalpa Amateur Radio Club, for instance (not to be confused — though it sometimes has been! — with the honest-to-goodness Catalpa Amateur Radio Society of Birmingham, Michigan). The fifty members of our CARC meet twice a month in their club rooms on the top floor of the YMCA in the equally-fictitious city of Catalpa, Pennsylvania. Having been in existence more than twenty years, they've acquired a rather nice club station (including a kw., the big receiver with a couple of spares, and an emergency generator), which is used as net control for the Catalpa Emergency Net.

A few years ago, when the net was first formed, several meeting nights were devoted to an assembly-line project, the building of 10-meter transmitter-converter sets for mobiles. The club members had a whale of a good time, and each saved considerably on the cost of a rig.

The Catalpans don't neglect their newcomers, either. They've run several two-month code and theory courses on Friday nights, with ample publicity beforehand, both in the papers and by letter to the Scouts, the High School Science Club and several youth groups. The club's instructors make the training more vivid through the use of training aids borrowed from ARRL and several large manufacturing concerns.

At a regular CARC meeting, after the short business session, there usually is a speaker on some technical or operating subject of interest to the members. An engineer from a tube company may compare the advantages and disadvantages of triodes vs. pentodes in transmitter design, or perhaps a college profes-

sor will talk about meteor propagation on v.h.f. Often, one of the more savvy club members will discuss his particular interest in the hobby — DX, s.s.b., contests, v.h.f., or the like.

A couple of times a year, as a change in pace, the Club holds one of its famous — or infamous! — auctions. The club members bring in all sorts of old junk and go home with valuable components acquired at bargain prices. The same roll of "single-conductor Twin-Lead" has showed up at the past eight auctions, and each time the silvery-tongued auctioneer has managed to convince someone that here was the outstanding buy of the evening.

When the weather gets balmy and dusk comes late, the Catalpans hold their annual transmitter hunt. Last year's winner and a couple of his cronies take the club's battery-powered rig to the strangest location they can think of and send out marker signals while the other Club members try to locate them. The gang is still talking about the time Bob Trent had gotten all set up in the players' dugout at the ball park when a whole herd of Little Leaguers showed up for a game!

There are quite a few contest-hounds in CARC, and they're always out to beat the rival Paltac club in Field Day and the Sweepstakes. The activities manager gets ulcers each time a contest comes around, trying to get everyone and his brother on for at least a little while to increase the Club's total score. It pays off, though — Catalpa has had to buy four dinners for the Paltac boys, but have been treated to six!

The annual hamfest, held early each Autumn, has gotten to be quite an affair, with hams coming from a hundred miles away. The gang gathers at Kenwood Park for an afternoon of softball, swimming, boating, and general gabbing, with mobile-judging and QLF contests on the side. The old-timers explain that QLF was a signal sent with some degree of sarcasm to lids with punk fists, and was supposed to mean, "Now try sending with your *left* foot." For the contest a big wooden key is hooked up to an oscillator and p.a. system, and each of the fellows tries to operate it with his left foot. More than one XYL has changed her attitude towards hams after this picnic!

(Continued on next page)

The Club members also have found that together they can lick TVI. An impersonal TVI committee investigates all complaints of interference, and has been able to settle most of them to the satisfaction of both the Club members and the general public. The committee, although formed by the club and having as members several club people, also has non-amateurs who are in the TV servicing business or work for utilities. The TVI committee has been registered with the District FCC office, and any complaints sent to FCC are forwarded to the committee.

The club also has discovered that the more often there are reports of their activities in the local press and on radio and TV stations, the easier it is to clean up TVI complaints. It seems that frequent mention of the Club makes it less strange to complainants, and they are more ready to accept it as an authority. The club publicity chairman reports that even such small accomplishments as a member working KC4USA have been good for a few lines and a photo in the paper.

The most important function of the club is the spirit of cooperation and fraternalism it fosters. A ham has a problem with his rig, but finds another amateur at the club who has the solution. Another swaps notes on the DX he's worked — frequency, times, operator habits — with like-minded club members. A newcomer is down in the dumps because he can't seem to get by a particular speed in code, but at the meeting he finds out that nearly everyone has had to overcome the same trouble.

Chances are there's a radio club in your area, too. Very likely, you'll find that it conducts some of the activities mentioned here, because the Catalpa Amateur Radio Club is a composite of all our radio clubs. But, it's almost a sure bet that whatever else it has, your own local club meeting will be a friendly place where you can chat with others having interests similar to yours.

#### **A.R.R.L. MICHIGAN STATE CONVENTION Saginaw, Michigan—Feb. 28-Mar. 1, 1958**

The Saginaw Valley Amateur Radio Association, Inc., will be hosts to the Annual ARRL Michigan State Convention, to be held at the Bancroft Hotel in Saginaw on March 1. As part of the "early-bird" program, there will be an initiation for the Royal Order of the Wouff-Hong at Midnight, February 28.

The program will include meetings of several nets, Civil Defense, MARS, YLRL, the SSB gang and others. There will be a Swap Shop and several contests. A special program is being prepared for the XYLs. A number of equipment manufacturers are to have their latest gear on display.

Hotel reservations can be obtained through J. O. Ellison, W8COW, 2825 Cooper Street, Saginaw, and Convention tickets at \$1.50 can be obtained from Charles Leedke, W8LNE 1970 Brockway, Saginaw.



**Ohio** — The Indian Hills Radio Club 3rd Annual Break Break Pow-Wow family style dinner will be held at Nelson's, 1422 Addison Rd., Cleveland on Saturday night, February 15 at 7:30 p.m. Reservations are limited so get yours early. YLs and XYLs invited. Tickets \$2.50. Refreshments, entertainment, and prizes. For tickets contact W8ICS at IV 1-6834 or W8SZF at EV 2-1133.

**Oklahoma** — The Lawton-Fort Sill Amateur Radio Club will hold its annual Founder's Day "Ham-Fest" at the Community House of Lake Quannah Parker, in the Wichita Wildlife Refuge of Fort Sill, Oklahoma, on Sunday, February 9. Admission is \$2.50 per person, which includes a catered barbecue dinner.

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

**March 1.** — Michigan State, Saginaw, Michigan  
**May 3-4.** Oregon State, Salem, Oregon  
**July 26-27.** West Gulf Division, Oklahoma City, Oklahoma  
**August 15-17.** — ARRL National Convention, Washington, D. C.

#### **24th Annual ARRL DX Contest**

**Phone:** Feb. 7-9, Mar. 7-9;  
**C.W.:** Feb. 21-23, Mar. 21-23

Reminder: the DX Test is just around the corner! Whatever your locale, you're urged to get your feet wet on both phone and c.w. Each of the four 48-hour contest periods starts on Friday at 7 p.m. EST and ends on Sunday at 7 p.m. EST on the dates shown.

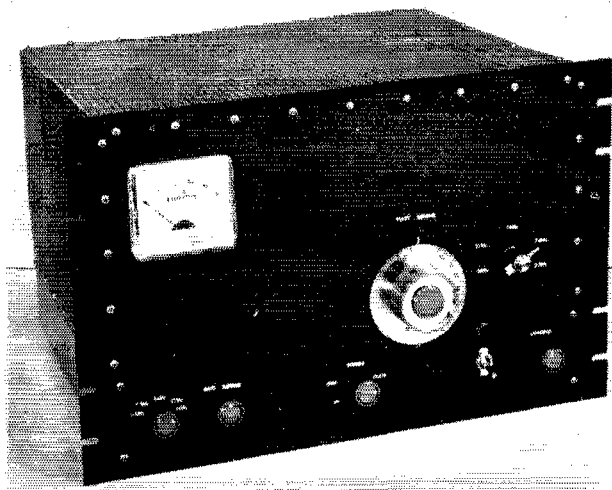
Certificates will be issued to the highest-scoring c.w. and phone operator in each country and each continental U. S. A. and Canadian ARRL Section. And there will be special certificates for club leaders and multioperator stations and a cocobolo gavel to the top club entry.

The DX will be shooting to trade contest data with as many W/K/VE/VO stations as possible. U. S. and Canadian amateurs will transmit RS and RST reports plus states or provinces, while the returns from overseas will be five- and six-figure numerals indicating signal reports and powers input.

Free contest forms, though not required by the rules, are now available from the ARRL Communications Dept. When requesting them, please advise whether you expect to enter the c.w. section, the phone section, or both.

Be selective and go after only new countries for DXCC, if you wish. But if you expect to earn the award in your ARRL Section, you'd better chase all comers. Scan the rules in last month's *QST*. Don't miss the banner DX activity of the year!

A 300- to 500-watt r.f. amplifier using the new RCA 7094 tetrode. Controls along the bottom of the panel are for the grid band switch, grid tuning capacitor, meter switch, a.c. power, and pi-network loading capacitor. Above are the controls for the plate tank capacitor, and plate band switch.



## A Medium-Power R. F. Amplifier

*Using the New RCA 7094 Tetrode in a 200-to-500-Watt Unit*

BY DONALD H. MIX,\* WITS

NEW RECEIVING-TUBE types are still being ground out at the rate of several each month, but it is an event worthy of note when a new transmitting type appears, particularly in the medium-power popular-price class. The RCA 7094 is reminiscent of the 813. It has the familiar carbon plate and about the same power-input ratings. But in other respects there is a marked difference. Physically, it has about the same diameter as the 813, but it is only about half as high. It handles its maximum rated power input at about 750 volts less than the 813 requires, i.e., 1500 volts maximum on c.w., and 1200 volts with plate modulation. The output capacitance is about half that of the 813. The glass-button base has reduced internal lead length, while the shortened height permits a re-

duction in external lead length. With an output capacitance of 7.5  $\mu\text{mf.}$  and an operating load resistance of about 2300 ohms (maximum c.w. ratings), conditions are more favorable for maintaining a reasonably low tank  $Q$  at the higher frequencies with the 7094 than in the case of some high-voltage low-current tubes of equivalent power rating, even though the output capacitance of the latter may be lower.

For some time many hams have been looking for something that would give them a significant boost in power over the usual single 6146 or 807 without going to plate voltages of 2000 or more. The 7094 appears to be an attractive alternative to two or three smaller tubes in parallel with their multiplied input and output capacitances and increased problems in stabilizing.

The rated driving power is 5 watts, easily furnished by a 2E26 without pushing it. Existing transmitters using a 6L6, 6146 or 807 in the final may be used if provision is made for controlling the output of these units by adjustment of the screen voltage.

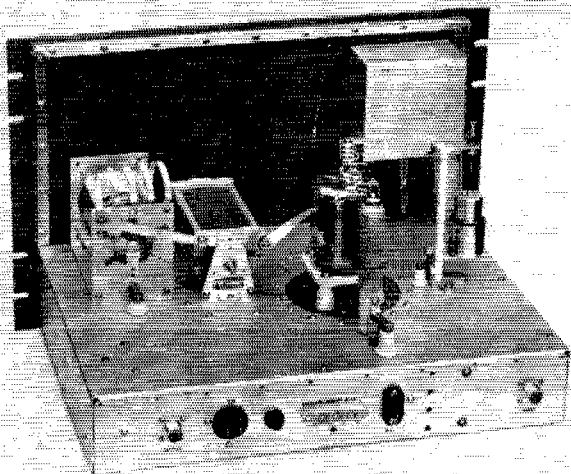
The photographs show an amplifier using one of the new tubes. The circuit, which is quite convention electrically, is shown in Fig. 1. Construction is simplified considerably by the use of manufactured subassemblies recently placed on the market.

The input circuit uses a Harrington Electronics GP-50 bandswitching parallel-tuned tank circuit. A type 851 B & W 500-watt bandswitching pi-network inductor is used in the out-

\* Assistant Technical Editor, *QST*.

Hams who have been running a single 6146 or 807 and who are now looking for means of stepping up to a higher power level should be interested in this bandswitching amplifier. Using the new RCA 7094 tetrode, it can take up to 330 watts on a.m. phone or 500 watts on c.w. at a plate voltage not exceeding 1500 volts.

Rear view of the amplifier. The B & W pi-network inductor at the left has a built-in switch. Connections to the inductor, tank capacitor, tube plate cap and neutralizing capacitor are made with half-inch copper ribbon. Along the rear wall of the chassis, from left to right, are the coax output connector, a.c. input connector, fuse, ground screen and bias terminals, high-voltage connector (Millen) and the coax input connector.



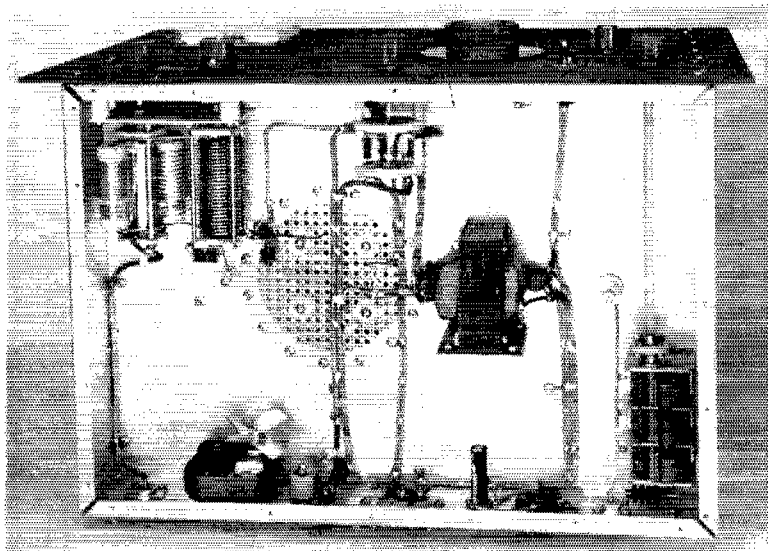
put circuit. Neutralization, which most designers have come to accept as good insurance, if not always imperative with screen-grid tubes, is furnished by a capacitive-bridge connection in the grid circuit.  $R_1$  and  $L_5$  are adjusted to suppress v.h.f. parasitic oscillation.

The single milliammeter  $M_1$  may be switched to read either grid or plate current. The shunt  $R_2$  multiplies the original 50-ma. scale by 10, giving readings up to 500 ma. when the meter switch  $S_3$  is in the plate-current position. Forced-air ventilation is provided by a small blower  $B_1$ . Shielded wire is used in all power circuits, and terminal leads are bypassed for v.h.f. as they enter the chassis.

#### Construction

The amplifier is assembled on a  $17 \times 12 \times 3$ -

inch aluminum chassis. To provide for forced circulation of air around the tube, a hole somewhat larger than the tube socket is cut in the chassis. This hole is centered  $6\frac{1}{2}$  inches from the left-hand end of the chassis (as viewed from the front) and 6 inches in from the rear edge. The opening is covered with Reynolds perforated aluminum, and the socket is fastened to 1-inch cone insulators mounted on the perforated metal. Filament and screen by-pass capacitors are connected between the tube terminals and the perforated sheet with short direct leads. Although not indicated in the circuit diagram, each of the three screen terminals on the 7094 socket is bypassed individually with a 1000- $\mu$ f. 1600-volt ceramic disk capacitor. A clearance hole is reamed out in the perforated stock to pass the grid lead



Bottom view of the 7094 amplifier. The filament transformer is mounted on a bracket made of aluminum sheet. The fan motor is bolted to the rear wall of the chassis. The triple-gang pi-section output capacitor in the lower right-hand corner is mounted on metal spacers to bring its shaft to the same level as the controls of the grid tank. All power wiring is done with shielded wire bypassed for v.h.f. at the input terminals.



sulated coupling should be used between the capacitor shaft and the panel control. The meter switch is at the center, and the pi-network output capacitor is mounted in the right-hand rear corner with its shaft  $1\frac{1}{2}$  inches from the right-hand end of the chassis. Spacers should be placed between the bottom of the capacitor and the chassis to bring its shaft at the same level as the controls of the grid-tank unit. An extension shaft connects the capacitor shaft to its panel control. The power switch is spaced to balance the grid-tuning capacitor at the opposite end of the panel.

The panel is  $12\frac{1}{4}$  inches high and of standard 19-inch rack width. The bottom of the panel extends  $\frac{1}{2}$  inch below the bottom rim of the chassis. When  $\frac{1}{2}$ -inch spacers are attached to the two rear corners of the chassis, a space is provided under the chassis for intake of air for the blower, should the unit be used on the operating table, rather than in a rack. The chassis should be provided with a bottom cover which should be perforated with holes in the area around the blower. The meter opening in the panel is shielded by mounting a  $4 \times 4 \times 2$ -inch aluminum box over the back of the meter.

Strips of  $\frac{1}{2}$ -inch aluminum angle fastened to the panel at frequent intervals with machine screws provide a means of securing the shielding enclosure to the panel. Paint should be removed from the panel where the angle rests so that there will be good electrical contact between the two.

The shielding enclosure is made of Reynolds perforated aluminum sheet. The sides and back are a single piece "wrapped" around the chassis. A 1-inch lip should be bent along the three top edges so that the top cover can be fastened on with sheet-metal screws. Sheet-metal screws are also used for fastening the enclosure to the chassis and panel strip.

### **Preliminary adjustment**

Before applying excitation to the amplifier, it should be checked for v.h.f. parasitic oscillation as described in the transmitter chapter of the ARRL *Handbook*. To set up for this check, a resistor of about 20,000 ohms should be connected between the bias terminal and ground. Full plate voltage may be applied, but the screen should be operated from an adjustable 50,000-ohm 50-watt series resistor connected to the plate supply. The grid band switch should be turned to the 10-meter position and the plate switch to the 80-meter position. With the meter switched to read plate current, the screen resistance should be reduced until the plate power input (plate voltage  $\times$  plate current) is about 100 watts. Extreme care should be used to make sure that the high voltage is turned off each time an adjustment of the resistor slider is made! The meter should then be turned to read grid current and the *Handbook* procedure followed. The objective in this adjustment is to suppress the parasitic oscillation with the smallest possible coil to keep the parasitic-circuit resonant frequency between the two v.h.f. TV bands. Therefore, if oscillation is detected using the recommended values of load-

ing resistor and coil, additional loading resistors should be tried first. If this does not work, another turn should be added to the parasitic coil, or the turns squeezed closer together. With the coil shown, the resonant frequency of the parasitic circuit is about 100 Mc.

Neutralizing should be done with excitation applied to produce rated grid current. (The input and output circuits should be tuned to the same frequency for this, of course.) Plate and screen voltage should be disconnected at the transmitter terminals. The neutralizing capacitor should then be adjusted until a point is found where there is no change in grid current as the plate tank circuit is tuned through resonance. The output capacitor should be set at maximum capacitance for this check. After plate and screen voltages have been applied and the amplifier loaded, the neutralizing capacitor should be given a final adjustment to the point where minimum plate current and maximum grid and screen currents occur simultaneously as the plate circuit is tuned through resonance. This will require additional meters connected temporarily in the external bias and screen-voltage leads.

### **Power Supply**

Maximum ICAS ratings on the 7094 are 1500 volts, 330 ma. on c.w., 1500 volts, 200 ma. (max.) Class AB1 s.s.b., and 1200 volts, 275 ma. for a.m. phone. However, the tube will work well at plate voltages down to at least 700 volts, provided that appropriate pi-network values are used as mentioned earlier. Several transformer manufacturers make a transformer with a tapped secondary rated at 1500/1250 volts, 300 ma. (CCS) that should handle the maximum ratings nicely. The recommended screen voltage is 400 for all classes of operation at screen currents up to 30 ma. depending on the type of operation. Therefore, a regulated screen voltage can be obtained using a pair of 0D3s and one 0C3 in series. If screen voltage is obtained from the plate supply, an adjustable 100-watt 75,000-ohm series resistor should be used and the value adjusted to obtain the desired operating plate current after initial adjustments have been made.

A fixed biasing voltage of 50 is required for s.s.b. operation. Since there should be no grid current with AB<sub>1</sub> operation, batteries should last indefinitely. The biasing voltage may also be obtained from a voltage divider across a VR tube with suitable series resistor. A biasing voltage of 130 is recommended for plate-modulated Class C service, and 100 volts for c.w. operation. Recommended grid current is 5 ma. If the screen is operated from a fixed-voltage source, a source regulated by a 0A3 should provide plate-current cut-off. The balance of the required biasing voltage may be obtained from a grid leak (5000 ohms for c.w. or 11,000 ohms for phone). In case the screen is supplied through a dropping resistor from the plate supply, fixed biasing voltages of 100 for c.w. or 130 for phone (no grid leak) should provide reasonable protection for the tube in case of failure of excitation.



**A**N OVERLOAD RELAY is a desirable accessory for a power supply that is used for the final amplifier of a transmitter. The circuit shown in Fig. 1 was designed to be used with the regulated power supply described recently in *QST*,<sup>1</sup> but it is applicable to any power supply that uses a separate plate transformer and whose load draws negligible current under key-up conditions. In addition to providing overload protection, this circuit limits the inrush current into the filter capacitors, both when the supply is first turned on and after an overload has occurred. This feature prolongs the life of the rectifier tubes.

When the plate-supply switch,  $S_1$ , is first turned on, the lamp  $R_1$  is in series with the primary of the plate transformer,  $T_1$ . Since the filter capacitors in the power supply are discharged, they place a heavy load on the supply and there is a comparatively large voltage drop in  $R_1$ . This causes the voltage on the primary of  $T_1$  to be too low to operate the normally-open relay,  $K_1$ . However, as the capacitors become charged they draw less current, and the voltage across the primary of the transformer,  $T_1$ , and on the coil of the relay,  $K_1$ , increases. When this voltage rises to a high-enough value the relay closes and shorts out the lamp,  $R_1$ . This places full voltage on the primary of  $T_1$ , and  $K_1$  stays closed since it also has full line voltage on it.

This action requires that the load to which the power supply is connected take negligible current when the supply is first turned on. This condition is satisfied if the load is a keyed amplifier that draws little or no current under key-up conditions. If the load is one that always draws current when voltage is applied, either the lamp resistance,  $R_1$ , must be made sufficiently low to pass enough current to close  $K_1$ , or else a reset button will have to be provided to remove the load momentarily.

### Overload Operation

If the supply is overloaded, normally-closed relay  $K_2$  will operate, placing  $R_1$  again in series with the primary of  $T_1$  to limit the current through it.  $K_2$  is then released, but meanwhile  $K_1$  has opened so that  $R_1$  remains in the circuit.  $K_1$  cannot close again until the overload has been removed and the filter capacitors have recharged. However, when this occurs  $K_1$  closes automati-

# A Novel Power-Supply Overload Relay

BY GEORGE W. JONES,\* WIPLJ

*This overload protection circuit is unusual in that it handles the problem of turning on a power supply having a large output capacitor, in addition to taking care of overloads resulting from equipment failures or improper tuning. Just the thing for power supplies built for s.s.b. linears or keyed c.w. amplifiers.*

cally and the overload relay is reset without the necessity for the operator's pushing a reset button.

As long as the overload continues  $R_1$  lets some current flow through the load, and this may help the operator find the cause of the trouble. For example, if the plate tank of the amplifier is away off tune, the operator can tune the tank for minimum plate current while  $R_1$  limits the current to a safe value. After retuning, the relay is then reset by lifting the key.

### Components

Relay  $K_1$  has a 115-volt coil so that it will close when the primary voltage comes close to the full line voltage.  $R_1$  is a lamp or resistance chosen to limit the current to what the designer considers

(Continued on page 156)

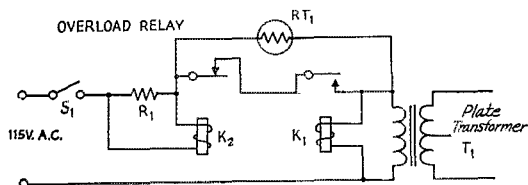


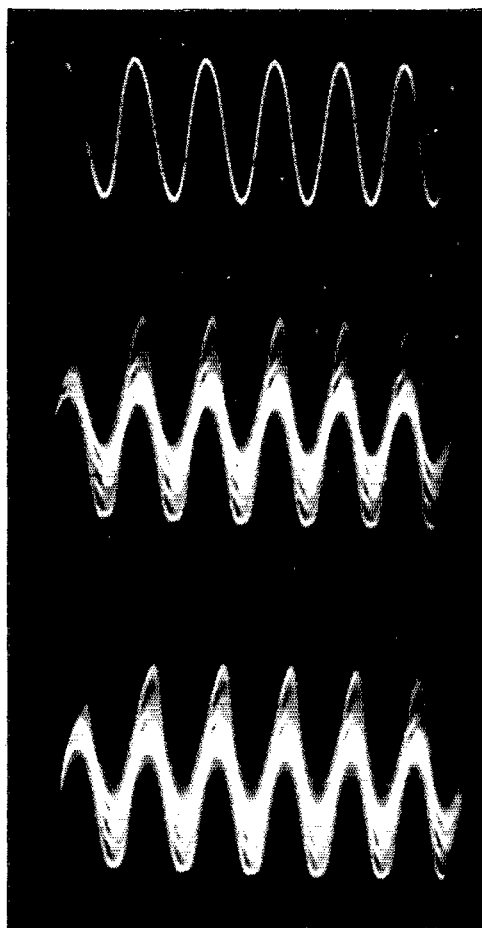
Fig. 1—Circuit of the overload relay.  
 $K_1$ —S.p.s.t. relay, normally open, 115-volt a.c. coil.  
 $K_2$ —S.p.s.t. relay, normally closed, 6 volt a.c. coil.  
 $RT_1$ —Current limiting resistor or lamp (see text).  
 $R_1$ —Shunt resistor for  $K_2$  (see text).  
 $S_1$ —Power-supply control-switch.  
 $T_1$ —Plate transformer.

# Transistorized Frequency Marker

## A Simple Circuit for Surplus 500-kc. Crystals

BY NEIL A. JOHNSON, \*W2OLU

An interesting and useful transistor application. By proper adjustment of the emitter bias, tone modulation is obtained, making the marker signal easier to identify.



Oscilloscope patterns of the output from the 500-kc. oscillator without modulation, and with medium and heavy modulation as emitter is over-biased.

Fig. 1—Circuit of the transistorized 500-kc. crystal marker.

C<sub>1</sub>—100- $\mu$ mf. air trimmer.

M<sub>1</sub>—See text.

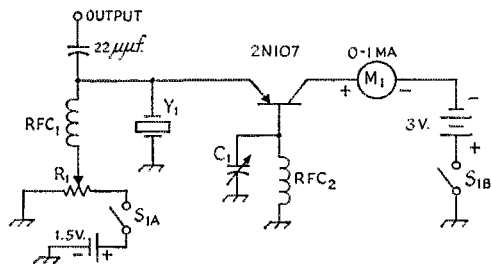
R<sub>1</sub>—50K potentiometer (emitter bias adjustment).

RFC<sub>1</sub>—10-mh. r.f. choke.

RFC<sub>2</sub>—1-mh. r.f. choke.

S<sub>1</sub>—D.p.s.f. toggle or slide switch.

Y<sub>1</sub>—500-kc. crystal.



WHILE experimenting with various transistors some time ago, we delved into the frequency-standard type of circuit shown in Fig. 1. Because of its low current consumption and the fact that the unit can be miniaturized, it should appeal to many hams, experimenters and service men. It works from a total of  $4\frac{1}{2}$  volts of penlight cells. Battery service life is approximately the shelf life since the current drain is less than 500 microamperes. With proper adjustment of the biasing circuit either c.w. or m.c.w. output can be obtained.

The circuit is largely self-explanatory, but a few notes may be in order. Having our natural doubts that anything so small should perform so well, it seemed in order to try the circuit with several transistors. Those on hand were all GE type 2N107 and all worked well. Furthermore, they all performed O.K. with the three crystals we had available.

All samples of surplus "500-kc." crystals — the popular FT-241 variety — may not be exactly on frequency when checked against WWV. Therefore, when the oscillator is to be used as an amateur-band standard, it is desirable to have provision for adjusting the crystal accurately to the standard frequency. A fundamental shift of 25 to 50 cycles is easily accomplished with the 100- $\mu$ mf. capacitor shunting the 1-mh. r.f. choke in the base-to-ground circuit. Of two crystals that we checked on a Berkeley counter one was on the nose at 10 Mc. and the second one was off WWV's frequency by some 200 cycles, or a departure at the crystal fundamental of 10 cycles.

To help level off the signal output over the harmonic range, the output coupling capacitor is made quite small — 22  $\mu$ mf.

\* 74 Pine Tree Lane, Tappan, N. Y.

It was learned through experiment that the position of the 50K biasing potentiometer could be shifted to a point of slight over-bias where the oscillator would squegg or block at an audio rate. Believe me, it is a terrifying note, something that shouldn't happen to your worst enemy on the air! A quick glance at the scope patterns will show the reason. The resultant tone-modulated note can be varied to sound like anything from a spark transmitter to a raspy buzz saw about to stall in a green log. But such a signal is quite easy to find on the receiver. It's an interesting application of the transistorized oscillator, since the pure c.w. output is apt to be hard to find above 15 Mc. A quick twist of the biasing potentiometer adds the modulation. Once the signal has been located on the receiver, it can be returned to pure d.c. for greater accuracy.

Battery supply is inexpensive, and if standard-size flashlight cells are used, it should be practical to dispense with the on-off switch entirely. Correspondence with several battery makers would tend to indicate that the operating life of dry cells under these conditions approaches closely the shelf life. In our particular case, we have been running the unit from a worn-out lantern battery that had been pulled from a portable light. After continuous duty of six months, the "dead" battery is still quite lively, powering a precision-controlled 500-ke. signal

whenever needed.

## Metering

Some experimenters may want to check the operation of the circuit with a d.c. current-reading meter in the collector circuit. An ordinary 0-1-ma. meter is suggested for those who would like to see what's going on in the circuit d.c.-wise. However, to avoid any possible damage to the meter, it is advisable to try a meter with a 5- or 10-ma. scale first to make sure that the current is at a value safe for the 1-ma. meter. Normally, the current will run 200 microamperes or less. If a microammeter is used, its resistance may be high enough to interfere with the operation of the circuit. This may be overcome in some instances through by-passing the meter. This is not as simple as it sounds for ragged oscillation of a parasitic nature will occur in most setups unless the by-pass capacitor is chosen carefully. In this unit, it was found that a 500- $\mu$ f. ceramic capacitor across the meter terminals worked fine. Values larger than 0.001  $\mu$ f. will usually result in instability.

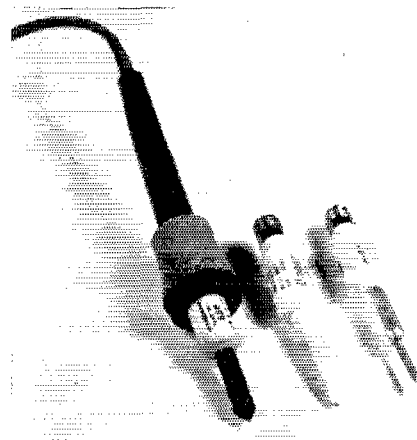
With 0.1 volt (read with a v.t.v.m.) emitter bias, the collector current was about 130  $\mu$ a. and the output wave form was normal. With 0.3 volt bias, the collector current was approximately 145  $\mu$ a. and oscillation was on the edge of squegging. With a bias of 0.25 volt or less, the collector current ran 155  $\mu$ a. or more and the output signal was heavily modulated.

## • New Apparatus

### Interchangeable-Element Soldering Irons

SOMETIMES it's a bit of a strain trying to make one soldering iron do the kind of work required when going from miniaturized to "standard" size components, and from a pack-jammed pocket-size receiver to a transmitter chassis with wide open spaces. What is needed is an assortment of irons having different power levels, along with various sizes and shapes of tips. The accompanying photograph shows a soldering-iron assembly designed to offer a variety of combinations to meet such needs.

The basic component is a light-weight plastic holder with a small candelabra socket, into which various heating element-tip combinations can be inserted. The holder shape, plus a cork grip, deflect heat away from the user's fingers. Heating elements, sealed in ceramic cylinders, are available in 23½, 37½ and 47½-watt sizes. Either chisel-point or pyramid-type tips of the standard size for these heating levels can be



secured. These tips are sealed to the heating unit and are not in themselves interchangeable in a given unit, but in addition there is a heating element that does have provision for tip changing; shown at the right in the photograph, it is used with a variety of miniature tips that are available for fine work. A conical-point miniature tip is shown in place.

The higher-temperature tips are silver-plated iron, to prevent corrosion. The assembly is made by Ungar Electric Tools, Inc., 4101 Redwood Ave., Los Angeles 66, Cal.

— G. G.

**A** RECENT ARTICLE<sup>1</sup> by WIDX stirred up once again a long-present desire to build a receiver that wouldn't flatten the pocket-book, require a whole table top to sit on, and need three men and a boy to lift. However, the complexity of Goodman's circuit and the discouraging financial information that an inquiry to Hycon Eastern brought were enough to keep the desire from becoming hardware. Then an

### ***Cascading High-Frequency Crystals for Improved Receiver Performance***

# **An Inexpensive Crystal-Filter I.F. Amplifier**

BY HUGH L. GOTTFRIED,\* W6YBR

*Selective high-frequency amplifiers are receiving more and more attention in receiver design, but the available filters are expensive. Here is a way to use inexpensive crystals in a simple circuit that will give many of the benefits of the higher-priced units.*

article by D. E. Hildreth<sup>2</sup> presenting a very simple method of connecting crystals in cascade was recalled. By using three different-frequency crystals in a "staggered triple," Hildreth obtained a flat 200-cycle band width at a center frequency of 400 kc., and about 2.5-kc. band width at 1600 kc. In both cases, the skirts were down 60 db. in about twice the band width.

Since this writer's prime interests are c.w. and simplicity, the advantages of both these responses were desired; about 200-cycle band width for good c.w. reception, and a 1600-kc. center fre-

\* Microwave Eng. Labs, Inc., 943 Industrial Ave., Palo Alto, Calif.

<sup>1</sup> Goodman, "What's Wrong with Our Present Receivers?," *QST*, Jan., 1957.

<sup>2</sup> Hildreth, "Staggered Triple Crystal Filter," *Electronics*, Dec., 1955.

quency for good image rejection without double conversion. Since the crystals are isolated from each other, the idea of putting them all on the same frequency around 1600 kc. appeared feasible. Here was an idea for an i.f. amplifier that required only one coil in the mixer plate for the entire strip, including product detector and b.f.o. The danger of interaction between crystals seemed slight, and the tiresome business of winding and pruning coils and the complexity of screen resistors and by-pass capacitors were missing.

Hildreth used the same twin triode as a driver for the crystal and as the following untuned amplifier, which is fine with the low gain obtainable in a broad staggered-triple. However, it was feared there would be too much coupling between the sections of the twin triode around the crystal with this arrangement if all crystals were on the same frequency, and consequently, the physical setup was changed so that an untuned amplifier and its following driver were in the same envelope, with only the crystal as coupling between tubes. Also, cathode bypasses were added to Hildreth's circuit to obtain somewhat higher gain.

K6FD provided some 3.6-Mc. crystals for the first attempt. The results were very encouraging, but not quite what had been hoped for. The amplifier had a band width of about one kc. and the skirt response appeared to be quite good. An inspiration led to putting the crystals in a simple oscillator and checking their frequency on the Super-Pro. There was more than 1 kc. spread in the oscillating frequencies of the four crystals, all marked identically! (Band-edge crystal buyers take note!) This left unanswered the question of the band width obtainable if all crystals had been on the same frequency.

It looked as if a frequency lower than 3.6 Mc. would be desirable, to obtain a narrower band width. A quick perusal of the surplus crystal ads in *QST* led to an order for several crystals at 1690 kc., and when they arrived, three crystals whose second harmonics fell within a few cycles of each other were installed in place of the 3.6-Mc. crystals. A quick rewinding of the mixer plate coil to resonate at 1690 kc. and a retuning of the oscillator to 12.3 Mc., and the 20-meter c.w. band was investigated. The receiver was set up next to a well-aligned surplus Super Pro, and the same antenna used on both receivers. Results were, if anything, slightly in favor of the crystal-i.f. receiver.

Its ease in separating stations was very comparable to the Super Pro, using the sharpest crystal filter position on the Pro and a 1000-cycle low-pass audio filter. The crystal i.f. receiver was definitely superior to the Pro without an audio filter, there being much fewer high-frequency audio components in the former.

With an audio filter in both receivers, the nod again went to the crystal i.f. receiver, provided the local oscillator and the station being copied were stable enough to stay within the 70- to 80-cycle band width obtainable!

The measured response of the amplifier showed that the 3-db. band width is about 300 cycles,



man, save the rest for a purpose mentioned later.

### B.F.O.

When testing the crystals as above, set aside one that gives a pleasant sounding beat note in the receiver (900-1000 cycles is preferred here), and use it as the b.f.o. crystal. It can be either higher or lower than the frequency of the three selected crystals. If the desired beat note is not found, a small amount of soft solder rubbed on the crystal will lower the frequency a few hundred cycles. Don't put on too much, and don't attempt to adjust the amplifier crystals in this manner — the solder also lowers the  $Q$  quite considerably.

### Notes

A word about the measuring technique may be of interest. The crystal i.f. receiver b.f.o. (variable for the test) was set about 5 kc. off the peak response, and the output of the product detector and an audio oscillator were connected together to an oscilloscope and to a sensitive a.e. voltmeter.

A stable 14-Mc. signal was tuned for peak audio output to the voltmeter and then the audio oscillator turned on and set for zero-beat with the audio from the receiver, as seen on the scope. The 14-Mc. input signal was then detuned slightly for a new voltmeter reading, and again the audio oscillator set for zero beat. This procedure is repeated for as many points as desired, out to the limit of sensitivity of the voltmeter. A plot of voltmeter readings against audio frequency will then give the response of the amplifier. Since zero beat between two audio frequencies may be read to less than one cycle with ease on the scope, the frequency is determined only by the accuracy of the calibration of the audio generator, and by any drift in the receiver or signal source during the measurement. The amplitude information is not as accurate as it depends upon the linearity of the voltmeter and the product detector at different frequencies, as well as the amplitude stability of the entire receiver and the signal source.

Although it has not been tried in this receiver, the band width could be increased simply by replacing two of the three crystals with crystals that differed in frequency by approximately the band width desired. This would produce a staggered-triple amplifier as in Hildreth's original article. However, the gain would be lower with a wider band width and possibly a tuned amplifier stage would be required.

A glance at the circuit diagram reveals no gain control in the receiver and is bound to cause some comment. The only gain control used here is one in the audio amplifier-filter<sup>3</sup> following the product detector. No other seems to be required. With a high gain r.f. amplifier in front of the mixer, the noise level at the product detector appears to be

close to overload and on strong signals, the detector acts as a clipper keeping the audio output nearly constant, regardless of input signal level.<sup>4</sup> The sharp audio filter then removes the harmonics thus generated, and the audio to the phones is always clean and never earsplitting, even on the strongest locals. One stage of triode amplification brings the audio to comfortable earphone level.

Incidentally, the cross-modulation from the product detector on strong locals (W6RFF across the street has several hundred watts!) is much, much less than in the Super-Pro.

Some have asked if the smaller FT-243 crystals would work in this circuit. It seems reasonable that a smaller crystal would have a larger series resistance in the series resonant operation used here and to this extent would not give as sharp a pass band. The 3.6-Mc. crystals used originally, however, were of the very small sealed type, and seemed to give a comparable pass band, considering their differences in frequency, so this effect may be negligible.

It is realized that this article was written on the basis of only one amplifier. The author may have been extremely lucky in obtaining the results outlined here but it is hoped that others will find it as simple and straightforward as it appears to be. For anyone who wants an easy-to-build, inexpensive single-conversion receiver with good i.f. response, it is highly recommended as an i.f. amplifier. The writer would like to hear the results of others who build the circuit.

### Construction

The i.f. amplifier was built on a surplus ARR/26 i.f. amplifier chassis. The 7-pin sockets were removed, and the holes enlarged to take the 9-pin twin-triode tubes. Since there was still room, the mixer and cascade 14-Mc. front end were also put on this chassis. The original coils were removed from their shield cans and the crystals put in. Most of the by-pass capacitors were used without change as were the decoupling resistors and chokes. Ladder decoupling networks were used in both the plate and heater supply lines, but should not be needed in the heater line. Since they were already in the surplus i.f. strip, they were left there. However, it is not suggested that this is the best chassis to duplicate this unit upon — the prospective builder would undoubtedly have a cleaner, better looking unit if he started with a new chassis and followed standard i.f. construction as outlined in the *Handbook*. The i.f. amplifier should be built in a straight line; turning corners or doubling back will probably lead to instability. Any of many r.f. amplifiers, local oscillators and audio amplifiers may be used with this i.f. amplifier, and the choice of these, plus trimmings such as band switching, are left to the builder's discretion.

<sup>3</sup> Campbell, "Modernizing the C.W. Clipper-Filter," *QST*, Dec., 1956.

<sup>4</sup> This is not normal product-detector operation. See Healey, "Notes on the Product Detector," *QST*, Dec., 1957. — *Ed.*

WHILE MOST HAMS for their normal work use antennas having characteristics that are known within close limits, it will be agreed that for emergency portable work, where antenna characteristics may be unpredictable, an antenna tuner capable of matching practically any random length of wire could be a valuable asset. The Armed Forces solved this problem by means of the continuously-variable inductance consisting of a circular coil rotating under a rolling jockey contact.

This is a heavy, bulky, complicated and expensive gizmo, and most hams will agree that they'd prefer a switch if one could be found with a sufficient number of contacts. It would probably also be conceded that a tapping arrangement, whereby any even number of turns from two to forty-eight could be selected at the turn of a switch, would be satisfactory. The error resulting from the selection of, say, 18 turns where 17.02 are actually required, could always be tuned out at the main tank.

Fig. 1 shows a solution, cooked up for a special job, that enables 24 different values of inductance to be switched in, yet uses only one 12-way switch, such as is easily available.  $L_1$  and  $L_2$  are the usual output tank coil and link. (It is not necessary for the coupling to be variable unless the same coil assembly is used on two bands). The loading coil  $L_3$  has 50 turns and is tapped every alternate turn up to the 24th (12 taps in all) for connection to the switch. It will be clear that with the antenna plugged into Terminal  $A_1$  the switch selects any even number of turns from two to twenty-four; by changing the antenna to Terminal  $A_2$ , any even number from 26 to 48 may be obtained — count 'em! (Where did the other two go? — no prizes!)

The terminals marked  $B_1$  to  $B_4$  provide means for shunting different fixed values of capacitance across the antenna, thus forming an antenna tank in conjunction with  $L_2$  and  $L_3$ . This also helps to suppress harmonics, and a tuning combination involving a shunt capacitor should always be selected where a choice exists. (A variable having a maximum capacitance of 200 or 250  $\mu\text{mf.}$  could be used instead of the four fixed

\*Ex-Police Radio Officer, Punjab, India (e/o Grindlays Bank Ltd.).

capacitors shown.) As drawn, the circuit requires that the antenna lead be terminated in two wander plugs. If the antenna cannot be tuned with a shunt capacitor, the second plug is merely "made safe." Purists, of course, may provide a spare blank socket for this purpose.

There is, of course, nothing critical about the number of turns on  $L_3$ . Any convenient number may be wound on, and this number should be divided by  $(2n + 1)$ , where  $n$  is the number of contacts on the switch, to find the number of turns per tap.

## Simple Universal Antenna Coupler

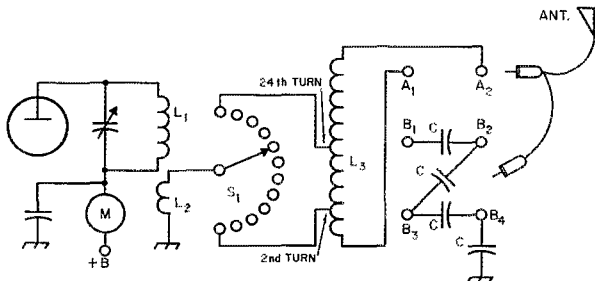
### Twenty-Four Taps with a Twelve-Point Switch

BY T. A. MENDES\*

The circuit has been thoroughly tested with excellent results; we never did find an antenna length that would not load happily — except for "fish rods" at 3.5 Mc. For those emergency-minded hams who want a portable job that will feed into anything from a disused sock-suspender to a mile or two of the wire fence around Haffenpfeffer's farm — and that without hocking the OW's TV — this could be it.

Fig. 1—The complete antenna tuner.  $L_3$  has 50 turns, tapped every other turn up to the 24th, as shown here. Coil dimensions and number of taps can be modified to suit particular conditions. A coil having a total inductance of about 20  $\mu\text{h.}$

(e.g., 50 turns evenly spaced over  $3\frac{1}{2}$  inches on 1-inch diameter tubing) is suggested. The two antenna terminals  $A_1$  and  $A_2$ , in combination with the 12-contact switch  $S_1$ , enable 24 different values of inductance to be selected. Terminals  $B_1$  to  $B_4$  provide four values of shunt capacitance, to form an antenna tank with  $L_2$  and  $L_3$ . Suitable values for C may be found by experiment, but 200  $\mu\text{mf.}$  each is a good starting point.  $L_1$  and  $L_2$  are the regular plate tank coil and link.



# Using TV Signals in V.H.F. Propagation Studies

## Checking M.U.F., Scatter and Sporadic E by Monitoring TV Stations

BY CALVIN R. GRAF,\* W5LFM

WITH SUNSPOT numbers in the current cycle running the highest of any peak in a continuous record that dates back about 200 years, observation of DX propagation on the frequencies above 50 Mc. is of more than ordinary interest. It is possible that never again in our lifetimes will the opportunities for v.h.f. DX now prevailing around the world be repeated. Amateurs working on the 50-Mc. band during

this cycle have a tremendous advantage over the fellows who pioneered in world-wide DX in 1946 to 1950; we have TV stations almost everywhere, whose signals can be used to help us determine the maximum usable frequency.

From October 1956 through February 1957, European TV stations were received in South Texas for as much as six hours per day. Because many of these operate below and in our 50-Mc. band, they offer a reliable source of m.u.f. information. There is little reason to wonder if

\* 207 Addax Drive, San Antonio 1, Texas

TABLE I

TV Stations of Europe likely to be heard in North America.

Frequency, Mc.	Location	Modulation	ERP	Polarization
41.25	Caen, France	A.M. Sound	12 kw.	H
41.5*	Belfast, N. Ireland	A.M. Sound	5 kw.	H
41.5	London, England	A.M. Sound	30 kw.	V
41.75	Berlin, E. Germany	Video, 625 lines	30 kw.	H
45.00*	Belfast, N. Ireland	Video, 405 lines	20 kw.	H
45.00	London, England	Video, 405 lines	125 kw.	V
48.25*	Plymouth, England	A.M. Sound	.25-4 kw.	V
48.25	Manchester, England	A.M. Sound	24 kw.	H
48.25	Antwerp, Belgium	Video, 625 lines	6 kw.	H
48.25	Tielt, Belgium	Video, 625 or 819	100 kw.	H
48.25	Berlin, E. Germany	F.M. Sound	3 kw.	H
48.25	Bremen-Oldenburg, West Germany	Video, 625 lines	100 kw.	H
48.25	Berne, Switzerland	Video, 625 lines	30 kw.	H
48.25	Belgrade, Yugoslav	Video, 625 lines	5 kw.	H
49.75	Prague, Czech.	Video, 625 lines	5 kw.	H
49.75	Kharkov, Ukraine	Video, 625 lines	5 kw.	H
49.75	Moscow, Russia	Video, 625 lines	40 kw.	H
49.75	Vienna, Austria	Video, 625 lines	1 kw.	H
51.75	Manchester, England	Video, 405 lines	100 kw.	V
51.75*	Plymouth, England	Video, 405 lines	1-16 kw.	V
52.4	Caen, France	Video, 819 lines	50 kw.	H
52.4	Saarlouis, Saar	Video, 819 lines	3 kw.	V
53.25	Edinburgh, Scotland	A.M. Sound	24 kw.	V
53.25*	Isle of Wight	A.M. Sound	.25-8 kw.	V
53.25	Norwich, England	A.M. Sound	.25-2.5 kw.	H
53.75	Antwerp, Belgium	A.M. Sound	1.5 kw.	H
53.75	Bremen-Oldenburg, West Germany	F.M. Sound	24 kw.	H
53.75	Berne, Switzerland	F.M. Sound	15 kw.	H

\* Video is 6.75 kc. lower and audio is 20 kc. lower than the frequencies listed.



**TABLE II**

Channel 2 Stations of the World. Assigned frequency is 55.25 Mc. Offset frequencies are given where used.

TV CH-2 Video Carriers Off-set from 55.25 Mc.

<i>State</i>	<i>On Frequency</i>	<i>Offset Plus 10 kc.</i>	<i>Offset Minus 10 kc.</i>
Alabama			WAIQ Andalusia
California	KNXT Los Angeles		
Colorado	KFEL-TV Denver		
Florida	WTHS-TV Miami		WESH-TV Daytona Beach
Georgia	WSB-TV Atlanta		
Idaho			KBOI-TV Boise
Illinois		WILL-TV Springfield	WBBM-TV Chicago
Iowa	WMT-TV Cedar Rapids		
Kansas	KCKT-TV Great Bend		
Louisiana	WBRZ Baton Rouge		
Maine			WTWO Bangor
Maryland		WMAR-TV Baltimore	
Massachusetts			WGBH-TV Boston
Michigan		WJBK Detroit	
Missouri			KFEQ-TV St. Joseph
Montana	KOOK-TV Billings		
Nebraska			KLRJ-TV Henderson
New Mexico		KVIT Santa Fe	
New York	WGR-TV Buffalo		WCBS-TV New York
No. Carolina			WFMY-TV Greensboro
No. Dakota		KDIX-TV Dickinson	
Ohio	WLWD Dayton		
Oklahoma		KVOO-TV Tulsa	
Oregon			KOTI Klamath Falls
Pennsylvania			KDKA-TV Pittsburg
So. Carolina		WUSN-TV Charleston	
Texas		KMID-TV Midland	KPRC-TV Houston
Washington			KREM-TV Spokane
Wisconsin		WBAT-TV Green Bay	
Country			
Alaska		KFAR-TV Fairbanks	KENI-TV Anchorage
Hawaii		KONA Honolulu	
Puerto Rico		WKAQ-TV San Juan	
Canada			
Alberta	CHCK-TV Calgary		
	CFRN-TV Edmonton		
B. Col.	CBUT Vancouver		
New Brun.	CKCW-TV Moncton		
Ontario	CFPA-TV Port Arthur		
	CJIC-TV Sault Ste. Marie		
Quebec	CBFT Montreal		
Sask.	CKCK-TV Regina		
Cuba	CMA-TV Havana		
	CMKU-TV Santiago		
Mexico	NEW-TV Mexico City		
Venezuela	YVKS-TV Caracas		
	Satellite Maracaibo		

the band is open to Europe these days. The TV signals are nearly always there to tell you, if it is. It should be remembered that propagation near the m.u.f. may be very selective geographically, and 100 miles can make the difference between a strong signal and no signal at all, but the TV station information in Table I should be highly useful to 50-Mc. operators attempting to work into Europe.

To be of greatest use in m.u.f. checking, the stations are listed by frequency, with the sound and video carrier frequencies separate. Even though many of the stations operate on the same frequency, several factors aid in identifying the source of reception. These include the type of modulation (a.m. or f.m. sound, video) and the offset frequency on which some of them operate. The antenna bearing may be helpful in checking the geographical location, when a highly directive array is used for reception.

According to the Stockholm Plan for U.H.F. Broadcasting in Europe, some TV stations operate with their video carriers offset plus or minus 6.75 kc. and their audio carriers offset plus or

minus 20 kc., to avoid mutual interference. In this country only the video carrier is offset; this by plus or minus 10 kc. Some stations operate on the assigned channel frequency, of course. For stations having directional antennas the maximum and minimum effective radiated powers are given.

#### Scatter Reception of TV Signals

A 50-Mc. operator almost anywhere in the United States can receive TV carriers on Channel 2 or Channel 3 by means of ionospheric, tropospheric or meteor scatter. This is particularly true if an amateur-style converter is used ahead of a communications receiver. As an example, the author is able to receive the video carriers of every Channel 2 station within 1200 miles of San Antonio regularly. The station being received can usually be identified by antenna bearing or by observing the offset frequency of the transmissions. Early morning or late evening listening enables the observer to take advantage of times when nearby stations are off the air. Where Central Standard time prevails, a one-hour clear

TABLE III

Channel 3 TV Stations. Assigned frequency is 61.25 Mc.

State	On Frequency	Offset Plus 10 kc.	Offset Minus 10 kc.
Arizona		KTVK Phoenix	
California	KCRA-TV Sacramento	KEYT-TV Santa Barbara	KIEM-TV Eureka
Connecticut		WTIC-TV Hartford	
Florida			WEAR-TV Pensacola
Georgia		WSAV-TV Savannah	
Idaho	KID-TV Idaho Falls		
Illinois		WCIA Champaign	
Iowa		KGLO-TV Mason City	
Kansas			KARD-TV Wichita
Kentucky			WAVE-TV Louisville
Louisiana			KTBS-TV Shreveport
Michigan			WKZO-TV Kalamazoo
Minnesota	KDAL-TV Duluth-Superior		
Mississippi		WLBT Jackson	
Missouri		KYTV Springfield	KTVO Kirksville
Nebraska	KMTV Omaha		
New York			WSYR-TV Syracuse
No. Carolina	WBTV Charlotte		
Ohio	KYW-TV Cleveland		
Pennsylvania	WRCV-TV Philadelphia		
So. Dakota		KOTA-TV Rapid City	KDLO-TV Florence
Tennessee	WREC-TV Memphis	WRGP-TV Chattanooga	
Texas	KFDX-TV Wichita Falls		
Vermont	WCAX-TV Burlington		
Virginia		WTAR-TV Norfolk	WSVA-TV Harrisonburg
W. Virginia		WSAZ-TV Huntington	
Wisconsin	WISC-TV Madison		
Country			
Hawaii	KMAU Wailuku		
Cuba	CMH-TV Santa Clara		

look east can be had in the early morning. The converse applies to the west in the evening at sign-off times.

Up to at least 1200 miles the ionospheric scatter signal is in evidence at all times. If you want to study meteor signals, Channel 2 is the place to do it. You haven't heard meteor pings until you've done some Channel 2 monitoring at scatter distances! The effect of meteors decreases with increasing frequency, but there is still quite a bit of activity at Channel 6, ending at 88 Mc. Meteor activity is almost nil on Channel 7 (beginning at 174 Mc.) and higher. Those located too near to a Channel 2 station to be able to hear DX signals through it can monitor Channel 3. Marginal results will be obtained at this frequency, however, if the observer is using a 50-Mc. receiving setup. Of course if the converter and antenna are designed for Channel 3 excellent results can be obtained.

At W5LFM a 4-element 50-Mc. Yagi 41 feet above ground is used with a printed-circuit converter and an SX-28. Using the beat oscillator and a 3500-cycle band width, signals under 0.1 microvolt can be heard. Most 6-meter Yagi arrays will work backward on Channel 2 or higher, as the directors are long enough to act as reflectors. This is by no means an ideal receiving arrangement, but it will usually show some gain over a simple dipole, even so.

#### Lightning Enhancement

Increases in the strength of tropospheric scatter signals on Channel 2 during thunderstorms have been observed many times by the author. This enhancement results from reflection of the wave by the ionized area around the lightning flash. It is of short duration. To try it, listen to the video carrier of a station 200 to 300 miles away with the h.f.o. on. When a flash occurs more or less in the direction of the station, the scatter signal increases greatly, with little increase in noise level.

Enhancements have been observed with the array pointing at a storm area, not in line with the TV station. In this case the signal makes a back reflection from the flash area to the receiving antenna. Where there are frequent flashes the background signal level will be above average most of the time, as the storm area moves off in the distance. Lightning enhancement is common in Texas, but there may be other areas of the country where storms that provide it are rather rare.

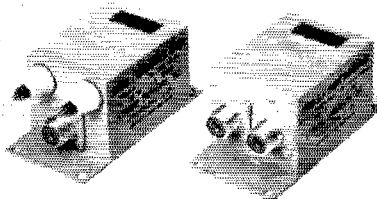
#### Anticipating Sporadic-E Openings

The imminence of sporadic-E openings on 50 Mc. can be detected by listening to ionospheric scatter signals on Channel 2. If a good opening is coming up the ionospheric scatter signal level will increase in intensity, often as much as an hour before it is possible to hear 50-Mc. amateur signals. Usually there will be beats between two or more TV signals. The direction to the area of best reflection can be found by rotating the antenna for the loudest beat.

When the ionospheric scatter level rises and beats begin to appear, an occasional listen on 50 Mc. will tell you if the band is open. When the beats get really strong there is no doubt — get that rig going and make some calls. This is not meant to be taken as a foolproof way of predicting band openings, but it has worked well on numerous occasions for the author. It is a great timesaver, in that it permits one to get some work done anywhere within listening distance of the receiver, without requiring frequent tuning of the band. It has provided as much as an hour's warning of an impending opening, and it has enabled us to work 50-Mc. stations during openings that have lasted as short a time as three minutes.

Put your 6-meter receiving setup on the TV frequencies and try your hand at monitoring the m.u.f. and metering the meteors. You'll get a ping out of it!

## ● New Apparatus



RECENT additions to a line of wide-band baluns described in May, 1957, *QST* (page 41) are shown in the accompanying photograph. Three models of these "junior" baluns, rated at 150 watts r.f., are available: 75 ohms unbalanced to

### Low-Power

### Transmitting Baluns

300 ohms balanced, 75 ohms balanced to 75 ohms unbalanced, and 75 ohms unbalanced to 50 ohms unbalanced. The frequency range is 1.5 to 30 Mc. in every case. Like their predecessors, they require no adjustment over this range.

The case size, exclusive of terminals and mounting plate, is 2 inches high, 2¼ inches wide, and 3½ inches long. The mounting base brings the total length to 4½ inches. The units are made by Lynmar Engineers, Inc., 1432 N. Carlisle St., Philadelphia 21, Penna.

— G. G.

READING past issues of *QST* and listening around on the bands I gradually became aware of the fact that I was well behind the times: I didn't have a multiband antenna fed with coaxial line. After reading about and listening to a lot of guff about traps (ugh!) and multiple-wire dipoles (ugh-ugh!) I decided to try a three-band ground-plane antenna. It turns out to be a fairly simple device that works well, so here it is for others who might want to try it. If it requires a sales pitch, I will claim without hesitation that it is neat in appearance, costs very little, does not need a rotator, works efficiently on 10, 15 and 20 meters, and has a low angle of radiation.

## A Three-Band Ground-Plane Antenna

*Simple Construction and Coaxial Feed*

BY ROBERT SWANSON,\* K5AYJ

Ground-plane antennas close to the ground aren't ground-plane antennas at all, so this one is supported by 34 feet of 1-inch galvanized pipe. Four 17-foot "drooping radials" form the ground plane and double as guy wires. These four wires are fastened to a pipe flange at the top of the mast. At one point on the mast the pipe sections are joined by a T fitting, which provides a convenient point for bringing out the RG-8/U feed

In many locations most of the available room is up, and this dictates a vertical antenna. When properly installed, the ground-plane antenna is probably the most effective type of vertical at ham frequencies. Here is a three-band version that may be the answer to your multi-band operating problem.

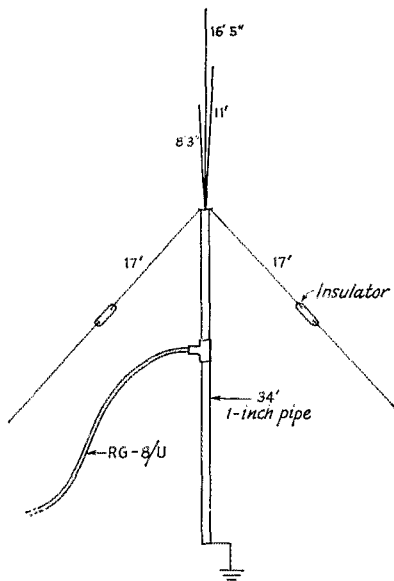


Fig. 1—The three-band ground-plane antenna uses wire elements. Vertical elements are taped to a cane pole; the four radials also serve as guy wires. At K5AYJ the radials "droop" a little, making a 40-degree angle with the supporting 1-inch pipe.

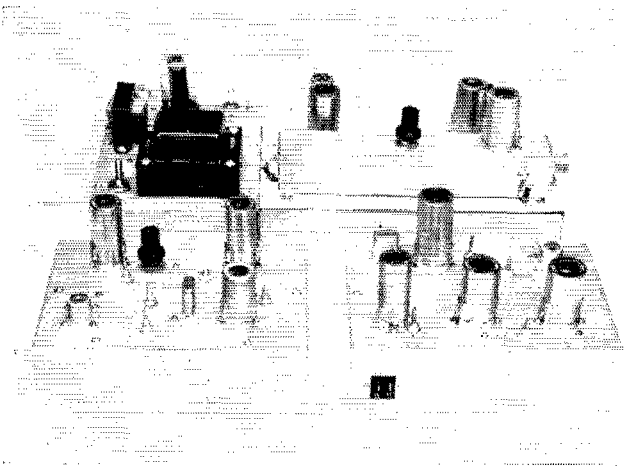
line (Fig. 1). If it is more convenient to bring out the coax at the base of the mast, you can of course eliminate the T fitting and use an ordinary coupling.

A cane fishing pole supports the three separate vertical elements. These elements, made of No. 12 wire, are taped to the pole every three inches with Scotch electrical tape. The bottom end of the pole is jammed tight into the upper end of the support pipe, and the coaxial line is brought out of the pipe through a small hole just below the bottom of the flange. The inner conductor of the coaxial line is soldered to the junction of the three vertical elements, and the braid of the coaxial line is connected to the pipe flange. Anyone who might worry about the insulating ability of a cane pole can forget it; remember that it is being used at a low-impedance point.

Running only 7 to 8 watts input, stations on both coasts and the Canal Zone have been worked on 15 meters. The coasts have also been worked on 20, but my QRP gets "clobbered" rather easily on that high-power band. Ten meters hasn't been tried too much, but there is a noticeable improvement in reception over the horizontal dipole. The s.w.r. hasn't been checked, but the antenna loads the transmitter readily and everything behaves normally.

\*3008 Hays St., Pasadena, Texas.

Converters for 50, 144 and 220 Mc., with their power supply. Built for the 1958 Handbook, they embody some of the principles discussed herewith.



# Improving Performance of Crystal-Controlled V.H.F. Converters

**P**ROBABLY NO single factor has done so much to advance the art of v.h.f. communication as the general adoption of crystal-controlled converters for reception. Their advantages have not been enjoyed without some disagreeable by-products, however. Some of the more annoying troubles commonly encountered in using crystal-controlled converters for reception at 50 Mc. and higher are listed below:

- 1) Unsatisfactory tuning rate or tuning range in the communications receiver with which the converter is used.
- 2) Interference from stations operating in the range tuned by the receiver when it is serving as an i.f. system.
- 3) Cross-modulation and overloading by strong local signals in or near the band in use.
- 4) Images and other spurious responses due to strong signals outside the intended tuning range.

The first two troubles are at least partly the responsibility of the receiver with which the converter is used. The latter two are mainly characteristic of the converters themselves. What can we do about any or all of them?

## Receiver Tuning Considerations

If we are to tune the whole band (four megacycles for 50 and 144 Mc.; five for 220 Mc.) there are few receivers that have really satisfactory tuning systems. The NC-300 is one exception. It has a tuning range of five megacycles especially for v.h.f. converter use, and separate calibrated

## *Mechanical and Electrical Considerations Affecting Reception Above 50 Mc.*

BY EDWARD P. TILTON,\* WHDQ

dial ranges for 50, 144 and 220 Mc. It probably solves the problem of full-band v.h.f. coverage as well as it can be done. To tune a range of 5000 kc. inevitably calls for a tuning rate that is considerably faster than the ideal, particularly when the i.f. system has a high degree of selectivity. Here we come face to face with the hard fact that you simply cannot tune an entire v.h.f. band after a CQ and do justice to weak signals along the way.

Two war-surplus receivers, the BC-342 and 348, have fairly good tuning rates, whatever their other deficiencies may be from the v.h.f. man's point of view. The various Collins receivers have fine dials, but they don't cover enough frequency on any one range. The 75A-1, -2 and -3 can take in a total of 4000 kc. continuously, if you work the band switch and tune 26 to 30 Mc. The 75A-4 cuts the ranges so that you have to switch crystals and work the band switch to cover a v.h.f. band. Other single-dial receivers make no provision for a four-megacycle tuning range at any point in their coverage.

None of the two-dial receivers has the kind of

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

tuning rate on its general-coverage dial that is needed in tuning for weak signals with high selectivity. There are two partial solutions to the problem with the two-dial receiver, neither of them wholly satisfactory. One is to install a planetary vernier drive on the general coverage dial.<sup>1</sup> This will slow down the rate at which the kilocycles slip through your fingers, but every planetary mechanism we've tried has some backlash. Even a little slop in a dial takes the fun out of tuning with a high-selectivity receiving system.

The other approach is to use the bandspread dial. This, admittedly, is one of the major factors in the low-edge crowding now afflicting all our v.h.f. bands. You set up your receiver just as if you were going to tune the 7- or the 14-Mc. band. When you have gone through the range of the bandspread dial, you reset the general coverage dial and tune through another sweep with the bandspread. In this way, if your memory is good, you can keep track of where you are in the band. It's not a handy method, but it seems to be the favorite with owners of two-dial receivers.

### I.F. Leak-Through

If you have to stop and examine every whistle to see whether it is a v.h.f. or an i.f. signal, tuning the band is a slow and painful process. Signals at 7 or 14 Mc., the two most popular i.f. tuning ranges for v.h.f. converters, can be very strong at times. Receivers are sensitive in these ranges, and they will bring in moderately strong signals with little or no antenna. No wonder that it seems a difficult matter to keep i.f. signals out of the v.h.f. band. It can be done, however, on nearly all receivers, and even with fairly simple converters.

Signals in the i.f. range leak through mainly in two ways. Some receivers are not adequately shielded, so they pick up signals regardless of what you do to the converter to keep them out. More often, however, i.f. leak-through is the fault of the converter, or of the way in which it is connected to the receiver.

The first step in getting rid of i.f. pickup is to remove the three-terminal strip that is used for the receiver antenna connections and substitute a coaxial fitting. Don't be afraid to dig into the receiver; it won't bite, and it will be better for all classes of service with a coaxial connector in place of that terminal strip. Don't just mount the coaxial fitting and connect in parallel with the strip. Disconnect the leads from the latter. Connect the lead removed from the middle terminal to ground at the fitting, and the normal antenna lead to the inner conductor.

That may be all you'll have to do to cure your i.f. pickup, but if the signals are still there, try bonding the converter and receiver together. Don't rely on the outer conductor of the coax that runs from the converter to the receiver: use a copper strap or braid, just as short and direct as possible. A nut that holds one of the receiver controls in place may be a good spot to anchor this bonding strap.

<sup>1</sup> Tilton, "Communications Receiver Hints for the V.H.F. Man," *QST*, April, 1955, p. 36.

From here on, getting rid of the i.f. pickup is a converter problem. Cleaning up the converter is not unlike TVI-proofing a transmitter, except that you have to keep i.f. signals out of the receiver, instead of keeping harmonics inside a transmitter. I.f. signals get through a shielded converter via two doors: the antenna and the power-supply leads. Disconnect the v.h.f. antenna. If the i.f. signals disappear you know that some work is called for in the converter circuits themselves. If they remain, you know that there is pickup by a.c. or other power leads.

A properly designed v.h.f. array should not have much pickup at frequencies lower than that for which it is designed. A parasitic array is a fairly high-*Q* device; it won't look attractive to 7- or 14-Mc. signals. But if it has a long or poorly matched open-wire or Twin-Lead feeder, the line may be a fairly good antenna for lower frequencies. (We once worked on 7 Mc. with good success at WHDQ, using the feed line on our 2-meter array as a sloping long wire!) Much of the low-frequency pickup trouble can be eliminated by running such a feed line through a balun cut for the frequency in use and going into the v.h.f. converter with coax. That's the only right way to connect the antenna to a v.h.f. converter, anyway. Balanced lines are an invitation to trouble with spurious responses unless a balun or an antenna coupler is used.

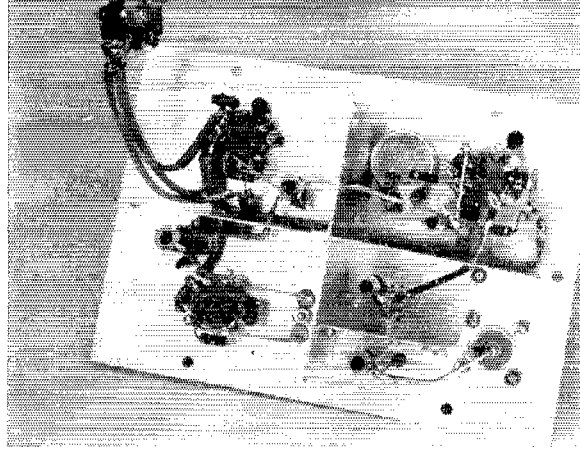
Here's a stunt that some v.h.f. men have used to knock down i.f. signals. They connect a high-pass filter (the kind commonly used on TV sets, but be sure it passes 50 Mc. if you're going to work that band!) in the antenna line near the converter.

But suppose the i.f. signals still come in with all this done. Checks to locate the source of pickup can be made readily. Tune in an annoying i.f. signal. Take an antenna lead and use it as a probe. If the antenna is grounded anywhere, connect a small capacitor in series with it: 500 to 1000  $\mu\text{f.}$  will do. Touch the probe on the B-plus line of the converter, on the heater leads, the a.c. leads, the cabling to the power supply. If any of these points shows an increase in the signal pickup it needs to be bypassed more effectively.

We ran through this with the converters recently completed for the 1958 *Handbook* and found some rather surprising hot spots. The a.c. line to the power supply was one. A dual 0.005- $\mu\text{f.}$  125-volt a.c. bypass (Sprague 125L-2D50) helped some here. The B-plus lead from the power supply unit to the converter was another bad point. A 0.01 disk ceramic at the power supply plug did the rest. This despite several feed-through bypasses on the B-plus and heater leads in the converter itself.

Even very simple converters can be freed of i.f. leak-through troubles by rather simple means. We've had many letters about the simple converter described for 6-meter beginners in *QST* for May, 1955. Lots of builders of this little job have more 7-Mc. than 50-Mc. signals, it seems. W1CUT of the ARRL Technical Staff is using that converter and a very similar one for 144 Mc.,

Interior of the 50-Mc. crystal-controlled converter. Note the double tuned circuits, isolated by shielding. These help to build up attenuation to signals at the intermediate frequency. R.f. gain control is used only when strong local signals cause overloading or cross-modulation troubles.



mounted in a single box. He had i.f. signals galore on both converters until he bypassed the B-plus line inside the case, again with 0.01  $\mu$ f., and the a.c. line as described above. It takes a considerable capacitance to bypass 7 Mc. effectively, and the job must be done with little or no extraneous leads.

Some 6-meter men have reported trouble with the International Crystal Mfg. Co. 50-Mc. converter. When the writer first checked this popular unit i.f. signals were very strong. Shielding the power leads and bonding the converter chassis to the receiver cleaned practically all of them up. Coaxial input is a must here, too. If you have a balanced line on your 6-meter array, install a balun or an antenna coupler and go into the converter with coax.

There is bound to be somewhat more spurious signal trouble with very simple converter circuitry than in designs where some r.f. selectivity is built up. This can be done in several ways. In the *Handbook* 50-Mc. converter we stole an idea from a commercial receiver of considerably more complex circuitry.<sup>2</sup> By using double-tuned circuits for the r.f. amplifier input, and for coupling between the amplifier and mixer, we cut down i.f. and other spurious signals to a very satisfactory level, without running into much in the way of extra parts. How it's done is described in detail in the *Handbook*, and also in the equipment writeup describing the commercial unit from which we lifted the idea.<sup>2</sup> There are many ways of accomplishing the same objective. More tuned circuits and elimination of large values of capacitive coupling are the lines of attack.

### Cross-Modulation and Overloading

Lots of v.h.f. activity is fine, provided that it is in some town at least 10 miles away; preferably on the other side of a good high range of hills. But when some fellow a quarter of a mile away opens up on the same band you're on, don't automatically reach for your axe. It may be that your converter could stand some working over. This subject is a hot one in these days of ever-increasing v.h.f. activity, and it is especially bad on 50 Mc. Fortunately, it is also easiest to do

something about it on that frequency. There has been much about this kind of neighbor trouble in *QST* in the past year or so,<sup>3,4</sup> but too many v.h.f. men still think that multiple responses, cross-modulation and complete blocking are solely the fault of the interfering station.

There are some things no converter or receiver will stand, but chances are that some of the trouble can be corrected right at home. In trying for the lowest possible noise figure we have, in the past, often built converters with more gain than is necessary to do the job. If one r.f. stage is good, why not use two — or three? The answer is that only enough r.f. gain is needed so that the noise from the antenna will override the noise generated in the r.f. and mixer stages. If the tube used in the r.f. amplifier stage is a good one, one stage is likely to be enough, especially at 50 Mc. More gain will hop up the S-meter readings, but it will do nothing for you in the way of weak-signal reception. If you want the S meter to read higher, crank up the adjustment provided for this purpose in the receiver!

Once again we bring in the International Crystal Mfg. Co. 50-Mc. converter. With its printed circuitry, it is so small and inexpensive that some owners feel that it can't possibly do the job of pulling in the weak ones. It can. Its r.f. gain and noise figure are adequate for weak-signal reception, and nothing can be gained by adding r.f. amplification, except possibly with some very poor receivers that may be woefully deficient in gain at the intermediate frequency. More r.f. amplification with this, or any other converter that already has enough, can otherwise only increase your troubles with interference from strong signals.

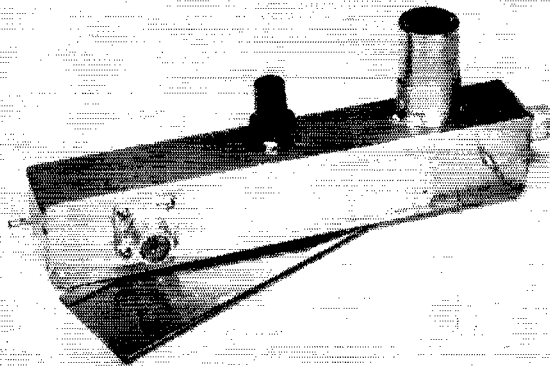
Both cross-modulation and overloading begin at certain critical signal levels, but what those levels are can vary greatly with different operating conditions in the r.f. and mixer stages. Hadlock<sup>3</sup> and Jones<sup>4</sup> have dealt with this subject adequately in recent issues of *QST*, so we'll not go over it again.

In cases where the locals are really troublesome

<sup>3</sup> Hadlock, "Design Considerations of 50-Mc. Converters," *QST*, March, 1957, p. 17.

<sup>4</sup> Jones, "Low Cross-Talk Six-Meter Converter," *QST* June, 1957, p. 22.

<sup>2</sup> "Recent Equipment — The Tapetone V.H.F. Converters," *QST*, July, 1957, p. 42.



Trough-line 220-Mc. r.f. amplifier. Used ahead of a simple converter, it will improve the noise figure and help to reject signals from outside the intended tuning range.

it may be useful to be able to sacrifice a little gain and noise figure in order to bring the offending signals down to below the overloading point. This can be done with a simple gain control, usually in the cathode of the first r.f. amplifier stage. Normally you'll want this all-out, for maximum sensitivity, but there will be times when cutting it in all or part of the way will cut the gain so that locals no longer tie up the receiver, yet the sensitivity may still be enough to bring in the fellow you want to hear.

Some checks made on the 1958 *Handbook* 50-Mc. converter at W1HDQ may be of interest. We supplied a young protégé, W1HBJ, with a 6-meter rig. He lives about 600 feet from the antenna at W1HDQ. We listened to various signals and had Ron make test transmissions at frequent intervals. Two other converters were compared with the 1958 model. One was a commercial job, the other an old stand-by cascode converter that was built for the 1950 *Handbook*.

In weak-signal reception with no interference there was no measurable difference in these converters, though their noise figures ran from 2 to 6 db. When W1HBJ came on the air the two older converters simply folded up. Nothing could be heard through him. With the new job (gain control all out) he cross-modulated everyone, but the signals could be copied when he was not talking. (In other words, he didn't block the mixer.) With the converter gain backed off it was possible to receive most of the stronger signals with no great amount of interference, though we did lose enough sensitivity to cost us some weak-signal reception. It was hardly an ideal v.h.f. situation, but we could work through him. With the other converters there simply wasn't a chance.

#### Off-Band Signals

Though the term is as old as the superheterodyne, a good many amateurs still don't know what an *image* is. In superhet language an image is the unwanted product of the heterodyning action that is inherent in reception by this method. The oscillator in the receiver or converter tunes be low or above (usually below, in converters) the signal frequency. It beats with

the signal and produces a resultant signal at an *intermediate frequency*, which in this instance is equal to the difference between the signal and oscillator frequencies. But there can also be a beat product at the same i.f. with a signal that is *below* the oscillator frequency, if it is allowed to get from the antenna into the mixer stage of the converter. One of these signals you want. The other is strictly a nuisance, the "image."

Your only protection against the image nuisance is whatever r.f. selectivity can be built up in the converter ahead of the mixer stage. If the converter is a typical broad-band front-end job, the selectivity at 144 or 220 Mc. will be almost nil, and images are bound to come through, if there are commercial services operating on the image frequencies. It's a good idea to check the image response possibilities in your neighborhood before you freeze the design for a converter project, or even before you select a particular commercial product.

This is one of the places where simple circuitry falls down. Take a 220-Mc. converter with a 7-Mc. i.f., for example. We've had such converters in the *Handbook* for many years. They are adequate, except under certain local situations as regards television transmitters. Injection at 213 Mc. beats with a 220-Mc. signal to produce a 7-Mc. i.f. signal for the communications receiver. But that 213-Mc. injection also beats with a signal at 213 minus 7, or 206 Mc., if one happens to be present. If you live in a Channel 11 or 12 TV station's service area, you're likely to hear plenty of TV in the middle of the 220-Mc. band on that converter. Simple circuits at 220 Mc. will not introduce enough selectivity to knock down the TV signal appreciably.

Traps or stubs cut for the interfering frequency will help, and it is possible to build up r.f. selectivity in the converter. October 1957 *QST*, page 93, shows an example of selective r.f. circuits that can be used in a 220-Mc. converter. The converter for 220 in the 1958 *Handbook* introduces some selectivity through the use of a trough-line grounded-grid r.f. stage. Neither of these tricks will take care of a very strong signal, but in borderline cases they will clear up TV inter-



ference nicely. If the TV station is close by, the best thing to do is to use a different i.f., to shift the image out of the tuning range.

Very strong signals nearby may cause interference anyway, even if they do not show up as true images. That was the problem W8JLQ faced when he built the beer-can tank circuits described in the October *QST* reference given above. His mixer was being overloaded by a Channel 13 signal, and image response had nothing to do with it. Here we need all the r.f. selectivity we can muster, plus mixer and r.f. amplifier design aimed at resistance to overloading.<sup>3,4</sup>

Another source of trouble from signals outside the intended tuning range results from unwanted frequencies appearing in the injection energy applied to the converter mixer. This is no problem in a 50-Mc. converter, as we can use a 43-Mc. crystal to control the injection frequency directly. But for 144-Mc. or higher bands we have to use an oscillator and one or more multiplier stages to reach the desired injection frequency (137 Mc. for 144, 213 Mc. for 220, in the case of our family of converters with a 7-Mc. i.f.).

In our 220-Mc. converters prior to the 1958 version, we used a crystal oscillator on 21.3 Mc. This frequency was quintupled and then doubled, to reach 213 Mc. With no great effort made to restrict the output of such a multiplier system to the desired frequency, there are bound to be multiples of 21.3 Mc. all along the line, appearing in the mixer grid circuit. Though the levels of all but the desired multiple are down, they are still capable of beating with very strong signals and producing annoying spurious responses.

We cite another personal experience. The 220-Mc. converter shown in *Handbooks* from 1954 through 1957 has been used at both W1HDQ and W1AW. It works nicely. In fact, a very similar predecessor of it was once responsible for a 220-Mc. world DX record, held for some months by W1HDQ and W8BFQ. When a TV allocations switch brought Channel 8 to Connecticut its usefulness ended, for Channel 8 video appeared

throughout the 220-Mc. band.

This was cured by the addition of a trough-line r.f. stage ahead of the cascode r.f. stage. The amplifier, shown in an accompanying photograph and described in the 1958 *Handbook*, increased the level of 220-Mc. signals by some 17 db. The Channel 8 response dropped by 21 db., which was enough to eliminate the video blips we'd encountered in the 220-Mc. tuning range.

A better way to take care of the problem of such responses is to eliminate the injection frequencies that are responsible for them in the first place. Our 1958 converter uses a 53.25-Mc. crystal, followed by a quadrupler to 213 Mc. There is no Channel 8 response with this combination, and at W1HDQ the band is clear of video interference. It might not be in other locations, however. You have to take locally-used frequencies into account, and then pick out a combination of oscillator, multiplier and injection frequencies that will solve your own particular problem. There is no one solution for everyone.

Reading through this far, the potential builder or purchaser of a v.h.f. converter is likely to get the idea that the crystal-controlled converter is a large-sized headache. Not so. We have covered the field here, in an attempt to show the newcomer to the game what the possibilities are for troubles of various kinds in receiving v.h.f. signals, and to offer suggestions as to what may be done if such difficulties arise. In many cases the spurious response problem may be nonexistent, and in others it will be easily solved. The better converters now on the market have many circuit innovations that go a very long way toward cleaning up all forms of spurious responses. The converters we have mentioned here, particularly those for 220 and 50 Mc., the two most troublesome frequencies, have had most of the troubles designed out, or at least reduced to livable proportions. When spurious signals do show up, the information given will help you to track down the source, and to do something about it. It will not be too difficult, in most instances.

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## Strays

The Strategic Air Command recently provided transportation to the far North for a group of civilian hams in order that they might visit in person some of the northern lights for whom they had been handling traffic. Thule Air Base, Greenland, was the scene of this northern ham-fest, and those making the journey included W9NZZ, W8DNY, K4KCV, W2LXP, and W0NCS. Most of the group departed Thule on Dec. 16, but W9NZZ continued on to T-3, the floating ice island in the Arctic, to visit other personnel for whom he had been relaying messages.

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KN5KWU has a novel QSL card. The back of it is covered with stickum which in turn is pro-

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tected by a thin sheet of paper. When you receive his card and are ready to fasten it to the wall, you merely peel off the protective paper covering and stick the card to the wall.

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The XYL of K4DPX is able to monitor his phone transmissions on the front burner of their electric range. Because K4DPX is an Episcopal minister, it is reported that this is a case of "parson-to-person."

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What's in a name? K4SVF, a hot c.w. man, is named Whipkey. ----- W4KX

-----  
K4LEX and K4KBA shared school locker #599!



Although this antenna trap looks as if the only adjustment possible would be the removal of a turn or two from the coil, it actually uses an ingenious capacitance trimmer. As a result it can be tuned "on the nose."

IT DIDN'T WORK. I had built it with tender care, observing all the rules and regulations concerning homemade components for amateur radio use, but the fact remained that it just hadn't turned out right! This, of course, was no novel experience.

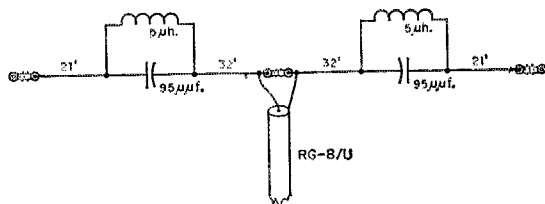
"It" in this case was a trap. You know: one of those very complicated devices consisting of a capacitor with a coil connected across it. The object was to build two of the little varmints,

# How To Set a Trap

insert them in a wire antenna of a given length, and I would have a dandy all-band antenna. That's what was supposed to happen, at least. What *did* happen, and what was done about it, follows in this story.

The article by W9JYH (*QST*, December, 1955) showed that a trap antenna for phone operation would consist of about the same wire dimensions as the antenna designed by W3DZZ, but with slightly different values for the trap components: a capacitance of  $95 \mu\mu\text{f}$ . in parallel, with an inductance of  $5 \mu\text{h}$ ., which would tune to 7250 kc. (Fig. 1). My purpose was to duplicate those traps.

Fig. 1—Dimensions of the multiband antenna.



## Dielectric Tuning of Trap Capacitors

BY CLAUDE KRAMER,\* W0CEQ

### The Trap

The coil was cut from B & W 3906-1 coil stock. Nine turns of this  $2\frac{1}{2}$ -inch diameter material proved to be sufficient. An extra half turn was left at either end for connections. The capacitors were formed from  $1\frac{1}{4}$ -inch o.d. aluminum tubing, into which 1-inch o.d. tubing was inserted  $1\frac{1}{2}$  inches. The two tubes, each 6 inches in length, were insulated from each other by a sleeve of polyethylene cut from a water tumbler. (The NYL is still wondering what happened to her drinking glass!) Each capacitor was drilled in the center and held together by a  $2\frac{1}{2}$ -inch long plastic peg. The coils were cemented on these pegs and connected to the ends of the capacitors with bolts and lugs (Fig. 2).

### The Problem

At this point it was deemed wise to check the traps with a grid dipper, rather than yield to the temptation of getting them up in the air as quickly as possible. Accordingly, the dipper was connected and tuned across the 40-meter band while pointed at Trap No. 1. Nothing happened. Trap No. 2 was tried, with the same result. Frantically twisting the dial of the dipper, I finally found a pronounced dip — at 9 Mc.! Obviously, either the coil or the capacitor was wrong. So Trap No. 1 was selected for dismantling. The coil was connected across a  $100\text{-}\mu\mu\text{f}$ . silver mica capacitor, and once more the dipper was thrust at it. Resonant frequency was 7200 kc. Apparently my two pieces of aluminum tubing came far short of the required  $95 \mu\mu\text{f}$ . And worse,

\* 518 Orchard Lane, St. Joseph, Mo.

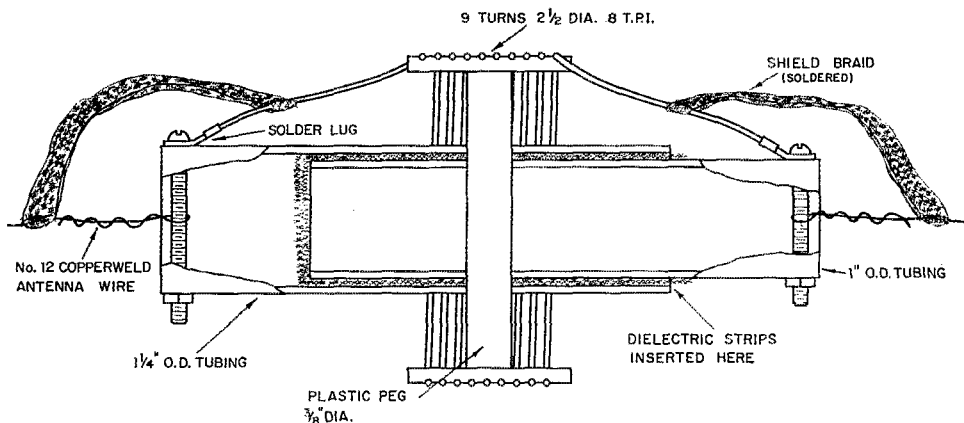


Fig. 2—Details of the trap.

they were simply too short to add much more capacitance by meshing them further.

There are several factors affecting the capacitance of a capacitor. They can be expressed conveniently thus:

$$C = 0.224 \frac{KA}{d} (n-1)$$

where  $C$  = Capacitance in  $\mu\text{f}$ .  
 $K$  = Dielectric constant  
 $A$  = Area of one plate in square inches  
 $d$  = Separation of plates in inches  
 $n$  = Number of plates

It becomes apparent that the capacitance varies directly as the dielectric constant as well as the area and the number of plates. In this case there wasn't much to be done about the spacing; it was set at  $\frac{1}{8}$  inch unless the size of one of the tubes was changed. Of necessity, the area of the tubes must remain the same, and, of course, the number of plates could not be changed. This left the dielectric as the only thing that could be conveniently altered.

### The Solution

In the *Handbook* there is a table of dielectric constants which heretofore had been of little interest to me. But now it took only a glance to see that it held the answer to this problem. According to the table,  $K$  for polyethylene is 2.3 to 2.4. Other insulating materials range from 1.0 (air) to as much as 16 for celluloid. In order to increase the capacitance of my trap capacitors then, it would be necessary to use a material with a dielectric constant higher than that of polyethylene. A quick excursion up and down the scales of my slide rule showed that  $K$  should be around 3.75 for this particular situation. But wait! Suppose the dielectric was partly air and partly a material of much higher  $K$ ? By combining the two in the proper proportion, it should be possible to tune this thing rather accurately.

The material selected was cellulose acetate, partly because it has a constant of 6 to 8 and partly because I had some on hand.

The trap was quickly reassembled with only a thin sleeve of acetate separating the two tubes. Next several  $\frac{1}{4}$ -inch wide strips of acetate were cut about 6 inches long. These strips were slid into the capacitor one by one as the frequency was checked with the dipper. With each strip the frequency dropped, although it soon became a race to see if the trap would resonate in the 40-meter band before it became too full of those strips! At 7500 kc. it began to get pretty crowded between the two tubes, so the strips were cut  $\frac{1}{8}$  inch wide and I began working them in with long-nose pliers. The narrower strips lowered the frequency more slowly, and it became a simple matter to adjust the trap to exactly 7250 kc.

At this point the ends of the strips were trimmed off and cemented in place. The second trap was handled in the same manner and the antenna was soon completed.

One question still remained. Now that the antenna was up, would it work? Having fought the battle of the traps, I was entertaining some doubts about the whole idea of multiband antennas. The Viking II was fired up, r.f. coursing through its coax, through the reflectometer, low-pass filter, antenna relay and on up the coax used as feedline for the antenna. On each of the bands from 80 to 10 the antenna loaded easily and a low s.w.r. was indicated on the meter. Subsequent on-the-air reports have indicated that it is doing the intended job admirably well.

It is felt that this method of tuning offers a more convenient means of adjusting traps not only for wire antennas but also for the popular multiband beams and verticals. Another possibility is its use in tuning out reactance in gamma-matching feed arrangements. Up to now no trouble at all has been experienced from using acetate for the dielectric, although there are other materials which probably would prove more suitable. Power input in this shack has been limited to 150 watts, so I cannot say whether or not the traps would hold up at a kilowatt.

So the trap is set. And W0CEQ is prepared to square a contact on 80 — or 40 — or 20 — or 15 — or 10!

# How To Tune Your Pi-Network Final

## Simple Procedure for Popular Tapped-Coil Systems

BY LEWIS G. McCOY,\* W1ICP

IT IS APPARENT from the number of inquiries received from Novices asking how to tune a pi-network transmitter that this is a common problem. Fortunately, most of the current manufactured transmitters and those that are home-brewed have pi networks whose coils or inductance values are preset for each band. When this is the case, the tuning procedure is not very difficult.

Fig. 1 is the diagram of an amplifier with a typical pi-network output circuit. For the sake of simplicity, the band switch has been omitted.  $C_1$  is the pi-network-input or plate-tuning capacitor.  $L_1$  is the coil, or inductor,  $C_2$  is the variable loading capacitor, usually labeled FINE LOADING on manufactured transmitters, and  $S_1$  is a switch usually labeled COARSE LOADING. The switch connects additional capacitance in parallel with  $C_2$  when it is needed.

In learning how to adjust the controls on your transmitter, we suggest that you use a "dummy" antenna at first. A dummy antenna is a device having characteristics similar to those of an antenna system. But the radiation from it is negligible so that you can try the various adjustments without bothering anyone by putting a signal on the air.

Either by design of the antenna and its feed line (matched system) or by use of an antenna coupler between the transmitter and antenna or feed line, almost any antenna can be made (and usually is made) to look like a resistance so far as the transmitter is concerned. (The procedure for accomplishing this will be taken up in a subsequent article.) Therefore, a resistance can be used to simulate an antenna for testing purposes.

Ordinary house lamp bulbs are a convenient form of resistance to use in practicing the tuning of a transmitter. They have the advantage that

they light up when r.f. power is fed to them and thus you can get a relative indication of power output.<sup>1</sup> Thus, for instance, if you use a 60-watt lamp, and it lights up to normal brilliance when the transmitter is loaded normally, you can figure that you have about 60 watts output. You should select a lamp that has a wattage rating equal to about 75 per cent of your transmitter's rated power input. For example, a 60-watt lamp is a good size to use for the Novice 75-watt input level. The lamp should be connected across the output terminals of the transmitter, with short leads.

### Tuning the Pi Network

Before turning on the power to the amplifier or closing the key, the output capacitance should be set at maximum capacitance. This means that  $C_2$  should be turned so that its plates are fully meshed and  $S_1$  should be turned so that all the fixed capacitors are connected. Instruction books of manufactured transmitters usually tell you which positions are maximum capacitance.

When power is first applied and the key closed, the reading on the plate-current meter will probably be above normal for the tube. The reason for this is that the output circuit is not tuned to resonance. But as you tune  $C_1$  through its range, you will find a point where the plate-current reading on the meter drops sharply. If you turn  $C_1$  still farther, you will find that the plate current rises to a high value again. The correct tuning point is the one where the plate current is minimum. This point is often referred to as the point of *plate-current dip*, or point of *resonance*.

<sup>1</sup> The resistance of a lamp bulb changes with temperature so that it cannot be used for accurate measurement. Also, the resistance of the lamp bulb at maximum will usually be higher than the 50 or 70 ohms most antenna systems are designed for. Nevertheless, pi-network adjustments will be similar.

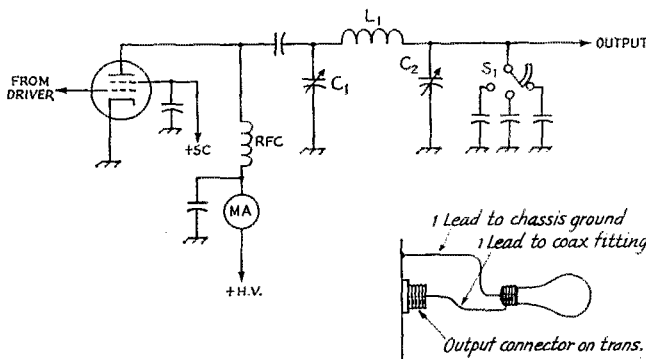


Fig. 1—Circuit diagram of a typical pi-network tank circuit.  $C_1$  is the input or plate-tuning capacitor,  $C_2$  is the output or loading capacitor.  $S_1$  is used to switch fixed capacitors in parallel with  $C_2$  to avoid the need for a much larger variable at  $C_2$ .

The amplifier should not be operated off resonance any longer than it takes to tune the output circuit to resonance because the large input power that the amplifier draws when it is tuned off resonance is not converted into useful r.f. power but is dissipated in heating the tube elements to the point where the tube may be permanently damaged. (We have seen some amateurs who thought they were loading the amplifier when they tuned off resonance because the plate current was higher!)

It is probable that on the first trial the plate current will dip to a very low value and the load lamp may not show any light at all. The low value of plate current means that the amplifier is not drawing much input power and therefore we can't expect much output power. The reason that the amplifier is not drawing much plate current is that the load is loosely coupled to the amplifier. Adjustment of the loading controls,  $C_2$  and  $S_1$ , will increase the coupling to the load and the amplifier will draw more input power.

### Checking Resonance

However, before proceeding with the loading adjustment, it is most important to make sure that the amplifier is tuned to the correct operating frequency. The only difference between a straight amplifier and a doubler or tripler is that the output circuits of the latter are tuned to the second and third harmonics of the frequency fed to the grid, while the output circuit of the straight amplifier is tuned to the same frequency as that fed to the grid. In some manufactured transmitters, the tuning range is restricted so that it is impossible to tune to any frequency except in the band for which the band switch has been set. In others, and in many home-built rigs, the tuning range is so great that both the correct operating frequency and its second harmonic (twice the operating frequency) can be tuned to within the range of  $C_1$ . In such cases, a plate-current dip will be found near maximum capacitance of  $C_1$  (usually the correct one at the operating frequency) and a second dip near minimum capacitance where resonance occurs at twice the operating frequency. Naturally, care must be used to avoid tuning the transmitter to the second harmonic. If your operating frequency is in the 3.7-Mc. range, and you make a mistake, you'll land on 7.4 Mc.; if your operating frequency is supposed to be in the 7.1-Mc. range, you'll be radiating on 14.2 Mc. In either case, you're in for trouble with the FCC.

In some transmitters there may be responses at other frequencies generated in driver stages. The moral is: If you find more than one dip in plate current, check with an absorption wavemeter.<sup>2</sup> (This check should also have been made at the grid of the amplifier to make sure that it is being driven at the correct frequency.)

### Loading the Amplifier

Once you have determined the correct setting for  $C_1$ , you are ready to start adjusting the loading by means of  $C_2$  and  $S_1$ . Both of these have been previously set to put maximum capacitance in the circuit.

First, turn the variable capacitor  $C_2$  toward minimum capacitance while you watch the amplifier plate current (which has been previously adjusted to the dip at resonance). The plate current should start to rise. As soon as it has risen a noticeable amount, readjust  $C_1$  to the bottom of the dip in plate current. You will notice this time that the dip in plate current is less pronounced and that the current does not dip to as low a value as it did previously. This indicates that the amplifier is beginning to take more power. As the plate current at the dip point begins to rise, you should notice that the load lamp will start to get brighter, indicating that as the amplifier begins to take more power input, it produces more power output. Also notice that when you tune  $C_1$  away from the plate current dip the plate current will increase but that the output power will be reduced.

If the plate current at the dip is not up to the rated value for the amplifier tube when you have reached minimum capacitance on  $C_2$ , return  $C_2$  to the maximum capacitance setting, turn  $S_1$  to the next position and repeat the same procedure. The process should be continued, advancing  $S_1$  one position at a time, until the amplifier is drawing rated plate current at the plate-current dip. By the time the amplifier is fully loaded, the dip in plate current will have become relatively broad. Adjustment of the capacitances will become more critical as the frequency of operation is increased.

In most transmitters you will find that you can increase the loading until the amplifier is drawing considerably more than rated plate current, and you may get some corresponding increase in power output. However, you shouldn't operate the amplifier this way if you expect to get normal service life from the amplifier tube or tubes.

<sup>2</sup> McCoy, "The Band Checker," *QST*, November, 1956.

## Strays

KN4RJN wonders if anyone has worked n.b.f.m.-to-d.s.b. (Who cares? — *Ed.*)

— . . . —

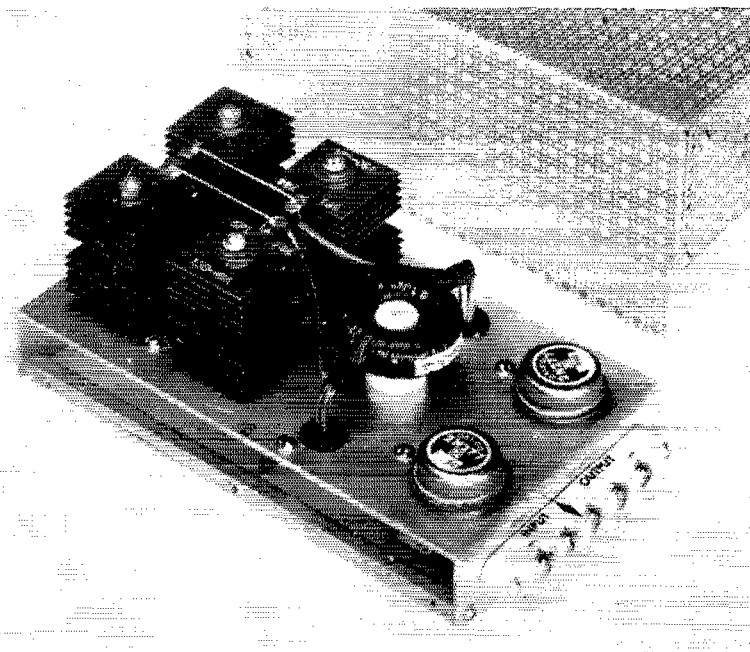
On a CQ, W7ZZW was answered by W2IOU and W3IOU.

— . . . —

W3CNQ and K3ALJ QSOed regularly. They were also friends and school classmates but it was six months before they discovered that they were both hams. (Gosh, we wonder what they talked about! — *Ed.*)

## Compact 65-Watt Supply for Mobile or Portable Use

Top view of the 65-watt transistorized power supply. Featuring compactness and light weight, the unit is ideal for mobile or portable use. The protective cover partially visible in the background is made from Reynolds do-it-yourself perforated sheet aluminum.



# Transistorized Power Supply

BY C. VERNON CHAMBERS,\* W1JEQ

UNTIL VERY recently, difficulty in obtaining suitable power transformers has prevented amateurs from building transistorized power supplies capable of delivering more than just a few watts output. However, a 40-watt continuous-duty toroid transformer is now available,<sup>1</sup> and allows building "no vacuum tubes — no vibrators — no moving parts" power converters that are husky enough to handle a typical mobile or portable transmitter.

The supply to be described uses one of these new transformers. Although the continuous-duty output rating is 40 watts, the manufacturer's ratings permit 90-watt intermittent operation of the transformer and, as a result, the supply may be safely loaded well beyond the 40-watt limit when used in normal amateur service. As is the case with most transistorized supplies, this one will cease to deliver *any* output if the supply is heavily overloaded. This in turn means that the unit is self-protecting in the event of short cir-

cuits in either the supply itself or the load equipment. Performance of this unit is good at loads up to about 65 watts, which is quite a bit of power from a supply that measures only 3¼ by 4 by 7 inches and has a weight of less than 2 pounds. It operates from a 12-volt car battery.

### The Circuit

The circuit shown in Fig. 1 is with minor exceptions a duplicate of the one supplied by the manufacturer with each transformer. We have added filter capacitors  $C_1$  and  $C_2$ , and bleeder resistor  $R_3$ . Each leg of the bridge rectifier uses a pair of inexpensive replacement-type selenium rectifiers instead of a single silicon power diode. The two-for-one trade, necessary because replacement seleniums have a much lower peak inverse rating than that of the silicon jobs, does not lend itself to the ultimate in compactness, but results in a substantial saving in cost.

The primary circuit of the supply is similar to the one described previously.<sup>2</sup> It is a multivibrator using two transistors operated at a frequency of approximately 1000 cycles per second. Windings  $A$  and  $B$  of the transformer,  $T_1$ , alternately

\* Technical Assistant, QST.

<sup>1</sup> The transformer is made by Sunair Electronics, Inc., Broward International Airport, Fort Lauderdale, Florida. The Delco 2N277 heavy-duty transistors used in the supply described here also are available from this concern.

<sup>2</sup> QST, December, 1957, p. 32.

Fig. 1—Circuit of the 65-watt transistorized power supply. Resistances are in ohms.

$C_1, C_2$ —10- $\mu$ f. 450-volt electrolytic capacitor.

$CR_1$  through  $CR_8$ —150-ma. selenium rectifier (Radio Receptor 5P1).

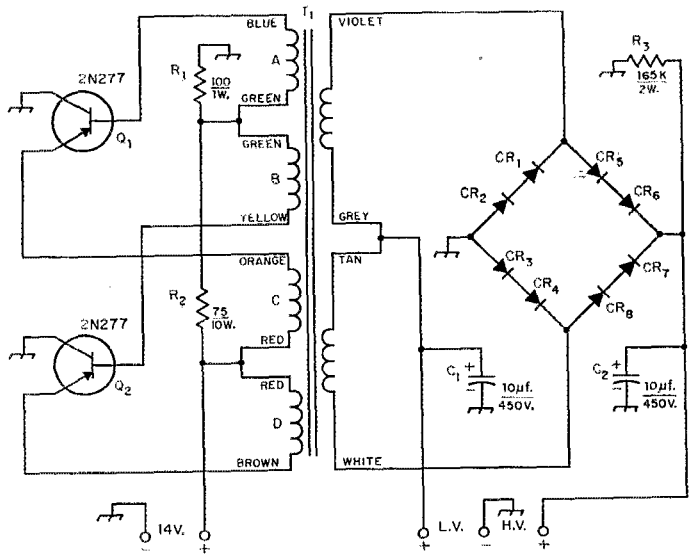
$Q_1, Q_2$ —2N277.

$R_1$ —100 ohms, 1 watt.

$R_2$ —75 ohms, 10 watts.

$R_3$ —See text.

$T_1$ —Toroid power transformer (Sunair Electronics type 14-450-1).



provide feedback voltage for  $Q_1$  and  $Q_2$ . Oscillatory conduction by the transistors switches the battery current through primary windings  $C$  and  $D$ . The grounded-collector circuit permits the supply to be operated from a battery having the negative terminal grounded. Output from the transistor or primary circuit is a high-frequency wave that is easily filtered, after rectification, by a simple capacitance filter.

A bridge rectifier is used in the secondary circuit of the supply. High voltage is taken from the bridge at the junction of rectifiers  $CR_6$  and  $CR_7$ .  $C_1$  and  $C_2$  are the filter capacitors and  $R_3$  is the bleeder resistor. The center-tapped secondary of  $T_1$  provides a half-voltage source (always one half of that obtainable from the high-voltage terminal) that may be used simultaneously with the high voltage.

### Performance

Fig. 2 is a graph of the current vs. voltage characteristics of the supply. The no-load output is 460 volts, dropping to 390 volts when a load drawing approximately 100 ma. is connected. The continuous-duty rating of the supply is exceeded when the current drain is over 100 ma., and the maximum intermittent duty output, 65 watts, is obtained with an output voltage and load current of 340 volts and 190 ma., respectively. Efficiency starts to taper off rapidly as the load reaches 200 ma., and at 220 ma. the voltage is down to 200 volts. In this region the feed-back voltage for the transistors is too low, and the supply should not be operated at such loads.

Voltage available at the low-voltage terminal is one half of that appearing at the high-voltage tap. However, the total current taken from the two sources should not exceed 190 ma. if optimum performance is to be obtained.

Current vs. voltage measurements were made

with 14 volts d.c. applied to the input terminals of the supply. This is the voltage for which the transformer is designed and is the voltage that may be expected from a 12-volt car generator system under normal charging conditions. The transistors will oscillate when the d.c. input is as low as 7 volts, but the power output will likewise be reduced to one-half the normal value.

### Construction

The chassis for the power supply is made from a 4 × 9-inch strip of 0.09-inch thick aluminum. In addition to supporting parts, the chassis also serves as a heat sink for the transistors. The use of the heavy-gauge stock assures adequate dissipation of the heat developed by  $Q_1$  and  $Q_2$ . A 1-inch lip is bent down at each narrow end of the chassis, and the 5-contact input-output terminal is mounted on the lip at the right, as shown in the top view of the supply.

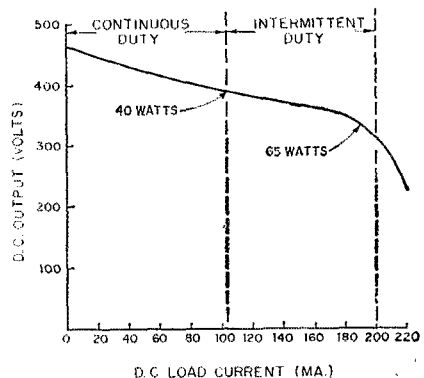
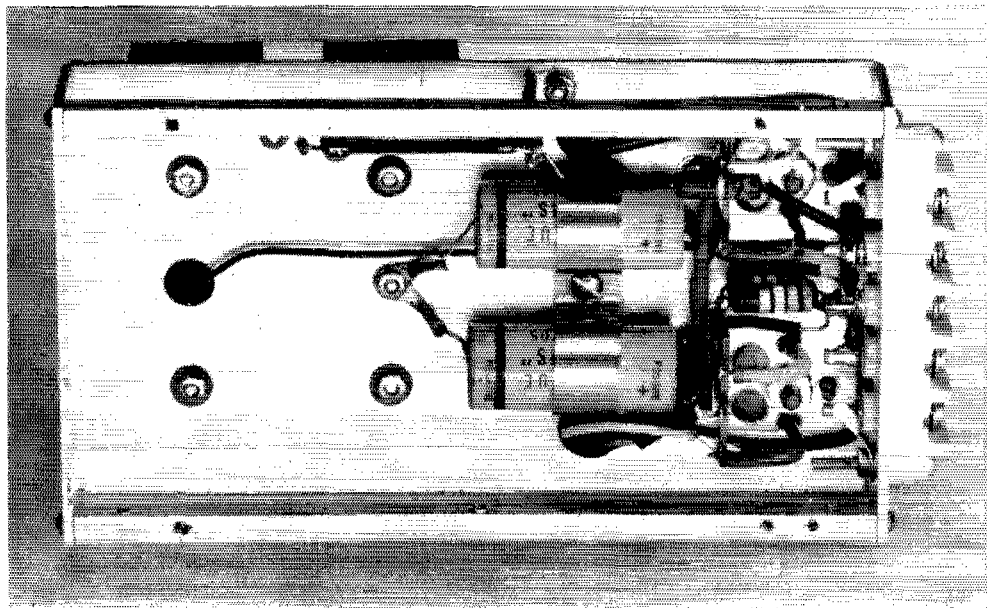


Fig. 2—Current vs. voltage graph for the 65-watt transistorized power supply.



Bottom view of the transistorized power supply.

The rectifiers are stacked in groups of two at the left end of the chassis. Each stack is mounted with the aid of a 2-inch 6-32 machine screw and nut. Shoulder-type fiber washers are used to insulate the rectifiers and mounting hardware from the chassis.

The toroid transformer,  $T_1$ , is supported by a 1-inch cone insulator (Johnson 135-501) to the right of the rectifiers. The open ring at the center of the transformer is slipped down over the top of the insulator and the two units are held together by a liberal application of household cement. Transformer leads, except the two going to the rectifiers, pass through a pair of chassis holes lined with rubber grommets.

$Q_1$  and  $Q_2$ , located at the right end of the chassis as seen in the top view, are mounted with their collectors (metal case) grounded to the chassis. The green lead from each transistor is the base connection, and the yellow wires are the emitter leads.

The bottom view of the power supply shows two 7-inch lengths of  $\frac{1}{4}$ -inch square dural mounted between end lips of the chassis. These rods are drilled and tapped at each end and are held in position by machine screws that pass through the chassis lips. The bars are also drilled and tapped at appropriate spots so that a bottom plate (not shown) and a cover (see top view) may be mounted in place in the interests of safety. This little supply may look quite harmless, but it packs just as much punch — in case an exposed high-voltage point is touched — as any other 65-watt supply.

The electrolytic capacitors are held in position below deck by a homemade clamp formed from thin sheet aluminum. Tie-point strips to the

right of the capacitors are used for joining leads between the transistors and  $T_1$ .  $R_1$  is located at the upper right-hand corner as seen in the bottom view, and  $R_2$  is partially visible at the upper left of the capacitors. Bleeder resistor  $R_3$ , a pair of 330K 1-watt resistors connected in parallel, is at the right center of the chassis just to the left of the center terminal on the input-output connector.

#### Testing

The transistors should emit a weak audible tone of approximately 1000 cycles per second just as soon as 14 volts d.c. is applied to the input terminals of the supply. If the unit passes this simple test, it is probably ready for use. A more extensive test may be made by loading the supply with resistance and then making a few current *vs.* voltage measurements. Resistance values of 1800 and 3800 should load the supply to approximately 190 and 100 ma., respectively, providing that the no-load output measures 460 volts.

#### Installation

No component in the power supply ran at more than a "warm-to-touch" temperature during extensive bench testing of the unit. However, when mounting the supply in the car, we certainly intend using one of the cooler spots in order that the transistors will be subjected to as little unnecessary heat as is possible. Furthermore, W8PYQ's suggestion about cutting primary power for transistors during stand-by periods<sup>2</sup> will be included in the control system.

<sup>2</sup> Galloup, "Transistor Audio for Mobile Rigs," *QST*, December, 1957, p. 48.



## • Recent Equipment —

### The Globe Champion

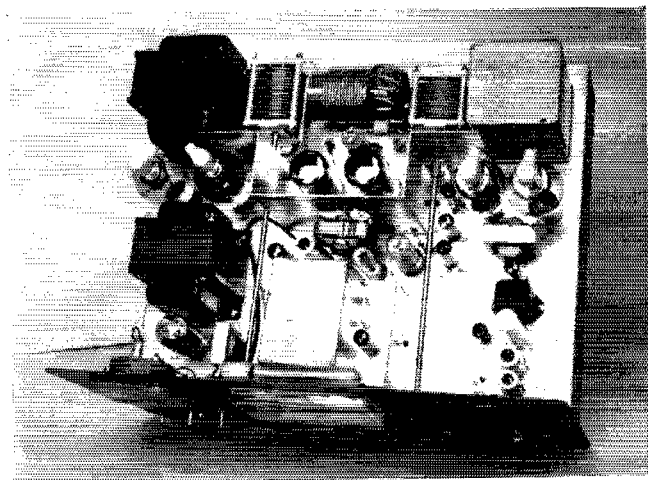
**T**HE WRL Globe Champion, with a pair of AX9909s in the final, has power-input ratings of 350 watts on c.w., 275 watts on a.m. phone and 300 watts p.e.p. on s.s.b. (with an 8- to 10-watt s.s.b. exciter). It covers all bands, 160 through 10 meters (including 11 meters) with either crystal or v.f.o. control. The pi-network output circuit is designed to feed resistive loads over an approximate range of 50 to 600 ohms (300 to 600 ohms on the 160-meter band).

A time-sequence system provides chirp-free break-in keying with character shaping adjustable to suit the operator's taste. The modulator section includes a speech filter rapidly attenuating frequencies outside the range of 200 to 3500

cycles. A compressor, which may be switched in or out of the circuit, holds the over-all gain in the speech amplifier essentially constant at a preset level, regardless of the speech level at the microphone.

A push-to-talk system controls high- and low-voltage supplies, a built-in antenna relay, and 115 volts a.c. to pin jacks at the rear of the chassis. The last may be used to control an auxiliary relay or other equipment. A jack provides access to the grids of the final for feeding in an s.s.b. exciter, and the mode switch changes the bias appropriately.

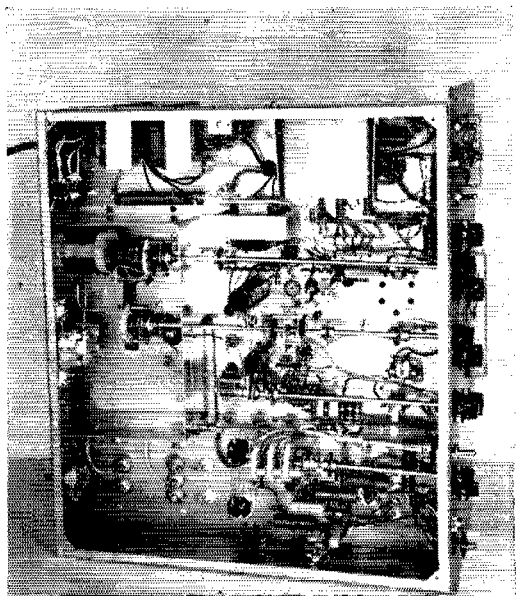
A single milliammeter with suitable shunts may be switched to read final-amplifier grid or cathode



Top view of the Globe Champion. Power transformers and rectifiers are to the left; audio section to the right. At the center, from front to rear, are the shielded v.f.o. (screen regulator in view), exciter tubes and screen regulator, the ventilating fan, the AX9909s in the final amplifier, and the components that make up the pi-network output circuit.



Bottom view of the Globe Champion. At the top, in this view, are the power-supply filter components and the TRANSMIT relay. The 2E26 tank coils and capacitor are at the center. Audio components and the mode switch are at the bottom. The shielded compartment at the left contains the 160-meter section of the pi-network inductor, the fixed output loading capacitors and associated switch, and the antenna relay. The shaft of the band switch bisects the chassis, right to left.



current, or modulator cathode current.

### R.F. Section

Fig. 1 shows the tube arrangement in block-diagram form. The 6AU6 two-band temperature-compensated series-tuned v.f.o., with output on either 160 or 40 meters, drives a 6CL6 buffer-multiplier with broadbanding fixed inductors in its plate circuit. The v.f.o. dial has a calibration mark every 10 kc. on all bands. The tuning arrangement used in the v.f.o. results in a reversal of dial rotation when changing between the two fundamental v.f.o. frequency ranges; i.e., frequency increases with a clockwise rotation of the dial on the 160- and 80-meter bands, while a counter-clockwise rotation increases frequency on the other bands. All frequency multiplying is done in the 6CL6 and 2E26 stages.

A crystal/v.f.o. switch shifts the input of the 6CL6 from the v.f.o. output to a crystal socket on the panel when crystal-controlled operation

is desired. The 6CL6 then functions as a regenerative crystal oscillator. A combination of 160- and 40-meter crystals will cover all bands, although 80-meter crystals may be used for 80- and 40-meter output.

The 6CL6 feeds a 2E26 driver with tapped inductor in its output circuit. The screen of this stage is fed from a potentiometer so that the drive to the final amplifier can be adjusted to the correct level on each band. The 2E26 is not neutralized.

The paralleled 9909s in the final stage are neutralized by the capacitive-bridge method. The band switch selects the appropriate tap on a fixed inductor in the pi-network output circuit. The output coupling capacitance is made up of a 350- $\mu$ f. variable and four fixed mica units that may be progressively switched in parallel with the variable.

Blocking bias to the v.f.o. and 6CL6 stages is controlled through a 12AU7 keyer tube. Both

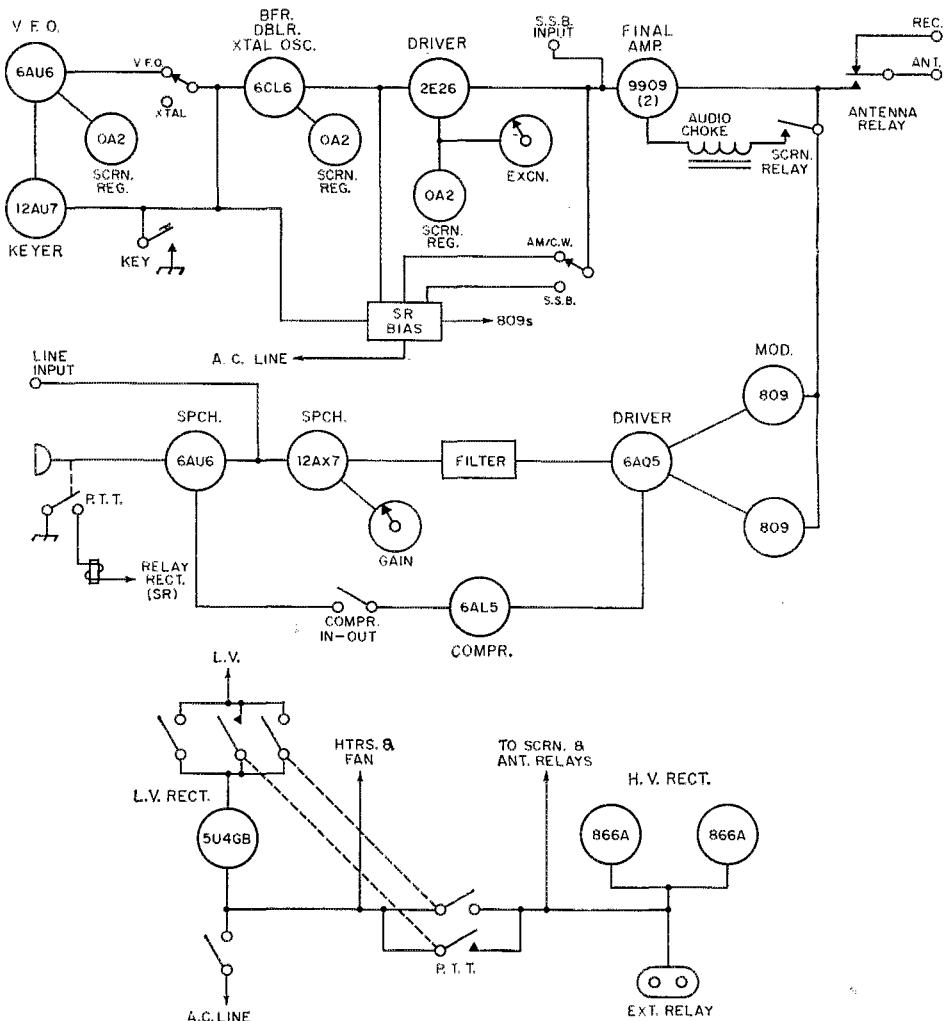


Fig. 1—Block diagram of the Globe Champion showing the tube line-up and essentials of the control circuits.

driver and final are protected with fixed bias from a selenium rectifier and filter operating from the low-voltage power transformer.

A fan directed primarily at the tubes in the final provides forced-air cooling.

#### Audio Section

In the modulator section, the microphone feeds a two-stage preamplifier using a 6AU6 and one triode section of a 12AX7. (The second section of the 12AX7 is not used.) A high-level input jack is also available at the grid of the 12AX7. The output of the 12AX7 is coupled to the grid of a 6AQ5 driver through a speech-filter network. Printed circuitry is used in both preamplifier stages. Gain is controlled at the grid of the 12AX7.

The 6AQ5 is coupled to the grids of a pair of Class B 809 triodes through a driver transformer.

#### Power Supplies

There are two main power supplies. One, using a 5U4GB rectifier and choke-input filter, supplies 350 volts for the 2E26 and, through dropping resistors or voltage dividers, lower voltages for the v.f.o., the 6CL6, the speech-amplifier and driver stages, and the screens of the final-amplifier tubes. VR-tube regulators stabilize the voltage at the screens of the v.f.o. and the 2E26. The transformer in the low-voltage supply also carries heater windings for all tubes, including the high- and low-voltage rectifiers. In addition, a separate 6-volt winding, selenium rectifier and filter supply a safe d.c. voltage for the push-to-talk circuit. Still another winding supplies 110 volts to a selenium rectifier and filter providing fixed bias for the grids of the 2E26, the final amplifier and the modulators, and blocking voltage for the keying system. The bias for the modulators is regulated by a pair of back-biased selenium rectifiers.

The high-voltage supply delivers 1000 volts. It uses a pair of 866As and a choke-input filter. It provides plate voltage for the modulator and final amplifier.

#### Control Circuits

The main power switch connects the primary

of the low-voltage transformer to the a.c. line. With all other control switches open, heater voltage is supplied to all tubes in the transmitter except the four tubes in the speech amplifier. These may be turned on, after the main switch is closed, by a switch on the audio gain control. Also turned on by the main power switch are the bias supply and power for the push-to-talk relay circuit. Low voltage is turned on by a switch (labeled EXCITER) in the low-voltage transformer center tap. This switch applies plate and screen voltage to all tubes except the 809 modulators and the AX9909s in the final amplifier. The EXCITER switch is paralleled by one pole of a double-pole switch labeled TRANSMIT. The second pole of this switch turns on the high-voltage transformer, applying plate voltage to the final amplifier. This switch also operates the antenna relay and a relay that applies voltage from the low-voltage supply to the screens of the final amplifier. At the same time, the auxiliary outlet at the rear of the transmitter is energized. In addition, if the mode switch is in the PHONE position, plate voltage will be applied to the modulators.

The contacts of the push-to-talk relay are in parallel with those of the TRANSMIT switch. Thus, with the EXCITER switch closed, the low-voltage supply remains on while the high-voltage supply is turned on and off by either the TRANSMIT switch or the p.t.t. relay. Or, both supplies may be controlled simultaneously in the same way by leaving the EXCITER switch open.

The mode switch, mentioned earlier, has a TUNE position. In this position, a high resistance is placed in series with the screens of the AX9909s to limit the input to the final amplifier.

Since the screen voltage of the final amplifier is fixed, the mode switch inserts an audio choke in the screen lead when it is turned to the PHONE position. In the c.w. and s.s.b. positions, the mode switch shorts out both the screen choke and the modulation-transformer secondary.

The Globe Champion is 12 inches high, 17 inches deep and 21¾ inches wide. It weighs 105 pounds. The top of the cabinet is perforated for ventilation. Power input from the line is 700 watts on a.m., 500 watts on c.w., and 150 watts on standby. — D.H.M.

## Eldico SSB-100F Transmitter

ANOTHER indication that "side band is here to stay" can be found in the announcement of the Eldico SSB-100F amateur transmitter. This is one more example of the transmitter designed primarily for side-band operation in which the provisions for c.w. and a.m. operation are secondary. This is no handicap when it comes to the c.w. end of things; most of the side-band rigs give better c.w. signals than we're generally accustomed to. The a.m. suffers slightly because

it is a single-side-band-plus-carrier signal and the output level is limited by the presence of the carrier. Taking advantage of the duty cycle on side band, the SSB-100F is rated at 100 watts p.e.p. output on side band, 50 watts on c.w. and 20 watts carrier on a.m. (carrier plus one side band). The transmitter covers the amateur bands 3.5 through 29.5 Mc., although you could get to 29.7 Mc. in an emergency by using a different crystal at one point in the circuit. Most of the

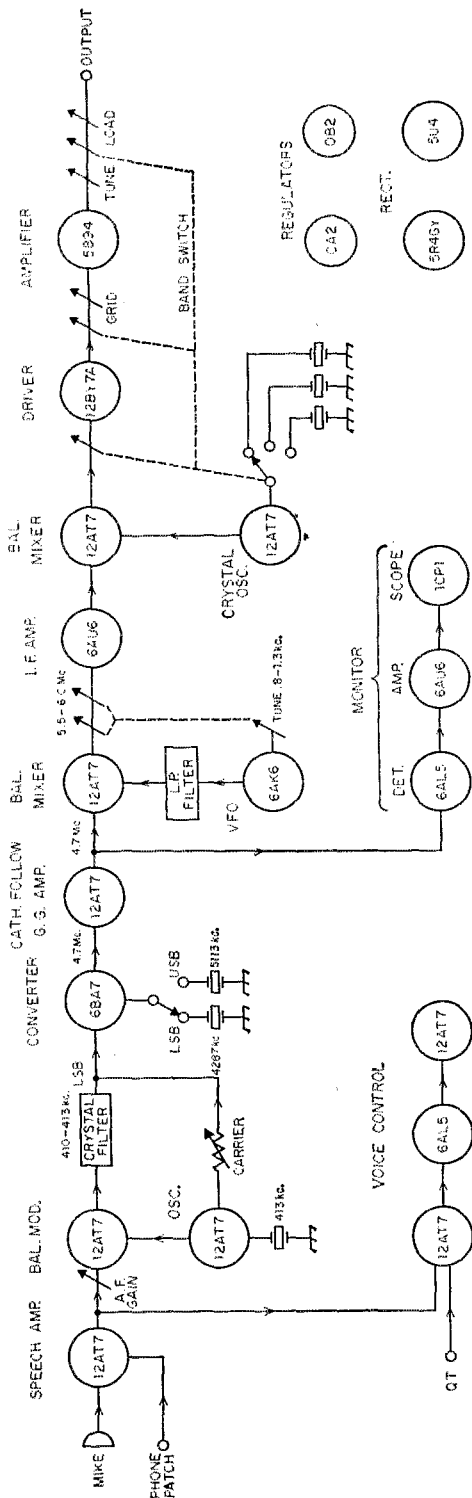


Fig. 1—Block diagram of the SSB-100F transmitter. Essentially a side-band transmitter, the signal is generated at 413 kc. and heterodyned three times to reach the operating frequency. Many operating features are included, as a monitoring oscilloscope and voice-controlled operation with a loud speaker.



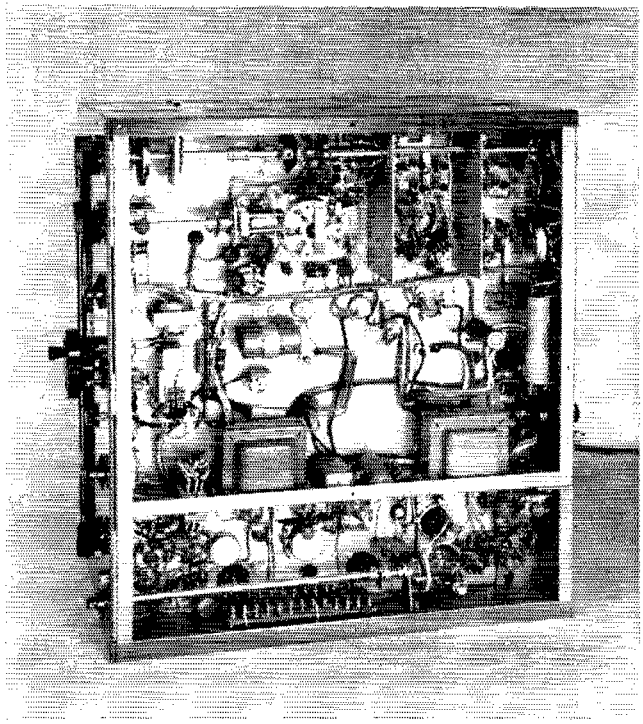
current operating aids are incorporated in the transmitter, so that it is easy to get around the bands and from one mode to another. As in some of his other transmitters, the manufacturer has seen fit to include a monitoring oscilloscope in the SSB-100F and, since using an oscilloscope is generally acknowledged to be the best method for monitoring a side-band rig, the feature speaks for itself.

The functions of the 22 tubes in the SSB-100F are shown in the block diagram (Fig. 1). Following the 12AT7 speech amplifier, where either microphone or phone-patch input can be used, a double-side-band reduced-carrier signal is generated at 413 kc. in a 12AT7 balanced modulator. The balanced-modulator circuit uses parallel r.f. input to the cathodes, push-pull audio input (grids) and push-pull output. A 12AT7 section is used for the 413-kc. crystal-controlled oscillator, and the other section serves as a cathode follower to feed r.f. around the filter when carrier reinjection is desired. The crystal filter uses six crystals to reject the upper side band and pass the lower one. This in no way limits the operation to the use of a particular side band, because the next stage, a 6BA7 converter, offers a choice of two oscillator frequencies that will give either an upper or a lower side band at 4.7 Mc. At 4.7 Mc. the signal passes through a pair of tuned circuits and is fed to a 12AT7 balanced mixer via a 12AT7 cathode follower. The other 12AT7 triode is used as a grounded-grid amplifier to provide an amplified horizontal sweep signal for the monitoring string of tubes.

The 4.7-Mc. side-band signal is heterodyned in the 12AT7 balanced mixer to some frequency between 5.5 and 6.0 Mc., depending upon the setting of a 6AK6 v.f.o. The output of the v.f.o., which tunes 0.8 to 1.3 Mc., passes through a low-pass filter to eliminate the possibility of oscillator harmonics finding their way through the mixer and fouling up the works. The v.f.o. control is ganged with two tuned circuits in the plate of the balanced mixer, as a further precaution against unwanted signals.

The signal, somewhere between 5.5. and 6.0 Mc., is next amplified in a 6AU6 stage and fed to another 12AT7 balanced mixer where it is heterodyned to the desired operating frequency. The block diagram shows only three crystals at the 12AT7 crystal-oscillator, but actually there is a total of 8 crystals in the SSB-100F. A crystal is needed for each band 80 through 11 inclusive, and three crystals are required for the 10-meter band, because any given range is restricted to the 500-kc. spread of the v.f.o. Breaking down the 10-

Meter indicates cathode current of the output stage. Shielding is not neglected under the chassis, and many of the connecting cables include shielded-wire leads.

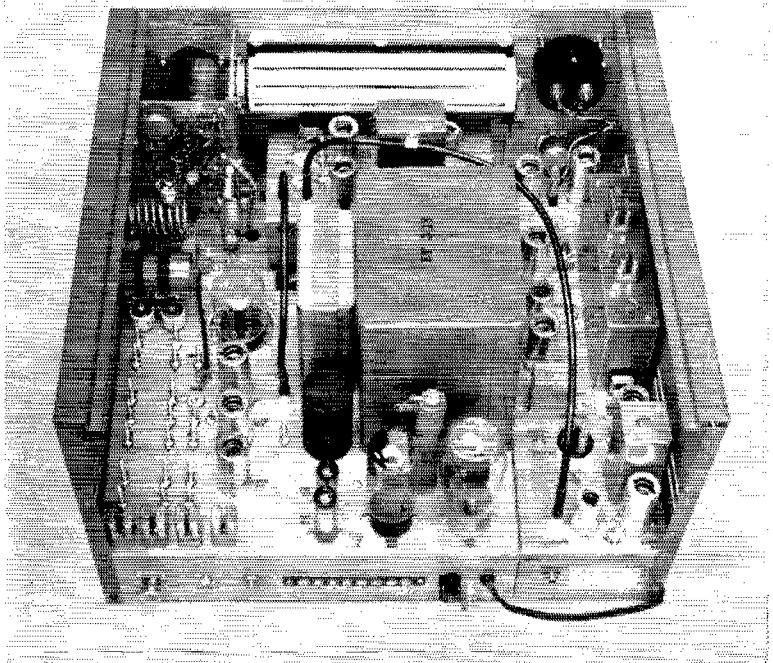


meter band into three bands is no great operating inconvenience, and it certainly gives a better tuning rate for the v.f.o. than if the entire 10-meter band were covered in one hop.

On frequency at last, the signal is amplified by

a 12BY7A and used to drive a 5894 output stage. The 5894 is a dual tetrode tube; in the SSB-100F both sections are connected in parallel and the tube is operated in Class AB<sub>1</sub>. Pi-network coupling is used, and the output stage is neutralized.

A view of the SSB-100F with the rear panel and cover removed. A number of subassemblies are used, to facilitate construction and testing and to provide additional shielding. The 5894 dual tetrode output tube is at the left center.



A small amount of r.f. is coupled back from the amplifier plate to the cathode of the 12BY7A driver; this inverse r.f. feedback is included to reduce distortion and thus maintain a high degree of linearity. A sample of the r.f. appearing at the 5894 plate is coupled through a small capacitor to the vertical plates of the monitoring oscilloscope.

The control circuits allow voice-controlled operation and a "QT" circuit permits voice control with loud-speaker reception.

### Controls

All of the controls an operator is likely to need are brought to the panel, while those that require little or no attention (carrier balance, VOX threshold, scope intensity) are accessible only with the cover lifted or at the rear of the chassis (output amplifier bias). The major panel control is the frequency control (the v.f.o.) which is tied to a slide-rule dial that shows only the band in use. A trimmer adjustment allows bringing the frequency into agreement with the scale calibration, if aging or other factors should cause a slight departure. The band switch, grid tuning, plate tuning and output loading controls are all grouped at one side of the panel, a convenience when changing bands. Potentiometer controls include carrier insertion, audio gain, and the VOX and QT gain controls. Switches include the side-band selector, function and control. The function switch selects the operation (c.w., manual, VOX and QT) and the control switch has three positions: calibrate, standby and transmit. In the calibrate position you get a chance to spot your

frequency in the receiver without energizing the output amplifier; if not enough signal gets through to the receiver you can make an auxiliary connection at the rear of the transmitter that will pipe enough r.f. to the receiver for spotting purposes.

To avoid burning a spot on the oscilloscope screen during standby periods, the scope intensity automatically turns on when a signal is present and turns off when the signal disappears. One diode in the 6AL5 detector (Fig. 1) handles this job.

The voice-control system ends up in a relay that switches several circuits within the transmitter. Additional contacts are provided for controlling an external antenna relay and for muting the receiver.

On c.w. the 12AT7 balanced mixer following the v.f.o. and the 12AT7 cathode follower are grid-block keyed. On a.m. or side band you have to remember to close the key or remove the key plug from its jack.

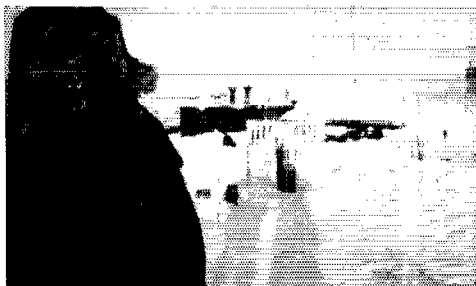
The controls and their uses are well marked on the SSB-100F, and anyone with the slightest knowledge of side band should have no trouble setting up the transmitter. The 22-page instruction book includes typical scope patterns, and the owner who is willing to take the little time necessary to learn what they are all about and abide by the suggestions should be confident at all times that his signal is clean. Weight of the SSB-100F ready for action is 50 pounds, and the unit is 11 inches high, 17 inches wide and 16½ inches deep. — B. G.

## Strays

**B**ACK in March of this year KC4USA was making a string of c.w. contacts one morning when W3VKD decided to join the throng. When he gave his QTH as Pittsburgh, KC4USA came back and said, "Give my regards to Sam Zion at Cameradio and the gang at KDKA." Upon being asked, KC4USA replied that his last name was Wyman. To which W3VKD answered, "Are you old NN7NIC from Nicaragua 1928?" And KC4USA replied, "Yes, is this Art Lewis?" Thus, two old friends were reunited after a lapse of

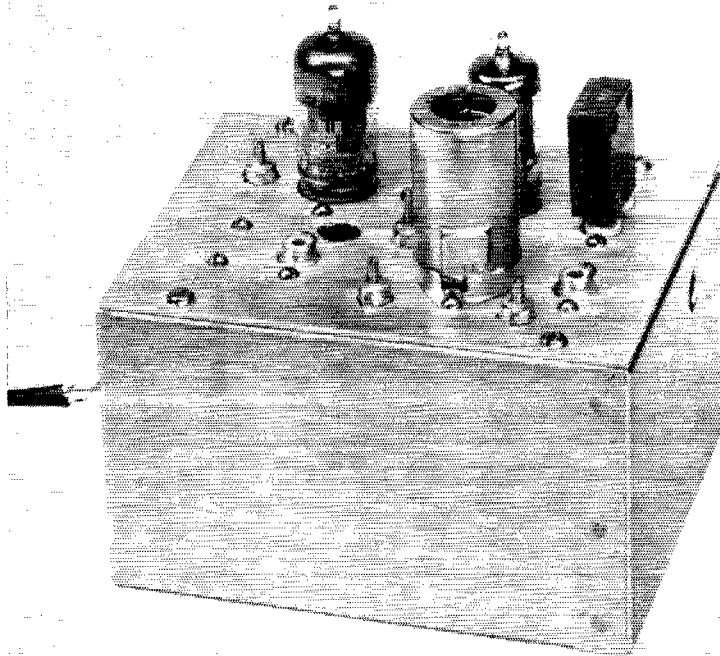
26 years. They used to maintain schedules back as early as 1928 under the calls NN7NIC and W8CNZ, and were recently maintaining schedules as KC4USA and W3VKD. Lt. Col. Wyman is a veteran U. S. Marine Corps officer, and is presently on loan to the National Academy of Sciences in connection with the IGY. He was one of the authorized operators at KC4USA, and received permission to use some extra gear (which he borrowed from W7YVW, a civilian geophysicist). He is now back in the States.

Col. Wyman outdoors . . .



. . . and indoors, at Antarctica.





The converter is built in a 3 × 4 × 5-inch utility cabinet. The tubes in the rear, right to left, are the oscillator and multiplier-mixer. The shielded tube in the foreground is the r.f. amplifier. Phone jacks are used for r.f. input (right) and i.f. output connections.

## An Easy-To-Build 108-Mc. Converter

### *Inexpensive Crystal-Controlled Unit for Use with Amateur-Band Receivers*

BY E. LAIRD CAMPBELL,\* WICUT

A CONVERTER for the fellow who just wants to listen to a satellite, but one that can also be used by the experimenter who wants to make measurements and good recordings, should use a minimum of parts for economy yet should follow good v.h.f. design. It should also be easy to construct—a week-end project, at most. Of course, the output from the converter should be somewhere in or near a ham band for those people with ham-band-only receivers.

These requirements dictated the design of the converter described here. The cost of all the parts, including the crystal and tubes, totals about thirteen dollars. Working from the template in Fig. 2, the unit has been duplicated in about a day and a half. No real problems were encountered: the various unwanted oscillations that seem to plague many newly-built converters were just not present. Both the prototype and the duplicate went into operation right off the bat.

#### *The Circuit*

The circuit of the converter is shown in Fig. 1.

\* Technical Assistant, QST.

The r.f. amplifier is a simplified cascode using a dual triode tube with separate cathodes, a circuit frequently used in television and f.m. tuner front ends. The output of this r.f. stage is inductively coupled to the pentode section of a 6U8 where the 108-Mc. signal is mixed with the output of the oscillator-multiplier.

The crystal oscillator uses the frequency-multiplying grid-plate circuit and makes use of inexpensive surplus crystals. The crystal fundamental frequency must be multiplied by 12 if 8-Mc. crystals are used. Some typical frequencies are 8400 kc. for 7.2-Mc. output, 8425 kc. for 6.9 Mc., etc. Capacitor  $C_5$  is included in the circuit to allow the crystal frequency to be "pulled" for fine adjustment of the intermediate frequency. A range of several hundred cycles at the crystal fundamental can be realized with this scheme. The oscillator plate tank,  $C_6L_7$ , is tuned to the fourth harmonic of the crystal and is capacitively coupled to the triode section of the 6U8, which operates as a tripler to the frequency required for beating with the 108-Mc. signal from the r.f. amplifier.

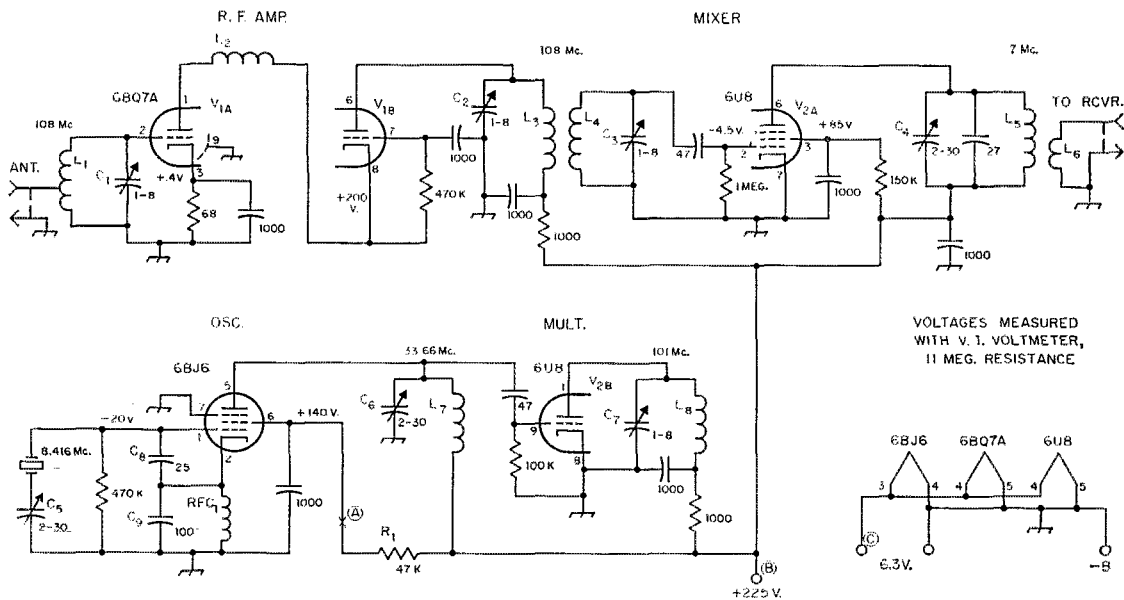


Fig. 1—Circuit of the 108-Mc. crystal-controlled converter. Unless otherwise indicated, capacitances are in  $\mu\text{mf.}$ ; resistances are in ohms; resistors are  $\frac{1}{2}$  watt. Capacitors not listed below are ceramic. Excessive i.f. feedthrough may be reduced by connecting 0.01 ceramic capacitors from points B and C to ground.

$C_1, C_2, C_3, C_7$ —1-8  $\mu\text{mf.}$  tubular trimmer capacitors (Erie type 532-10).

$C_4, C_5, C_6$ —2-30  $\mu\text{mf.}$  mica trimmers.

$C_8$ —25- $\mu\text{mf.}$  mica.

$C_9$ —100- $\mu\text{mf.}$  mica.

$L_1$ —7 turns No. 18,  $\frac{3}{16}$ -inch diam., spaced dia. of wire. Tap at 3 turns from cold end.

$L_2$ —5 turns No. 18,  $\frac{3}{16}$ -inch diam., spaced wire diam.

$L_3$ —5 turns No. 18,  $\frac{3}{16}$ -inch diam., spaced wire diam.

$L_4$ —5 turns No. 18,  $\frac{3}{16}$ -inch diam., spaced wire diam.

$L_5$ —10- $\mu\text{h.}$  r.f. choke (National R-33, 10  $\mu\text{h.}$ ) or 50 turns No. 32 on 1-watt resistor (1 megohm or more).

$L_6$ —5 turns No. 18, close-wound over cold end of  $L_5$ .

$L_7$ —14 turns No. 18,  $\frac{3}{16}$ -inch diam., close-wound.

$L_8$ —6 turns No. 18,  $\frac{3}{16}$ -inch diam., close-wound.

$\text{RFC}_1$ —750- $\mu\text{h.}$  r.f. choke (National R-33, 750  $\mu\text{h.}$ ).

The diagram shows no specific provision for injection of oscillator voltage into the mixer circuit. However, the proximity of the mixer and multiplier tubes in the same envelope provides enough coupling between the two circuits.

The mixer output circuit consists of a 10- $\mu\text{h.}$  r.f. choke,  $L_5$ , with a link,  $L_6$ , of a few turns of wire wound over one end. Output from the converter is piped to the receiver through a length of coax cable. It is important to use shielded cable for this job to eliminate stray pickup of signals at the 7-Mc. i.f.

### Layout and Construction

The converter is built on one removable side of a  $3 \times 4 \times 5$ -inch aluminum utility cabinet (ICA 29841). You can use the template shown in Fig. 2 as a guide in positioning the holes in the chassis plate. If you don't want to cut the template out of the magazine, use a piece of carbon paper to trace the pattern — or, even simpler, transfer the dimensions from the diagram with a scale. The only holes not shown on the template are two which must be drilled in the utility box itself. One of these is for access to capacitor  $C_5$  and the other allows the power cable to be brought through the wall of the cabinet.

Components requiring screw mounting should

be attached first, using 4-40 machine screws and nuts. While positioning the parts, keep an eye on the photographs to insure correct placement. The three tube sockets are placed so that leads running to the pins are as short as possible. The particular sockets used (Eico RMA mica filled) have four ground lugs which make convenient points for supporting components that have one terminal grounded.

The three 2-30  $\mu\text{mf.}$  mica trimmers are mounted as follows:  $C_5$  is soldered to one of the lugs on the crystal socket and an adjoining ground lug on the socket.  $C_6$  mounts between the sockets of the 6BJ6 and 6U8; one lug is soldered to pin 5 of the 6BJ6 socket and the other to a ground lug on the 6U8 socket.  $C_4$  is soldered between pin 6 of the 6U8 socket and a 1000- $\mu\text{mf.}$  by-pass capacitor. The other side of the by-pass is connected to the ground terminal of the output phono jack. When connecting the trimmers, line up the adjustment screws with the associated access holes in the chassis, and be sure that the capacitor plate that makes contact with the adjusting screw is the one connected to ground.

Shielded wiring for heater leads is shown in the photographs. This shielding is not an absolute necessity, but is good practice for converters operating in this frequency region.



All hand-wound coils used in the converter are wound with No. 18 enameled magnet wire. The coils can be wound conveniently on twist-drill shanks.

### Power Supply

Any power supply capable of delivering 225 volts at about 25 ma. and 6.3 volts a.c. at 1 amp. can be used to power the converter. The power supply shown in Fig. 3 will work but has more current capacity than is required for the converter alone. This power supply was purposely designed so that it could be used to power additional miscellaneous equipment. The converter alone could probably be operated by stealing power from its companion receiver.

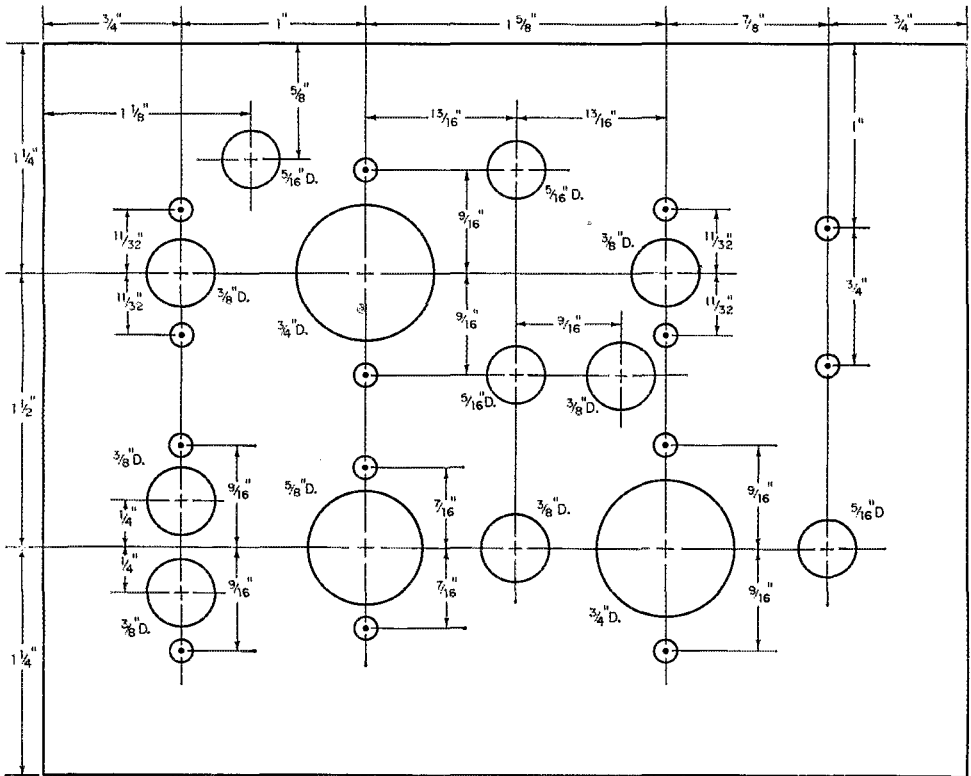
For highest stability, the 6BJ6 oscillator screen should be supplied from a 150-volt regulated source. This is not necessary for general satellite listening, but is recommended for serious measurements. The dotted circuit shown in the power supply diagram can be added for this purpose. Screen dropping resistor  $R_1$  in the converter should be removed and the regulated 150 volts applied to point "A."

### Initial Adjustments

After checking the wiring make connections to the power supply, receiver, and antenna.

A grid-dip meter is a handy tool at this point for making the final adjustments. Check the tuned circuits in the converter and adjust them to the required frequencies. Next, turn on the power to the converter and check to see if the oscillator is working. Tuning the receiver to the crystal fundamental frequency is a good way to check this. The grid-dip meter can be used as an absorption wave meter to check frequency multiplication in the oscillator tank and multiplier stages. Tune the receiver to the output frequency of the converter and peak the r.f. and mixer stages by adjusting the capacitors for maximum noise. If a capacitor peaks at the extreme end of travel, change the inductance of the associated coil by pinching or spreading the windings — that is, if the capacitor is at minimum capacity, spread the turns; and vice versa if the capacitor is at maximum. The optimum condition for the r.f. and mixer circuits is about midway between these two extremes.

The i.f. output tuning capacitor,  $C_4$ , and the



⊙ INDICATES 1/8" HOLE FOR MOUNTING SCREWS

Fig. 2—Template for the 108-Mc. converter chassis plate.

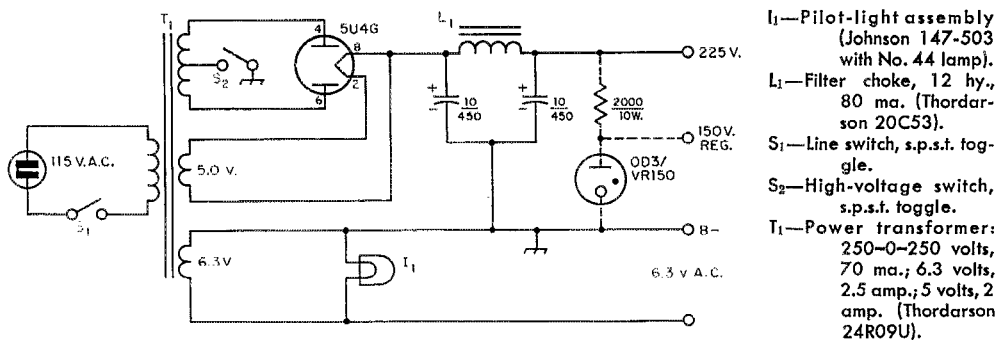


Fig. 3—Suggested power-supply circuit for the 108-Mc. converter. Capacitances are in  $\mu$ f.

oscillator-multiplier capacitors,  $C_6$  and  $C_7$ , should likewise be adjusted for maximum noise.

After the converter has been peaked on noise, a 108-Mc. signal can be simulated for calibration purposes by using the fourth harmonic from a 27.0-Mc. signal. Supplying such a signal should be easy since most amateur transmitters cover the 11-meter band, and probably will have more than enough 108-Mc. harmonic output for the purpose.

#### Using the Converter

When the above tests and alignment are completed the converter is ready for satellite listening. If any minor difficulties such as i.f. feed-through are encountered in using the converter, the usual remedies can be applied.<sup>1</sup>

The receiver h.f.o. can be used for beat-note reception of the converted 108-Mc. signal. Or, for greater stability, a 7-Mc. harmonic from a crystal calibrator can be fed into the receiver along with the converted satellite signal.<sup>2</sup> The h.f.o. is not used when this method is employed.

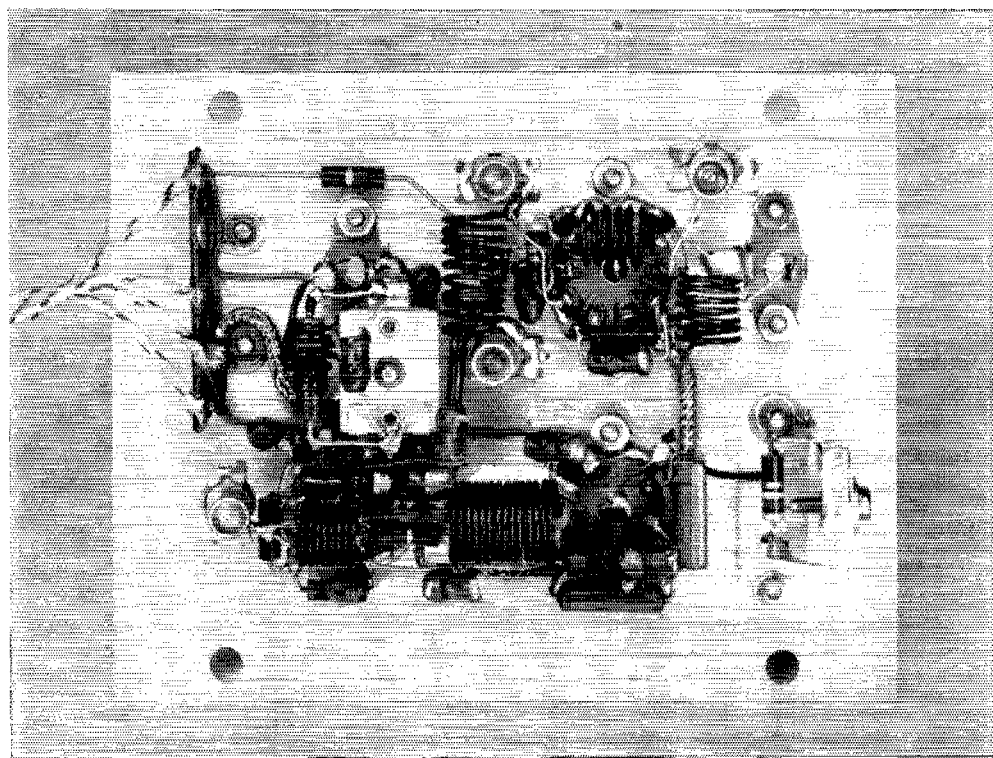
A beam antenna is recommended for monitoring the satellite signals. A converted f.m. or TV antenna can be used,<sup>3</sup> or a beam designed specifically for 108-Mc. can be constructed from information in the *Handbook*.

<sup>1</sup> Tilton, "Improved Performance of V.H.F. Crystal-Controlled Converters," *QST*, this issue.

<sup>2</sup> Grammer, "Satellite 40-Mc. Converter," *QST*, December, 1957.

<sup>3</sup> Tilton, "Antennas for Satellite Monitoring on 108 Mc.," *QST*, December, 1957.

In this plan view of the converter the r.f. tube socket is at the upper right; the oscillator tube is just below it and the mixer-multiplier socket is at the lower left. The coils, going to the left from the antenna input connector (phono jack) at the upper right, are  $L_1$ ,  $L_2$ ,  $L_3$ - $L_4$  (placed end to end) and, to the left of the mica trimmer ( $C_4$ ) at the left center,  $L_5$ - $L_6$ .  $C_5$  is mounted on the crystal socket at the lower right. One edge of  $C_6$  is visible just above  $L_7$ , which conceals most of this capacitor.



# ● Technical Correspondence

## NOTES ON THE HBR-14 RECEIVER

10126 Colwell Drive  
Sun Valley, Calif.

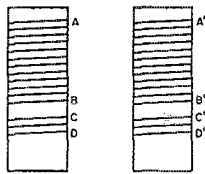
The 1600-ke. i.f. coils seem to be another primary cause for doubt and confusion. Again, a simple sketch is sometimes worth a "thousand words in print."

Technical Editor, *QST*:

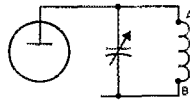
My correspondence indicates quite a number found the article describing the HBR-14 (*QST*, July, 1957) to be more or less what they had been waiting for. It further indicates that regardless of the fact all concerned tried to present it in a manner quite clear to anyone interested, we managed to "miss the boat" by a big margin in several places.

The HBR-14 will not work properly if the plug-in coils are improperly wound and/or incorrectly wired into the circuit. I hope that the accompanying sketch will prevent any further trouble from this source.

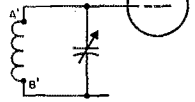
1600 kc. COILS



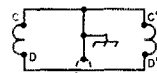
1st MIXER



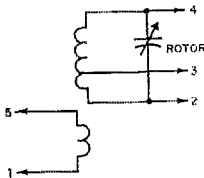
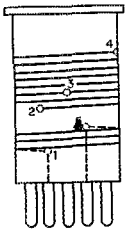
2nd MIXER



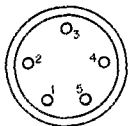
ALL WINDINGS IN SAME DIRECTION



PLUG IN COILS



ALL WINDINGS IN SAME DIRECTION



The HBR-14, operating properly, will provide a band-pass of 500 cycles or less at 6 db. down, and 4000 cycles or less at 40 db. down. Anyone familiar with such things will agree these figures are good. But, by the same token, don't take it for granted that you can build this receiver and forever after be free of all your QRM problems. I wish it were that simple. So long as the overcrowded conditions continue to exist in our assigned bands, we will continue to have QRM, regardless of the type, make or model of the receiver we happen to be using at any particular moment. But it does help mightily to own the most selective receiver possible. The HBR-14 will give an excellent account of itself on this score.

There is nothing "sacred" about the spacings between the two windings of the plug-in coils. The coil chart specifications were nothing more than a good average of these spacings. The first-mixer conversion gain is directly related to the r.f. output of the tuned first oscillator. The first-oscillator r.f. output is directly related to the r.f. feedback supplied by the tickler coil. The greater the oscillator r.f. output the better the first-mixer conversion gain, up to the point where the mixer overloads or the oscillator goes haywire through excessive feedback. The gain and selectivity of the front end can be varied by the simple process of loosening or tightening the coupling between primary and secondary of  $L_1$  and  $L_2$ . Therefore, some experimentation is in order at the three points mentioned before the coils are finally considered optimum for any particular receiver.

It is my belief this additional information will cover a number of the potential problems. If it still doesn't answer some particular question, I will continue to be "available" at the address above.

— Ted Crosby, W6TC

## Strays

Woops! With reference to one of last month's scintillating Strays, on page 27, it was 73-year old W9LYG who worked KN9JHR, not K9GVD. K9GVD is KN9JHR's brother and is only 15 years old himself. Sorry, OM GVD, and by the time you get to be 73 we'll probably have a new man writing Strays here!

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KC6UZ reports that the ARRL *Handbook* is the official reference book for the communications system of the Trust Territory of the Pacific Islands.

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Within 10 minutes K0KBM worked both W6IH and W1IH.

W2KJY sends in the following daffynition — an electronic switch is the exchange of a good component for a bad one when the boss isn't looking.

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VE5MS suggests the following technique for adjusting a hand key. He uses a feeler gauge to space the contacts about 0.028 inch, or somewhere between 0.024 inch and 0.032 inch. He then uses a standard size D flashlight cell on the knob, or a 2-oz. weight, and then adjusts the spring tension to allow the points to close half way.

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A Sunday School class of the church where W5JLF is pastor has chosen to call itself "CQ."



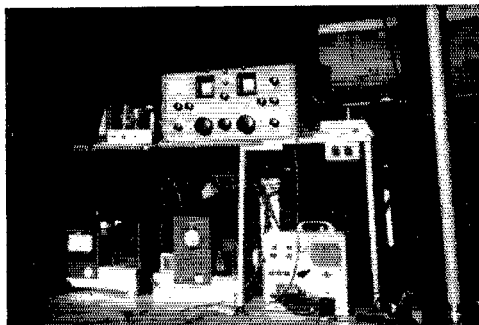
# The 6-Meter Hearsemobile

*500 Watts on 50 Mc.,  
With a Beam — On Wheels!*

BY VIC WEISSBRODT,\* W9JFP



W9JCI relaxes at the plushy operating position of the Hearsemobile.



Operation position of the Hearsemobile. Receiver is an HQ-150 with a 50-Mc. Tapetone converter. High-powered final stage, upper right, uses a pair of 4X150As.

ONE NIGHT some months ago, my son, W9JCI, came home with a 1941 Packard hearse. It was in good shape — a steal at 150 bucks, according to Bill. I surveyed the still-sleek lines of the old black “meat-wagon.” It was the better part of a block long! With some misgivings I wondered out loud what he expected to do with it. “Just the thing for a high-powered 6-meter mobile,” he volunteered. And that’s how it all started.

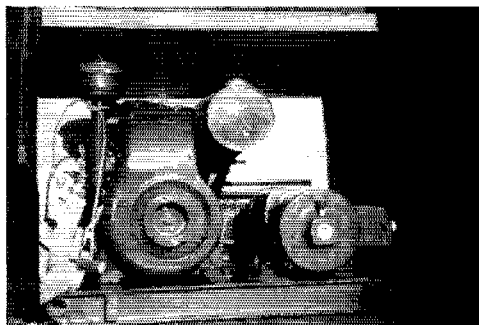
The first step was to obtain a suitable power unit. With all the space the hearse provided, we weren’t going to be satisfied with anything that would run off a car storage battery. At first we shopped around for an alternator, but in talking with K9ACZ we learned that he had a surplus PE-75 generator we could use. Driving down to Chicago to pick up the generator, we got our first taste of the attention our novel conveyance attracts along the highway. And this was before the installation of the generator and the beam antenna!

Next, the power unit was installed in the back of the car, in a specially insulated compartment. Two 6-inch stovepipe elbows were provided to bring in air and exhaust heat.

Now we had to have a beam. Looking through *QST* and the *Handbook* we decided that the 2-element portable job described by W1HDK would be about all we could handle in motion. This gamma-matched affair is mounted on a support that runs through the roof of the hearse. The “armstrong” rotating system has never failed to date. The elements are about 3 feet above the roof.

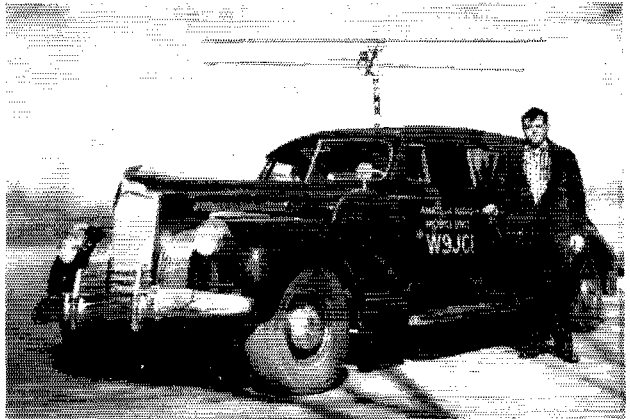
First shakedown cruise of the Hearsemobile was made April 9 on a trip to Chicago to attend a meeting of the Midwest V.H.F. Club. Equipment at this time was a Gonset Communicator and Linear Amplifier. Reports were fabulous. Stations up to 75 miles away were worked while in motion, and many reports of “Never heard anything like it from a mobile on 6!” were received. There were about 200 at the meeting, and they kept W9JCI busy for two hours demonstrating the Hearsemobile, making contacts in

\* 2100 East Webster Place, Milwaukee 11, Wisconsin.



Surplus PE-75 a.c. generator is installed in a specially insulated compartment in the back of the hearse, vented to the outside.

Bill Weissbrodt, W9JCI, and the 6-meter Hearsemobile. Two-element beam and 500-watt rig can be used in motion.



Wisconsin, Indiana and Illinois.

Since that time a 500-watt final stage has been installed. This uses a pair of 4X150As, and it delivers very high efficiency. The exciter is an SCR-522, revamped for 50 Mc. The modulator is a conventional 811A job made from *Handbook* information. We had some trouble getting proper screen operation under modulation conditions at first, but this was solved through the use of a 10-henry choke in the screen lead, and a 0.003-capacitor from B plus to the screens of the 4X150As. For receiving, W9JCI appropriated my HQ-150 and Tapetone converter, a combination that is well above the capabilities of most mobile

v.h.f. receiving setups. In fact, the Hearsemobile is essentially a good home station on wheels — and it works like one. The first use of the complete setup was made on April 20, when W9JCI, W9WYE and I went out to Lapham Peak, a 1200-foot elevation some 30 miles out of Milwaukee. Conditions were no more than normal, but we made contacts in four states, and out to 300 miles.

However, mechanical difficulties have forced us to junk the Hearsemobile, its transmission having finally given up the ghost. But look for bigger and better things, as we have traded it in for a school bus!

## Strays

WN7INK in Phoenix is a printer.

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K2ZEP and KN2ZPE are members of the same club and both nicknamed "Army."

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Care to prove that  $j = \sqrt{-1}$ ?

Assume that  $j$  is the numerical value in ohms of a resistor which, when wired in series with a 1 ohm resistor, provides twice the resistance of that resulting when these resistors are wired in parallel. Then,

$$\frac{2R_1R_2}{R_1 + R_2} = R_1 + R_2$$

Then by substitution of 1 for  $R_1$  and  $j$  for  $R_2$

$$\begin{aligned} \frac{2j}{1+j} &= 1+j \\ 1+2j+j^2 &= 2j \\ 1+j^2 &= 0 \\ j^2 &= -1 \end{aligned}$$

Hence

and

$$= \sqrt{-1}$$

— W. Clarke Kiddiford  
in *Wireless World*

W0BMW prints up his own QSLs by developing a design and then producing silk-screen negatives. The first 800 cards he produces cost him \$23.00. After that, he can turn out cards for about \$5.00 per 800. He'll answer questions about the process to anyone who will send him a self-addressed stamped envelope.

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W5FRK and K5IQS (Fred and Ruth) have worked two other pairs of Fred and Ruth teams on six meters (at K8BLR and K2MNB). They want to work some more Freds and Ruths!

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W3MSN tells us that he has worked all states on 20 meters using a 20A exciter — on c.w.! Incidentally, he just gave up a 25-year policy of QSLing 100%. Not enough replies.

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On January 1, 1958, W9PJT's first contact brought his QSO total since he was licensed to just 1958.



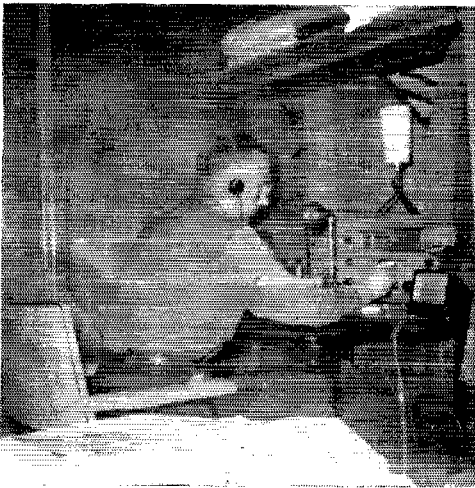
However, Bill, with time still left on his vacation and feeling strongly about the need for the "48th state" to pass out a few more QSLs, remained until November 10, bringing our combined total to 80 countries and 800 QSOs. And keep this in mind — we were not out to "get" countries. For the most part we made non-directional and non-specific CQs, answering all who called in and always tuning our own frequencies as well as the DX bands.

Our primary interest in this expedition was to see just what could be done to alleviate, for a time, the need of some for a Delaware QSO. The secondary need was to have our results made known and thus interest the Delaware amateurs into getting on 10 and 15 meters as well as increasing the number that are now on 20. We are sure that with diligent effort, a great deal of listening and good operating practice any Delaware ham with no more than nominal equipment

could make DXCC in a month. Although operating not ten feet from one another, with our beams the same height and only 50 feet apart, we experienced no interference except on a direct harmonic frequency. It was no effort at all to shift a few cycles and go on operating simultaneously. This speaks very well for the engineering and design of the equipment and serves further to prove what *could* have been done with a fixed station and a better setup.

Bill and I wish to thank those stations in the many pile-ups for being very attentive on the circuit and courteous to the other guys in the line. We hope a good time was had by all — *we* sure had fun! And we found one answer to our question of the rarity of Delaware: there are many active hams there, but not enough to carry the load.

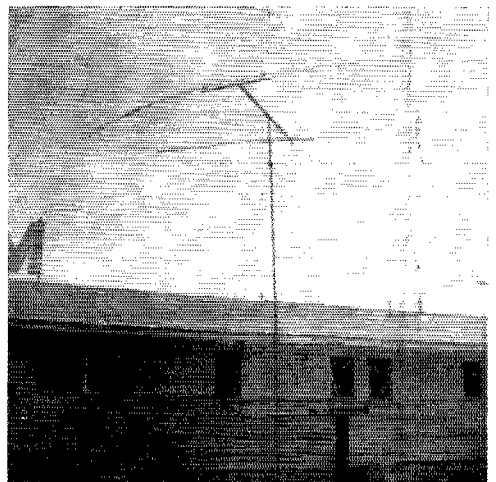
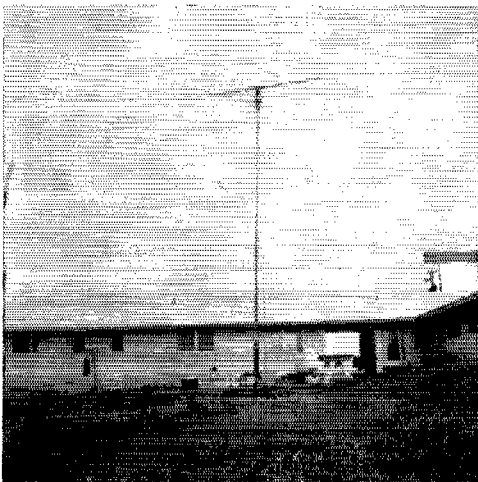
So, my friends, if you want to get the feeling of being "rare DX" hie ye into the hinterlands



Bill on 10.



Red on 15.



of Delaware! Vermont, Nevada, Wyoming and Utah are also needed overseas. It will be advantageous to look over the predicted propagation conditions during the time you'd like to go portable. We found the sunspot activity had hit an all-time high and proof of high m.u.f. was the fact that the day after W1AW sent out a bulletin on 50 Mc. continent-to-continent contacts, we heard the Gs calling W7s on 10 and listening on 6 meters.

For those stations planning a jaunt into the unknown, here is a suggested equipment list: Spare receiver, conelrad monitor, earphones, guy ring, guy wire or rope, stakes or dead-men<sup>1</sup>, spare tubes, tools (including hammer and nails), hell box, drill, log books and license, *Call Book* and scratch pad, flashlight, shovel or post-hole

digger, high-pass filters, bug spray, fuses, heavy-duty extension cord and outlets, ground wire and clamp, 807s or 813s as required. Be sure to take plenty of coax and spend plenty of time working on a *good* knock-down beam.

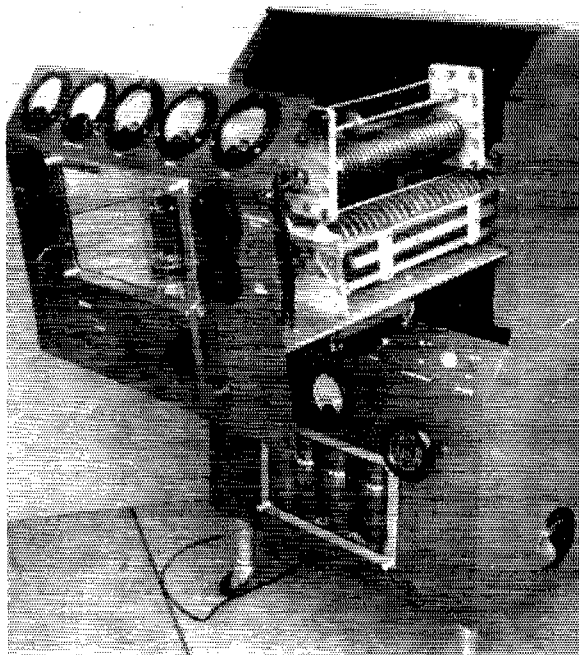
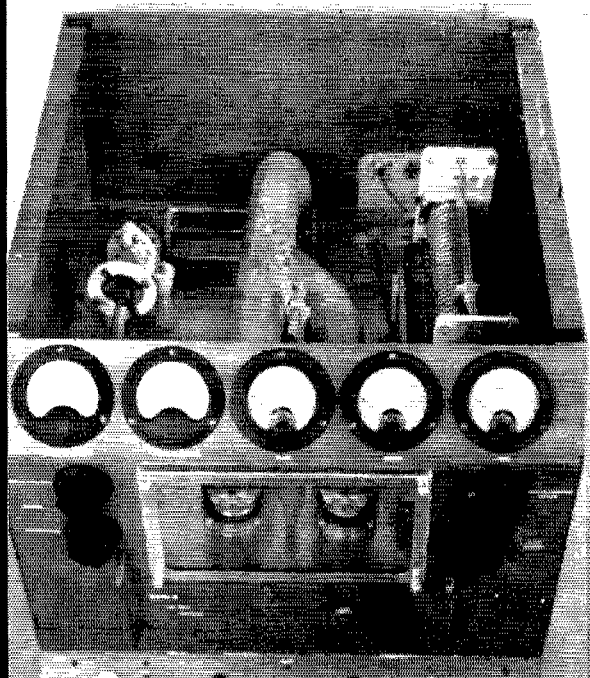
<sup>1</sup> Since Delaware is predominantly sandy soil, it was known that dead-men would have to be used rather than stakes. These may be made simply and inexpensively by obtaining three or four one-gallon paint cans, half-filling them with gravel-mix *Sakrete* (a 25-lb. bag is plenty). Obtain as many three-foot lengths of one-inch pipe as you have paint cans. Drill a quarter-inch hole one inch from the end of the pipe and another perpendicular two inches from the end of the pipe. Insert one-quarter-inch rods (the same length as the inside diameter of the cans) through the holes in the pipe and shove the pipe into concrete. Let dry overnight, dig a hole in the ground and bury it and you're in business. Guy line may be fastened to the pipe by means of an eye-bolt.

## Strays

K6CAB says he got tired of seeing all those square cabinets and racks which we are wont to print in *QST*, and so he designed his own cabinet, which houses amplifier and power supply.

The cabinet is 24 inches high, 20 inches wide, and 24 inches deep.  $\frac{1}{8}$ -inch aluminum was used for all except the transmitter and power supply chassis, which are of  $\frac{1}{4}$ -inch stock. The window frames were made of aluminum box covers obtained in surplus, and the surplus supply also furnished the fibre-glass tubes visible in the photograph and which channel the cooling air from the blowers.

The amplifier circuit is similar to one which has appeared in the *ARRL Handbook* except that a pair of 813s have been substituted for 4-125As and a 6Y6 clamp tube has been added. A rotary inductor in the output circuit and a multi-band tuner in the grid provide for easy band change. The power supply uses four 866s in a bridge rectifier, and the plate voltage can be varied between 1000 and 3500 volts. A 50-watt exciter drives this amplifier to full output on all bands.





# El Paso Amateur Transmitter Hunt

*Or, "Yes, We Have No Tamales"*

BY E. E. PONSFORD,\* K5HJV

SEVERAL weeks ago I stuck my neck out and suggested that I hide the transmitter for the next hunt for the 10-meter emergency net here in El Paso. I had no mobile transmitter so when the rest of my fellow hams "elected" me, I started to work on a 7-watt mobile transmitter, receiver and power supply.

Everything went according to schedule and I made up the rules stating that the hidden transmitter would be "mobile," dynamotor-powered, and that we would travel only on public thoroughfares and obey all traffic rules.

I then took the bench saw in the shop off its metal stand, attached four wheels to the legs, painted a cardboard box red with white letters reading "HOT TAMALES" (a Mexican food sold by street vendors in the border cities) and installed the rig. I used a throat mike for the transmitter and a hearing-aid button for the receiving end and was almost ready to go!

I got some brown face-tint and a gray mustache, a sloppy coat, work pants, and hat, and looked much more like a peddler than a ham. Then the fun started. Dean K5HTR and Art KØKGA/5 were going to help me so I went by

\* P. O. Box 3125, El Paso, Texas.



From left to right: K5HJV, the chief "operator," and assistants KØKGA/5 and K5HTR.

to pick them up before the hunt. Dean's XYL didn't want to let me in the door at first. When I picked up Art I got out of the car and went up to him on the street corner asking for a match and was told in no uncertain terms to look elsewhere. Well, this was enough to convince me that the disguise was good, so away we all went.

Several events happened that made the night a success. While I was walking along the street pushing the cart, Art overheard four little boys along the sidewalk make the following remark: "Gee! Look at the poor old man, I'll bet he could sure use some money!"

Also, I did a brisk business in the tamale that wasn't there. People who wanted a tamale thought I was crazy when I opened up the lid and all they could see was a meter and knobs. I even slipped once and told a fellow "No tamales" over the air but no one heard me.

After I located in the middle of the Plaza Park we saw numerous mobiles go around and around and around.

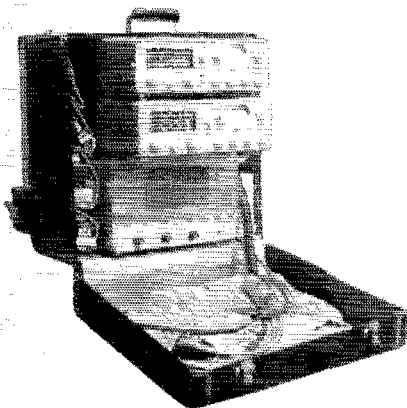
We ended up at W5ES (our club house) after it was over and had coffee, with a great deal more interest in hunting transmitters and several volunteers to hide the next transmitter.

## Strays

Sometimes phonetic call signs are appropriate, and sometimes they are not. Sometimes in good taste, other times not. But the gang had to admit that WØLST had something when he reported back into the net after surgery as W Ø Loosely Sewed Together.

— . . . —

When W6SZU and his wife decided to go on a three-month sea voyage, he knew that maritime-mobile operation would be the order of the day. Here we see how he packaged three Morrow units in a standard suitcase, with room left over for logs, mike, spare tubes, 10-meter doublet, etc. The portable station, complete, weighed about 55 lbs.



February 1958

# Remember When?

## A Scrap Book Will Help

BY THOMAS WILDMAN,\* WØDIB

**S**URE you remember those "good ole days" — we all do. But how well do we remember? Some of us can remember better than others, but none of us can remember as much as we sometimes wish were possible. For all of us, whether our memories are good or poor, the written record and pictures for record are hard to beat, and this is where I come in. . . .

Several years ago while visiting W9AHP, now WØFP and an old-timer like myself, I spotted on his shack wall a large picture frame which had many pictures of his past stations and equipment with brief data under each picture. Right then a brain wave surged through my two more or less dormant cells and I had a flash impression, namely "What a swell idea." But the flash soon faded as I realized that in my case, as probably with many other hams of long standing, I just couldn't put all the pictures and other material in a frame of suitable size.

After mulling over the idea for a while there came another flash, and this time I knew I had it. Why not make up a history album complete with pictures, clippings, and all from the start of my ham career? This I did. I am perhaps more fortunate than most hams, as I have always been one to take a great many pictures of my station, I have them right from the original station to the present time. As I went along changes were made and new equipment was built. (Yes I mean *built*, because in 1924 when I first went on the air a fellow had to build his own gear.) Antenna changes and everything else are all recorded with pictures, and with each picture is a description and the date and other notes of interest.

In addition to the pictures, I have news clippings regarding my station operation, including the closing and opening of the ham bands during the period of WW2. I also retained a QSL of each different type that I have had printed, including some photographic ones. My most recent item of interest is a letter from EA8BY in the Canary Islands, asking me for another QSL. Along with it are the right-hand side of my air mail envelope and half of the QSL which I had sent him. The rest burned away during an airplane accident. It was fortunate that the part which had the address wasn't burned, so that it could be delivered to him. This is an interesting incident in my ham career, and I mention this to show you how many things happen which will be more treasured in the

\*Mitchellville, Iowa.

years to come if we keep them intact and presentable at a moment's notice. It is surprising how you forget date and details of your operations as the years roll by. This I found to be true when I first gathered all my material together for the history album or book, whichever you prefer to call it. That was several years ago, and still I had to scratch the "ivory dome" a little to get all to come to light from 1924 on. So, don't wait too long to start this added project in your hobby.

Now as to what book or album to use, that is up to the individual, but I used a picture album of very good quality which has pages of approximately 9 × 12 inches. This gives plenty of space on each page.

As a companion to the history album I have another in which is mounted one QSL from each country worked, each state worked, each Canadian province worked and in addition one card for each type of mobile station worked, namely mobile, maritime-mobile, aero-mobile and even railroad mobile. On a couple of other pages are mounted the largest and the smallest QSL ever received, and they are the extremes, believe me.

You will, of course, use the best looking QSL from each country, state, etc., and this will make a very attractive book. For those who are working on their WAS, WAVE, DXCC, etc., it is a handy reference to see how the ball is bouncing, and you may be nearer the goal line than you think. The method, or lack of method, that some stations have, they can never tell how they stand unless the desk drawers and old shoe-boxes are ransacked. If I could show you personally what I have done I'm sure you would be sold. But the best I can do here is give you a word picture, and the photo which is printed herewith, of the history album which is seen at the left and the QSL companion album at right.

Now you young squirts may say, "That's fine for an Old Timer like that, but we don't have enough material to make it interesting." O.K., fellows, but you are wrong. Neither did I at the start, but by taking pictures, keeping interesting items of station changes and so on, you will in a matter of a few years be well on the road. Remember, there is no time like the present. Time dulls our memories, but not our recorded history, so you O.T.s dig up your material, and you young squirts in the game get busy and make material, so ten or twenty years from now you can say "I remember when!"



# Why Be a Ham?

BY JOHNNY WOOD,\* W5FLS

**T**HIS IS directed mainly to prospective hams, novices struggling through code and theory trying to earn their general ticket, and those who would like to ham but do not want to expend the effort. Also, those who have the talent but do not have the money. Or the money and not the talent.

Why bother? There may not be a short cut to Heaven but there is a short cut to hamming. This is simply getting a tape recorder and joining a tape club.

A tape club has all of the advantages of hamming other than instant contact, and many advantages ham radio does not offer. First among the advantages, of course, is the fact that there is no technical skill or license required. You don't have to worry about frequencies, resonance, TVI, BCI or any other I. In fact, you don't even have to be able to read and write — all you have to be able to do is talk. There are no age or education barriers. My 3½-year-old son can operate the tape recorder and he cannot yet write his name. Imagine the results if he tried to operate the rig. He is a long way from a ticket, but he can tape.

Other advantages in talking by tape instead of radio are no QRM, QRN, phonetics, abbreviations or conelrad. No danger of operating out of the band, getting shocked or pink tickets from FCC.

As for money, my 5-speaker, dual-speed, dual-track, hi-fi recorder did not cost ½ as much as my radio gear, and the "transmitter" and "receiver" are all the same unit. While radio gear is unsightly and scattered all over a room especially constructed for the equipment, the recorder is a small, compact, nice-looking piece of furniture which adds to the décor of any room in the house. Recorders now come in stereophonic sound with stacked or staggered heads. The recorder requires no outside antennas, is completely portable and when not in use fits very conveniently in a corner of a closet. It can be taken on trips, and with a converter can easily go mobile.

There are no FCC regulations or rules. Anyone

can operate and can broadcast music, sing or handle third-party traffic for anyone anywhere. No one reads your mail, crowds you out of your spot on the band or breaks in.

All signals are Q-5 and S-just-as-high-as-you-want-to-turn-the-volume-up. If you want to talk with someone in Chicago you don't need to wear yourself out calling "CQ Chicago," hoping someone in Chicago will answer. Just mail the tape to someone in Chicago and there you are. Like DX? Just add a little more postage and you can work all the DX you want — there are members all over the world. With tape exchange there is no need to get up early or stay up late to meet a schedule. Record the tape at your convenience and the recipient can listen at his leisure.

Tape clubs have nets or "round robins," same as hams, called "talking letters." You start out a tape and each member of the net adds some to it and by the time it gets back to you it is all there but yours and you can start it over again. Proud of your call? Tape clubs have them, and you can choose the one you want.

There are at least five tape clubs in the U. S. and the membership runs \$3.00 per year. This is less than membership in ARRL and even cheaper than a subscription to *CQ*. You save another \$4.50 on a *Call Book*, as a roster of the members is included in the membership. The fraternal feeling is at least equal to Hamdom and probably surpasses it. There are members who read to the blind, copy various sounds for those interested, and other volunteer services. Here is a quote from "The Voicispondent," publication of the Voicispondence Club of Noel, Virginia: "I have a very good recipe for sour dough bread and will read it to anyone sending me a tape. It takes only about 5 minutes to read."

You can pick out whom you want to talk to, and where. Members are listed both by geographical locations and alphabetically, plus showing their interests after their names. For 2¢ you can mail a 3-inch tape with about 40 minutes of rag-chew anywhere in the U. S.

I have a new Wilcox-Gay 674. Anyone want to buy a good DX-100, HQ-150 and D-104?

\* P. O. Box 723, Tyler, Texas.

## Strays

Would you like to do some hamming way out in the Pacific ocean areas? Vacancies exist from time to time for both supervisory radio operators and for radio operators. Salaries vary from \$4525 to \$5440, plus 25% differential. There are also vacancies for electronic technicians, with a starting rate of \$3.01 per hour. All applicants must meet Civil Service requirements. Duty assign-

ments include Palau Islands, Yap, Truk, Ponape, and Majuro. Work agreements are for two years. Details on housing, work requirements, fishing, hunting, boating, bathing, shell-collecting, amateur regulations, and schools may be obtained by writing to the Director of Communications (KC6UZ), Trust Territory Government, Truk, Eastern Caroline Islands.

# All-American Awards

## GE Cites Five Radio Amateurs



W4NSF



K2BDQ



W5YIS



W8NWO



W2EUI

first annual All-American series of awards for public service. Following is a brief summary of the public service activities of these amateurs.

W4NSF provided schools, churches and indigent ill persons with television service free of charge, and assisted in emergency radio communications with his ham station.

W8NWO was active in Boy Scout work and civil defense, and provided free electronic service for schools, organizations, and needy persons.

W2EUI provided emergency communications with his amateur station in airplane crash disasters and floods, and trained auxiliary police.

K2BDQ was active in civil defense communications, maintained the Jefferson High School and local Red Cross radio stations, and provided free TV service for the needy.

W5YIS provided emergency communications with his amateur station and repaired the local radio station transmitter during the height of a flood.

Five radio amateurs were among the thirteen electronics technicians who have just been the recipients of trophies and \$500 checks in GE's

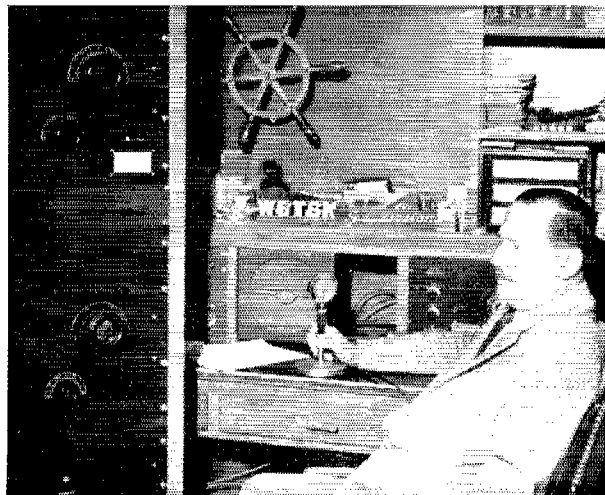
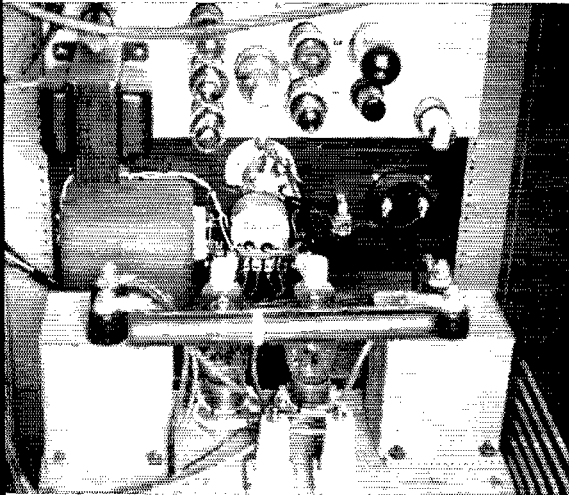
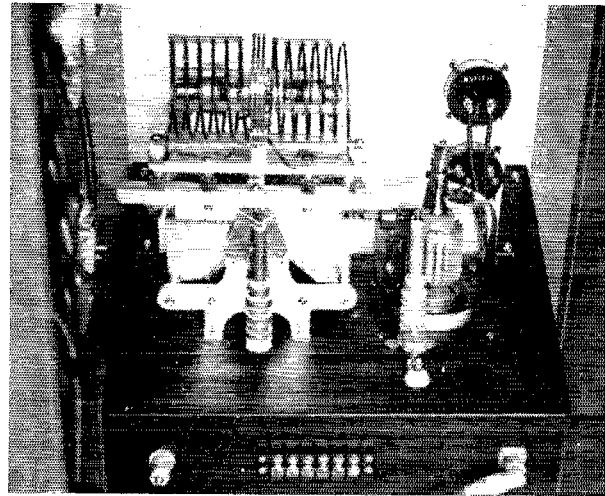
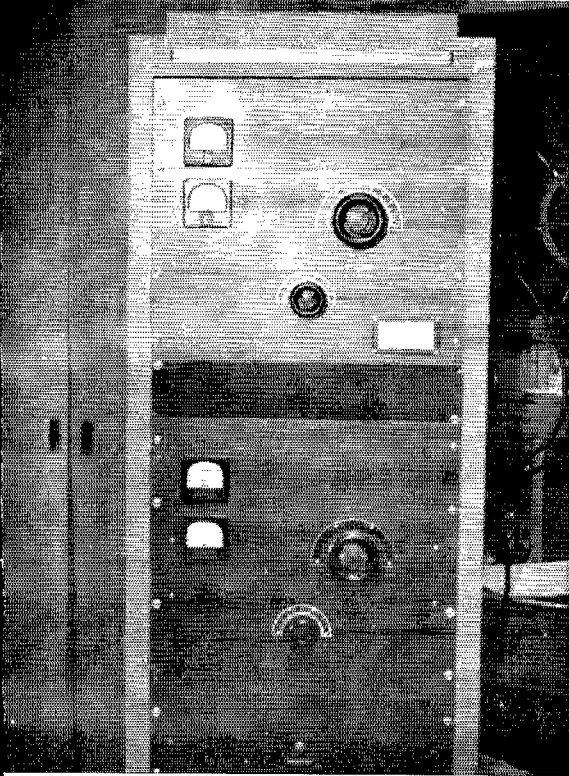
# Strays

WE HAVE, in months past, devoted some space to describing the stations of some fellows who have built some or all of their own gear. We would never deny that there is much justification for buying some of the excellent equipment that is

on the market these days, but we are always happy to give a little extra pat-on-the-back to the fellow who builds his own. We are particularly proud this month to show you the home-built finals of G. L. Dosland, W0TSN, president of the American Radio Relay League. The photos below show the rack which houses the two separate finals, interior views of one of the amplifiers and of the power supply, and finally a picture of the OM himself at the mike.

Each final uses a 4-1000A as a linear, either being driven readily by an Eldico exciter. One amplifier is used on the 20-, 15- and 10-meter bands, while the other is used on 80 and 40.

*(Photos by WOOFH)*



# Strays

We now have some details and photographs on two Minitrack systems being set up by amateur groups. At Keesler AFB, Mississippi, under the direction of Lt. Col. M. L. Scovell, ex-W8ZVM, the technical instructors and hams are setting up a single baseline Minitrack station in accordance with the specifications given in *QST* last September. Below at the left are (standing) W5RZP, W5UOO, ex-W8ZVM, W5TCB and W4ZST/5. (Front row) Pearson, K5EOG, KN5LUX, K5MGA and W5HYJ. At the right are the dipoles on the south array, which were leveled to within  $\frac{3}{4}$  inch at the 1000 foot distance between arrays. Here W4ZST/4 directs KN5LUX and K5EOG in the placing of the test dipoles.

At the bottom are two photographs showing the installation put together by hams at KBET-TV in Sacramento. At the bottom left W6QEJ (chief engineer at KBET-TV) inspects the transformer-junction with its galvanized weather cap. At the bottom right is a picture of the west antenna array of their one baseline system. Arrays are spaced 600 feet on an east-west line. The hybrid junction is connected to the transmitter building with 700 feet of open-wire line.

## FEEDBACK

January, 1958, *QST*, page 10 —  $L_2$  should be listed as a North Hills 120-J. The transistorized  $Q$  multiplier was designed to operate on 455 kc.

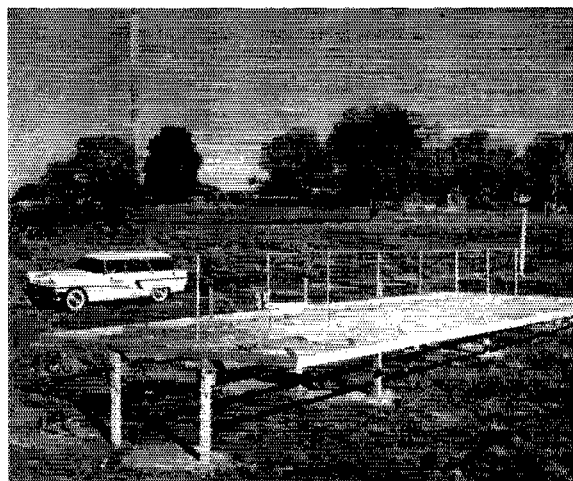
It differs from the *QST* article in that they use a director in addition to the ground screen.

Both groups were ready to go on Dec. 6, but the MOUSE failed us all (including ye managing editor who gambled on the January cover!).

During February the MARS-USAF Eastern Technical Net will discuss Satellite tracking with the Minitrack, antennas, and telemetry.

— . . . —

K2QAE recalls that on Friday the 13th of January, 1956, he received his 13th QSL card. It was from VEB3CAT, and had on it the picture of a black Halloween cat. However, it didn't seem to bring K2QAE anything but luck, for he subsequently graduated from Novice to General with no difficulty.



## A.R.R.L. QSL BUREAU

The function of the ARRL QSL Bureau system is to facilitate delivery to amateurs in the United States, its possessions, and Canada of those QSL cards which arrive from amateur stations in other parts of the world. Its operation is made possible by volunteer managers in each W, K and VE call area. All you have to do is send your QSL manager (see list below) a stamped self-addressed envelope about 4¼ by 9½ inches in size, with your name and address in the usual place on the front of the envelope and your call printed in capital letters in the upper left-hand corner.

- W1, K1 — D. W. Waterman, W1IPQ, 99 Flat Rock Rd., Easton, Conn.  
W2, K2 — North Jersey DX Association, Box 55, Arlington, New Jersey.  
W3, K3 — Jesse Bieberman, W3KT, P.O. Box 400, Bala-Cynwyd, Pa.  
W4, K4 — Thomas M. Moss, W4HYW, Box 644, Municipal Airport Branch, Atlanta, Ga.  
W5, K5 — Robert Stark, W5OLG, P.O. Box 261, Grapevine, Texas.  
W6, K6 — Horace R. Greer, W6TI, 414 Fairmount St., Oakland, Calif.  
W7, K7 — Joseph P. Vogt, W7ASG, P.O. Box 88, John Day, Oregon.  
W8, K8 — Walter E. Musgrave, W8NGW, 1245 E. 187th St., Cleveland 10, Ohio.  
W9, K9 — J. F. Oberg, W9DSO, 2601 Gordon Drive, Flossmoor, Ill.  
W0, K0 — Alva A. Smith, W0DMA, 238 East Main St., Caledonia, Minn.  
VE1 — L. F. Fader, VE1FQ, 125 Henry St., Halifax, N. S.  
VE2 — George C. Goode, VE2YA, 188 Lakeview Ave., Pointe Claire, Montreal 33, Que.  
VE3 — Leslie A. Whetham, VE3QE, 32 Sylvia Crescent, Hamilton, Ont.  
VE4 — Len Cuff, VE4LC, 236 Rutland St., St. James, Man.  
VE5 — Fred Ward, VE5OP, 899 Connaught Ave., Moose Jaw, Sask.  
VE6 — W. R. Savage, VE6EO, 883 10th St. N., North Lethbridge, Alta.  
VE7 — H. R. Hough, VE7HR, 1684 Freeman Rd., Victoria, B. C.  
VE8 — W. L. Geary, VE8AW, Box 534, Whitehorse, Y. T.  
VO — Ernest Ash, VO1AA, P.O. Box 8, St. John's, Newfoundland.  
KP4 — E. W. Mayer, KP4KD, Box 1061, San Juan, P. R.  
KH6 — Andy H. Fuchikami, KH6BA, 2543 Naumau Dr., Honolulu, T. H.  
KL7 — KL7CP, 310 — 10th Ave., Anchorage, Alaska.  
KZ5 — Catherine Howe, KZ5KA, Box 407, Bulbova, C. Z.

## WWV-WVVH SCHEDULES

FOR the benefit of amateurs and other interested groups, the National Bureau of Standards maintains a service of technical radio broadcasts over WWV, Beltsville, Md., and WVVH, Maui, Territory of Hawaii.

The services from WWV include (1) standard radio frequencies of 2.5, 5, 10, 15, 20 and 25 Mc., (2) time announcements at 5-minute intervals by voice and International Morse code, (3) standard time intervals of 1 second, and 1, 3 and 5 minutes, (4) standard audio frequencies of 440 cycle (the standard musical pitch A above middle C) and 600 cycles, (5) radio propagation disturbance warnings by International Morse code consisting of the letters W, U or N, together with digits from 1 through 9, indicating present North Atlantic path conditions and conditions to be anticipated. (See ARRL *Handbook* for details on interpretation of forecast symbols.)

The audio frequencies are interrupted at precisely two minutes before the hour and are resumed precisely on the hour and each five minutes thereafter. Code announcements are in Universal Time using the 24-hour system beginning with 0000 at midnight; voice announcements are in EST. The audio frequencies are transmitted alternately: The 600-cycle tone starts precisely on the hour and every 10 minutes thereafter, continuing for 3 minutes; the 440-cycle tone starts precisely five minutes after the hour and every 10 minutes thereafter, continuing for 3 minutes. The fourth minute of each 5-minute period is silent, and voice announcements are made during the fifth minute. The one-second intervals are heard as a clock-like tick; the tick at the beginning of the last second of each minute is omitted.

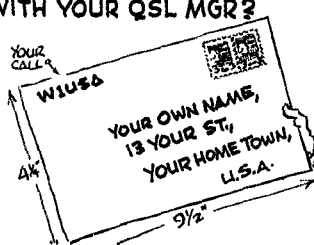
## Strays

While K0ALH was working on a dual quad in his yard a little girl asked how soon the ferris wheel would commence operation.

— — — — —

A young fellow who was about to buy some of the League's beginner publications on display in a radio store floored WSEFW momentarily when he said that he didn't plan to go on the air but just wanted to be able to get a set of those special call letter license plates!

## IS YOURS ON FILE WITH YOUR QSL MGR?



### ARE YOU LICENSED ?

- When joining the League or renewing your membership. It is important that you show whether you have an amateur license, either station or operator. Please state your call and/or the class of operator license held, that we may verify your classification.

# The Helping Hand

Since the days when The Old Man and Final Authority of the famous "Rotten Radio" *QST* series helped Young Squirt over the rough spots, amateurs have been noted for their assistance to newcomers. Often the helping hand has been extended on an individual basis, but in recent years the trend has been toward organized classes for beginners. We are proud to give a pictorial pat on the back to a few of the many groups performing this important public service, with the thought that maybe others will be encouraged to start a training program in their own area.



Courses of ten weeks duration are conducted twice yearly at Fort Orange Radio Distributing Co., Albany, and over 300 Novices have been graduated to date. Newspapers and radio stations provide adequate publicity prior to each course. Students range from 8 to 80 years of age, and in education from grammar school to Ph.D. An hour of code, a short recess, and an hour of theory instruction complete the formal sessions, after which a c.w. transmitter is fired up by K2DLN to demonstrate actual communication techniques.

An ingenious system of portable code-training positions has been devised by Allied Radio Corporation, Chicago. Keys and jack boxes are mounted on boards which can be set up quickly at class time and just as easily removed. Two 14-week courses are offered each year, with a total enrollment upwards of 150 students. Copies of ARRL's *License Manual* and *Code* booklet are furnished by Allied without charge. Approximately two-thirds of those enrolling finish the course and of these, 95% pass their exams.

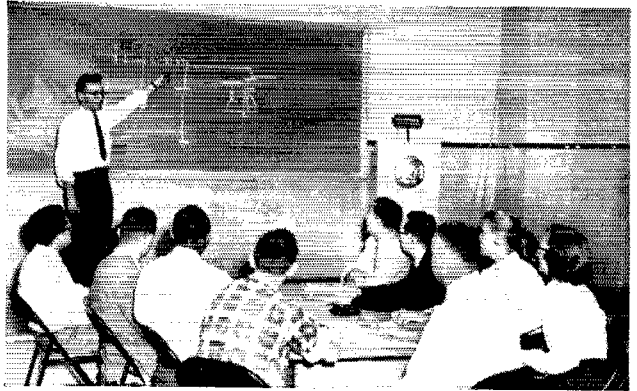






Lunch-hour code classes at Raytheon's Wayland laboratory have enabled 40 employes to achieve their Novice ratings. Particular attention is paid to instruction in procedure; students are taught how to call and reply, how to use abbreviations, how to maintain a log, etc. Here, left to right, are graduates KN1CZO, KN1CIP, KN1BTU, Mildred Daigle (call in process) and instructor W1PKV.

The Amateur Radio Society of Harrison (N. J.) sponsors code and theory classes, primarily for company employes, at RCA's electron tube division plant in that city. Separate classes for Novice and for General license are held daily during the luncheon period and also at the close of the business day. The training committee of the Society is responsible for the conduct of the classes but occasionally calls in other members specializing in various fields such as v.h.f. to give students a broad picture of the ham radio hobby.



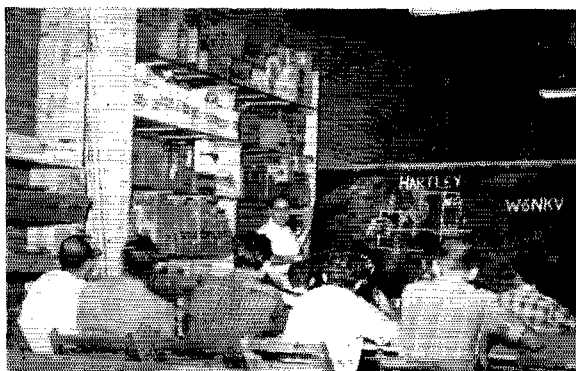
A novel system of "drop-in" code practice has been instituted by W & W Distributing Co., of Memphis. Anyone interested in learning the code, or building up speed, can drop in during business hours and practice receiving from Novice or advanced speed tapes, and sending with an oscillator and key. Separately, an 8-lesson weekly course, aimed at the Novice license, is conducted during the evening.





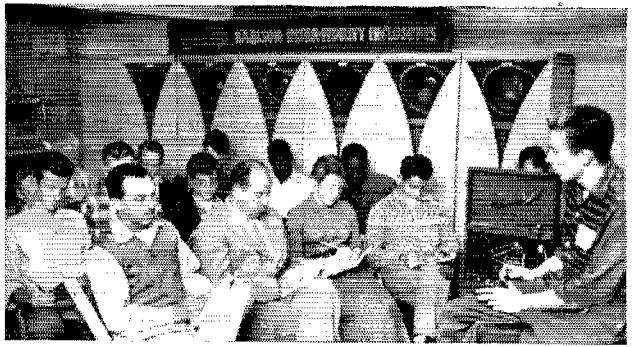
Free classes for prospective novices are sponsored by World Radio Laboratories both at its plant in Council Bluffs and in connection with the local adult education program in the schools. In addition to the newspaper and radio publicity, youth groups such as the Boy Scouts and YMCA are invited by special letters. An average of 10 classes are held each year, with enrollment ranging from 20 to 40, and consist of twice weekly sessions for four weeks. Three classes aimed at the General license are held each year, for which a nominal fee is asked.

Thursday evenings in Inglewood, California, a corner of the stockroom of Universal Distributors is filled with Novice aspirants learning the fundamentals of theory, as shown here, and the secrets of code, from instructor W6NKV.

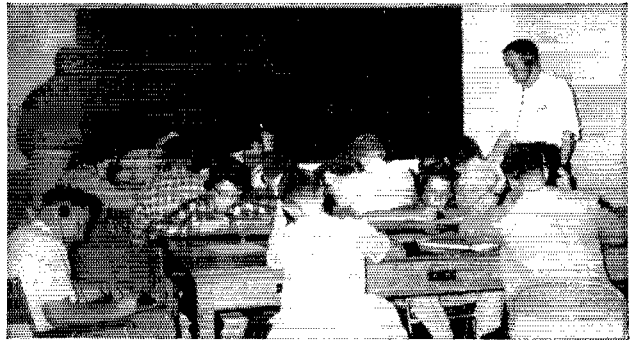


In the short space of three years, the amateur departments of Valley Electronic Supply stores in Burbank and Van Nuys, California, have given 12 hours instruction to each of 1245 Novice aspirants, 780 of whom have actually passed the exam. All walks of life are represented; an electronics engineer takes notes alongside a carpenter, and a beauty operator listens to the dit-dahs right along with a private secretary. As in most other classes, guidance is from the ARRL License Manual.

Hudson Radio & Television Corporation classes for Novice aspirants have become an institution in and around Newark, N. J. In four years of experience, Hudson finds that about two-thirds of the initial enrollment completes the course, with a large majority of graduates actually obtaining licenses. It is stressed that the sessions in themselves are not sufficient study, but rather are to help as a means of direction and review of home or other study.



C & G Radio Supply of Tacoma, Wash., finds that Novice aspirants who stick as long as the third class session are those who want the license enough to really work for it. Sixty-one graduates have so far passed their exams, with only two failures to date. As seems to be customary, the two-hour sessions are divided equally between code and theory.



W6FYM shows the proper form for sending code to a student in classes conducted by the Eimac Gang Radio Club for company employees. Twice weekly sessions of one hour each over a period of three months provide sufficient training for a Novice ticket.



Sorry we haven't a photo, but we'd like to add that Bob and Jack's store for hams in Des Moines, Iowa, offers four Novice and four General courses yearly. WØPRF has been conducting such classes for the past five years.

## Silent Keys

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

W1HSE, Earl L. Jordan, Coventry, R. I.  
W1KUD, John A. Ceraska, Worcester, Mass.  
W1MFN, Gustave F. Kinat, Plainville, Conn.  
W1WIP, Rae C. Palmer, Moodus, Conn.  
K2CUY, Rita S. Moyer, Lockport, N. Y.  
K2GE, John J. Hallahan, Perth Amboy, N. J.  
W2SJJ, Stanley Cirnitski, Glendale, N. Y.  
W3NCJ, Raymond R. Rosenberg, Erie, Pa.  
W3QYF, Arthur S. Smith, Pittsburgh, Pa.  
W4CVQ, William H. Jacobs, Raleigh, N. C.  
KN4KFS, James I. Bumgarner, Millers Creek, N. C.  
W5AXA, Arnold M. Maupin, Tulsa, Okla.  
W5QEA, Fulgence P. Bourgeois, St. Rose, La.  
W6FVB, Michael J. McDonald, Martinez, Calif.  
K6PSV, Richard O. Seaman, Fair Oaks, Calif.  
W6PT, Paul D. Langrick, Los Angeles, Calif.  
W8AH, Reuben Jacobson, Rocky River, Ohio  
W8ARR, Earl J. Hughes, Detroit, Mich.  
W8TND, Robert J. Lieber, Canton, Ohio  
W9WLW, Edward Tallmadge, jr., Milwaukee, Wis.  
W9YJL, Victor W. Beckerich, Indianapolis, Ind.  
W0FXZ, Harold R. Beaver, St. Paul, Minn.  
W0VEL, Harry C. Clark, Dodge City, Kans.  
W0WIJ, Joseph J. Myers, Des Moines, Iowa  
VE2ABP, Al O. Lauzon, Abitibi, Quebec  
VE7AAZ, George M. Clark, Victoria, B. C.

### William H. Jacobs, W4CVQ

Amateur radio lost an active v.h.f. experimenter and a former ARRL Director when Col. William H. Jacobs, W4CVQ, passed away on November 15.

He had retired a few years ago as a full colonel in the U. S. Army. From 1948 to 1950 he served as an assistant director in the Roanoke division, and then in 1950 he was elected to serve a two-year term as Roanoke Division Director. He had been an ARRL member since 1935.

### NOVICE ROUNDUP REMINDER

A short reminder that the Novice Roundup makes its seventh annual appearance this year, February 1 through 16.

Full details are in January *QST*, but for a quick run-down, the contest begins on Saturday, February 1, at 6:00 p.m. local time and terminates on Sunday, February 16, at 9:00 p.m. local time. The forty-hour time limit prevails and may be utilized in any way you prefer in operation on 80, 40, 15 and 2 meters.

Don't forget to check into the details on obtaining a code-proficiency certificate. The CP will give you extra points in the contest. W1AW will hold ARRL Qualifying Runs on January 20 and February 18. W6WOP can be heard January 2 or February 5.

ARRL will send upon request a free map of the U. S., contest logs and reporting forms for the Novice Roundup.

# Quist Quiz

This one can be handled by the shrewd circuit men; there is no math involved. Frank Colligan, W3RYX, sent it in.

We have two BC transmitters set up to operate with the same program on exactly the same frequency. They are located several miles apart, which makes it impractical to drive them both from a common crystal oscillator. Nevertheless, there is a way to synchronize them and insure that they will both be operating on exactly the same frequency. (The system has actually been used over distances up to 60 miles.) How is it done?

— — — — —

As you probably decided from all the talk that's going around, the difference in the frequency measurements mentioned last month is readily explained by the Doppler effect. When the third station, C, is a man-made satellite transmitter, and the measurements are made at a time when C is moving toward A and away from B, the frequency at A will be higher than at B.



February 1933

... K. B. Warner reported on the Madrid Conference, its problems and its results.

... W6CAL was reported to have heard W9DZX on 28 Mc. in December, the best 10-meter DX for that month.

... Grammer described an amplifier for the beginners' crystal transmitter, using a pair of 46s in parallel.

... There were a couple of articles on how to build your own velocity microphone.

... W3LW told how to get more out of your regenerative detector.

... Announcement was made of the Fifth International Relay Competition. It ran for eight days.

... A beginners' article showed how to put up space-saving antennas.

... Four and a half pages of hints and kinks for the experimenter.

... An admonition in the IARU News section for the use of standard-sized QSL cards.

... An announcement of the issuance of the fifth WAC for phone operation. Issuances so far had been to an ON4, a VK2, a G5, a GI5, and an OK2. Still no Ws!

... One of the more famous rescues by amateur radio was reported, that of Clyde De Vinna, chief movie photographer with M-G-M. He had been operating from a small shack on location in Alaska, with a coke stove furnishing heat. While QSO a ZL, the New Zealander noticed that De Vinna's sending began to falter and then the signal ceased. Alarmed, the ZL called "CQ Alaska" and had the good fortune to contact another Alaskan, who notified officials near the M-G-M camp. The rescue party arrived to find De Vinna unconscious from carbon monoxide poisoning, but was able to revive him.

... W1CJD was reported as still being king of the Connecticut traffic handlers.



# Hints and Kinks

## For the Experimenter



### TRANSISTORIZED B.F.O. FOR MOBILE USE

THE SCHEMATIC of a compact transistorized b.f.o. for mobile use is shown in Fig. 1. The circuit is a variation of that appearing in several issues of *QST*, but the method of obtaining power for the unit is somewhat unique. Although an inexpensive type CK722 transistor is used, the oscillator is adequately stable for use in converting an automobile broadcast receiver for c.w. reception. The b.f.o. may be constructed for use with receivers having either a 262- or a 455-ke. i.f.

When first used, the b.f.o. circuit was installed to take d.c. input power from the hot filament lead in the auto radio. This method of installation resulted in hash modulation of the oscillator signal — by the vibrator — that no amount of filtering would cure. This condition was easily remedied by powering the b.f.o. with the 10 to 15 volts of well-filtered d.c. available across the cathode bias resistor of the audio output stage.

Component values for the circuit are not especially critical, but stability of the oscillator is improved by connecting the base of the transistor to the cathode tap on the b.f.o. transformer rather than to the grid terminal. This results in an improved impedance match as compared to that obtained with normal transformer connections, and also decreased loading on the tuned circuit.

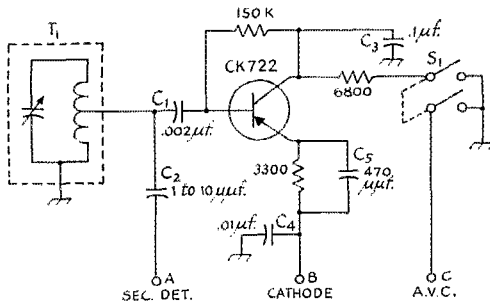


Fig. 1—Circuit diagram of the transistorized b.f.o. unit. Resistances are in ohms; resistors are ½ watt.  $T_1$  is a 252- or 455-ke. b.f.o. transformer (see text).  $S_1$ , a d.p.s.f. toggle switch, is the oscillator on-off control. Terminals A, B, and C connect to the second detector, audio-amplifier cathode and a.v.c. line, respectively, of the broadcast receiver.

Catalogues on hand indicate that 252-ke. b.f.o. transformers may not be too widely available. One homemade substitute for the commercial unit is a good quality 2.5-mh. r.f. choke of the

3- or 4-section variety, tapped between the first and second sections at the ground end (see Fig. 1) of the winding. This inductor should be shunted with a fixed "silver mica" of approximately 150  $\mu\text{f}$ . and a 100- $\mu\text{f}$ . variable padder.

To avoid complication in the schematic, and because it is difficult to show the several circuits that will be found in various types and makes of b.f.o. transformers, Fig. 1 shows only the bare essentials of a typical unit. If the one on hand is

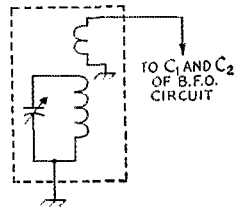


Fig. 2—Transformer connections for WØPME's transistorized b.f.o. when  $T_1$  has a feedback winding instead of a cathode tap.

permeability tuned, or if it has fixed capacitors not shown, it may be used in the circuit as long as it tunes to the i.f. frequency. However, some transformers have a feedback winding instead of a cathode tap and, in this case, the connections shown in Fig. 2 should be used in coupling  $T_1$  to the transistor.

— Davis A. Helton, WØPME

### SIMPLE GRID CURRENT INDICATOR FOR CLASS AB LINEAR AMPLIFIERS

THE 4-400A Class AB1 s.s.b. linear amplifier here at W7ETK includes an old but perhaps generally-forgotten method of indicating control-grid current flow. Although the method does not prevent the grids from drawing current, it does provide an immediate visual indication of intermittent current excursions that cannot be followed by a meter. With this system in use, I find it unnecessary to provide especially well-regulated bias voltage for the amplifier.

The circuit consists of a sensitive 8000-ohm relay connected in series with the bias lead to the tubes, and a 3.2-volt pilot lamp (No. 1490) controlled by the relay contacts. Voltage for the lamp is furnished by the 5-volt filament transformer for the 4-400As. The relay closes whenever grid current is inadvertently allowed to reach one half ma. or so and, of course, the 3.2-volt lamp operating at 5 volts assures a truly "bright" indication that the linear is being overdriven.

— W. L. King, W7ETK

## ANOTHER QSL CARD DISPLAY METHOD

A solution to the problem of mounting and displaying QSL cards without damaging or defacing them is shown in Fig. 3. The method also permits easy removal or replacement of individual cards.

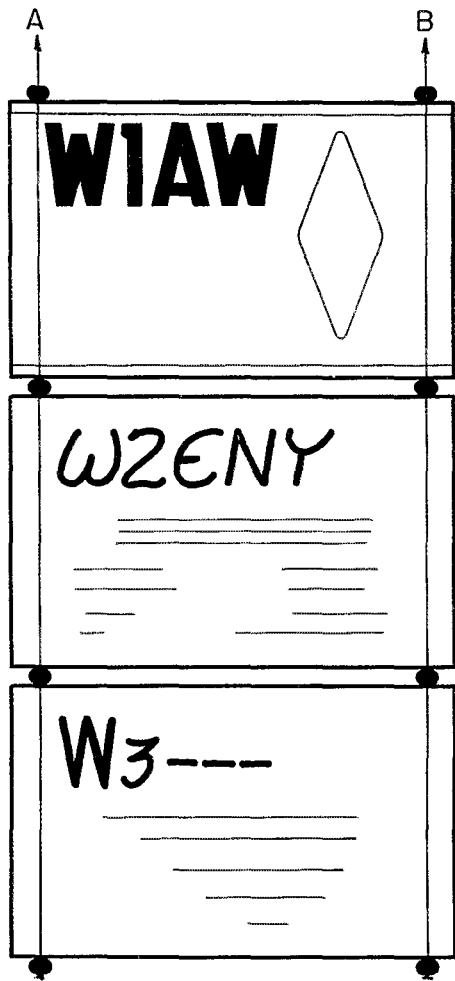


Fig. 3—Sketch showing W2ENY's method of displaying QSL cards. Threads shown at the right and left are backed up by threads which run up along the rear side of the cards. Vertical extensions A and B should be long enough to reach the nails, thumbtacks, rod or rings used to support the strip.

The cards are suspended in vertical strips by means of two pairs of fine thread, each about  $\frac{1}{2}$  inch in from the edge of the cards. Small glass or plastic beads of the type used by children in making designs are used as separators between each pair of cards. Knot each pair of threads to support the beads at the bottom and clamp the threads extending above the uppermost card with another pair of beads. The supporting strings may be tied to a dowel or curtain rod, or they

may be terminated in small rings fastened to the wall or other surface.

P. S. Christaldi, W2ENY

## ADDITIONAL OUTPUT TERMINALS FOR THE RECEIVER'S AUXILIARY POWER SOCKET

IN THIS day of many accessories to communications receivers, it is frequently desirable to connect more than one low-current accessory to the auxiliary power socket of the receiver. Fig. 4 shows an open-for-inspection view of a dual output connector that combines the plug-in feature with clean-cut construction.

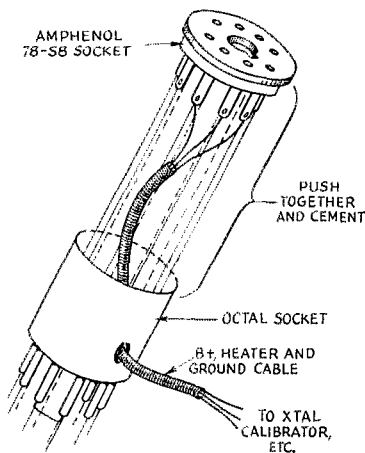


Fig. 4—Sketch showing construction of the dual output connector for use with a receiver's auxiliary power socket. The idea can be extended to accommodate more than two accessories providing that the receiver power supply can safely deliver the extra current.

Drill a  $\frac{1}{4}$ -inch hole in the side of a salvaged octal tube base that has been cleaned free of cement and anode leads. Feed the power cable for one of the accessories through the hole in the side of the base, and then connect the individual leads of the cable to the terminals of an Amphenol type 78-S8 socket. Before soldering at the socket terminals, provide short bare wire jumpers for connection between the socket and the base. Pass the jumpers down through the prongs in the base, making sure that the guide slot in the socket is properly orientated with respect to the guide pin on the base. Press the socket down onto the base after applying cement where required. Clip the wires extending through the base prongs and solder.

A little thought as to the direction in which the accessory cable should extend from the assembly, given at the time the hole is drilled, will add to the neatness of the unit. Eyes may be protected while salvaging the base of a glass tube by putting the envelope in an empty cigarette package or other covering while the glass is smashed.

— Thomas B. Hedges, W3BKE

## TRANSFORMERLESS VERSION OF W3DM'S T-R SWITCH

ENTHUSIASM about installing the electronic transmit-receive switch (*QST*, June, 1957) in a portable transmitter was temporarily dampened by the improbability of being able to secure one of the broad-band output transformers in time for Field Day. However, after some reflection, the problem was solved by modifying the circuit to eliminate need for  $T_1$  of the original layout.

As shown in the circuit, Fig. 5, low-impedance output for coupling to the receiver is obtained by operating the type 6AH6 as a cathode follower. Naturally, the gain in a circuit such as this is less than unity. However, this factor does not offset the advantage afforded by using the extra

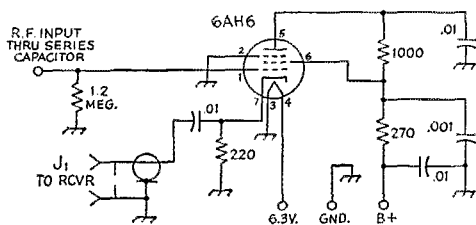


Fig. 5—Circuit diagram of the cathode-follower t.r. switch used by W3NF. Resistances are in ohms, resistors are 1/2-watt composition; capacitors disk ceramic. Capacitances are in  $\mu$ f. See *QST*, June, 1957, page 24, for method of connection to transmitter tank circuit.

tuned circuit ahead of the receiver input, and the ability to conveniently use a good transmitting antenna for receiving purposes.

— Edward Hart, W3NF, W2ZVW

## REMOTE TUNING OF THE CUBICAL QUAD

A GREAT help in receiving through QRM with a cubical quad antenna is being able to phase out interfering stations by adjusting the quad's reflector at the operating position. This may be done with receiving-type Twin-Lead and a 360- $\mu$ f. variable capacitor.

Attach one end of the Twin-Lead to the junction of the reflector and the tuning stub and the other end to the capacitor which has been mounted at the operating position in the shack. Set the capacitor at half capacitance, and then adjust the stub for maximum front-to-back ratio as is normally done.

I can adjust for front-to-back ratio over the entire 21-Mc. band with this arrangement. The forward gain remains essentially the same regardless of the setting of the capacitor, but interfering signals from the back may be reduced an average of 30 db.

— Capt. J. R. Hagen, K4JMA

## DX-100 KEYING

REFERENCE is made to the schematic diagram on page 34 of the August 1956 *QST*. The 100K resistor connected to Pin 2 of the 12BY7

was found to be critical as to value. Upon completion of the modification the transmitter keyed itself intermittently. This was caused by the blocking voltage being too low at the 12BY7 grid. The cure proved easy. The 100K resistor was replaced by a 200K potentiometer which was adjusted until zero plate current was read on the plate meter in the key-up position. The resistance was then measured and a fixed resistor of equivalent value was substituted.

There are dangerous voltages exposed when equipment is on, so be careful.

— James E. Kerschner, K6HKY

— . . . —

*Editor's Note:* *QST* wishes to thank W6YKE for reporting his success with "Improved Keying for the DX-100" after lowering the value of the grid resistor (see H&K above) to 60K.

## ANOTHER USE FOR THE BELL-OR CHIME-CIRCUIT TRANSFORMER

IF THE shack is located in the basement, it is very easy to steal voltage for a conrad alarm (bell or buzzer) from the doorbell or chime transformer. It will be necessary to trace the wiring of the doorbell circuit, but in most cases this is easily done as the wire is strung about the basement beams in exposed fashion.

While you are at it, it may be a good idea to add an extra bell, buzzer or chime in the shack where it can easily be heard when visitors wish to announce their arrival. A combination bell and buzzer, available at some hardware stores, can be used for both the conrad and the doorbell signals.

— Herbert Greenberg, W2EEJ

## USING FILM REELS AS CAPACITIVE HATS

HAVE YOU ever tried using a 16-mm. movie film reel as the capacitive hat for a mobile whip? These reels are readily modified for simple mounting, and perform effectively as capacitive loading units. You may even be lucky enough to obtain one or more slightly damaged reels at no cost by visiting a film library or concern that rents home-entertainment films.

In the original form, a reel consists of two round disks joined at the centers by the hub on which the film is wound. Only one of the disks is used for capacitive loading purposes and, as a result, the reel should be split into two sections by removing the hub. Enlarge the hole at the center of one of the disks to accommodate a bushing or other suitable hardware, slip the assembly down over the top section of the whip, and you are in business.

This idea was actually suggested by W5YZL. It has worked out so well in practice that I thought it worth passing along.

— E. V. Blaiye, jr., W5TVW

*Editor's Note:* See "Top Loading Capacitance," *The Radio Amateur's Handbook*, Chapter 19, for additional data on capacitive hats and the effects of capacitive loading on loading coil inductance.

# YL News and Views

BY ELEANOR WILSON,\* W1QON

## Results: YLRL Anniversary Party

### Top Scorers C.W.

First — W7COX.....	2970
Second — W4RLG.....	2280
Third — W6PCA.....	2051

### PHONE

First — W3URU.....	9938
Second — W6QGX.....	9275
Third — W4HLF.....	9100

**P**ARTICIPATION in the YLRL Eighteenth Annual Anniversary Party last November broke all previous records. (Thus far in the eighteen years of YLRL contesting, a new participation record has been established each year.)

YLRL Vice President Mildred Wright, K5LIU, reports 528 YLs participating in the phone contest, an increase of 128 over last year. One hundred forty-six YLs were active in the c.w. contest — six more than in 1956.

First place c.w. winner Frances Viers, W7COX, of Vashon, Washington, is a newcomer as a high scorer in the Anniversary Party. Second place c.w. winner Frances Shannon, W4RLG, of Cottondale, Alabama, won top c.w. honors in the 1956 contest. First place phone winner Sarah Hengen, W3URU, of Norristown, Pennsylvania, stepped up from her second place honors in last



Above: Opal Jones, W6PCA, of Esparto California, third place c.w. winner in the 18th A.P., has more than a dozen awards to her credit, including YLCC-200, YL-OM 10CC, KH6-CC, WAS, WAC, CPC-25, WBE, etc. Strictly a c.w. operator, Opal uses a Viking II and a BC-348 on 40 and 20. Licensed in 1952, her OM is W6PJB.

Frances Shannon, W4RLG, second place c.w. scorer in the 1957 YLRL A.P., holds the YLRL award cup she won for top c.w. honors in the 1956 Party. Frances was also highest c.w. scorer in the 1953 contest. Licensed in 1950, she is the XYL of W4MI of Cottondale, Alabama.



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



year's contest. Second place phone winner Harrvette Barker, W6QGKX, of La Puente, California, led her district in the phone section last year.

The San Diego Young Ladies Radio League Club came up with the winning club entry this year, after placing last among the six clubs which competed in 1956. Six clubs again competed this year.

A cup was awarded to each first place winner, phone and c.w. Certificates were awarded to second and third place winners, phone and c.w. A first place certificate was awarded the winner of each district having three or more entrants submitting logs. A gavel was awarded to the winning club.

Suggestions for next year's contest should be sent to the new vice president of the YLRL, Kay Anderson, W4BLR, 5210 Raleigh Road, Richmond, Virginia.

Congratulations to all winners!

Second place phone winner Harrvette Barker, W6QGKX, is as at ease with an organ as she is with a microphone. The YXL of W6GQP and mother of 3 young daughters, Harrvette is on 75, 40, and 2 meters just about daily from La Puente, California. A past president of the Los Angeles YLRC, she was formerly W9KSA and W8JLL.



When the girls get together:



W3URU	39 26	1268*	W7PTX	40 25	1250*
W3TSC	27 18	468	W7ZIV	30 22	825*
W3CDQ	7 7	61*	W7DIF	29 21	661*
			W7GUQ	25 15	375
W4RLG	57 32	2280*	W7DXM	21 16	336
W4BLR	60 31	1860	W7FDE	11 9	124*
W4HLF	51 29	1849*			
KP4ZV/4	34 24	1020*	W8UAP	40 24	1200*
K4BKT	38 24	912	W8RIR	35 21	963*
W4BLL	32 21	840*	W8OTK	24 21	630*
W4PPQ	12 11	132	K8EJX	4 4	20*
K4EQB	8 8	64			
			K9AVK	52 30	1950*
K5ADQ	48 29	1740*	W9MLE	52 29	1508
K5LIU	60 23	1725*	K9BWJ	31 22	853*
K5BJU	4 4	20*	W9USR	26 18	585*
			W9MYC	14 9	158*
W6PCA	53 31	2054*			
K6OWQ	53 31	1643*	K0IKL	51 32	2040*
K6QPG	44 28	1540*	K0LYV	45 29	1631*
K6BUS	50 29	1450	K0GIC	37 23	1064*
K6ENK	49 29	1421	W0JAU	22 18	495*
W6NAZ	31 24	744	W0ZWL	8 6	60*
W6WRT	15 8	150*			
W6DXI	13 6	59*	KH6CKO	10 9	113*
K6SYR	6 5	38*	KH6BGE	6 6	44*
K6HOI	3 3	11*			
W6LFF	1 1	1	KL7ALZ	16 14	280*
			KL7AZI	10 7	88*
W7COX	66 36	2970*	VE3DAMX	24 16	384
W7PUV	45 28	1575*	VE5DZ	38 25	950

### CLUB ENTRIES

San Diego Young Ladies Radio League Club	4841
Los Angeles Young Ladies Radio Club	4071
Penn-New Jersey Young Ladies Radio Club	2834
St. Petersburg Amateur Radio Club YLs	2618
Ladies Amateur Radio Klub	2604
Washington Area YL Amateur Radio Club	975

### SCORES

Figures following each call indicate number of contacts, sections worked, and score. (For example: W1HAG . . . 31-20-775\* or 31 contacts, 20 sections, score 775.) An asterisk denotes low-power multiplier used. All fractions in scores have been omitted.

#### C. W.

W1HAG	31 20	775*	K2DXD	22 15	413*
W1VXC	16 13	260*	W2QZZ	12 11	158*
K2JYZ	50 30	1875*	W3UTR	50 29	1813*
K6VUE/2	25 17	531*	W3GEU	43 24	1290*

#### Phone

W1CEW	115 44	6325*	W4TVT	80 38	3040
W1FTT	104 41	4264	W4SGD	79 35	2765
W1ZEN	76 37	3515*	W4UF	68 37	2516
W1YPT/1	81 39	3159	W4RLG	63 27	2126*
K1ADY	53 29	1921*	K4BKT	65 31	2015
W1RTB	42 25	1313*	W4PPQ	45 24	1080
W1VXC	29 18	653*	W4BLR	35 18	630
W1QON	22 16	440*	W4WPD	12 5	75*
K2JYZ	108 50	6750*	K5BNQ	131 45	7360*
W2OWL	38 21	998*	W5HWK	104 48	6240*
K2TXM	41 17	697	W5JCY	91 46	4186
W2QZZ	34 16	680*	K5LIU	89 29	3226*
K6VUE/2	26 14	455*	K5BJU	78 34	2652*
			K5IMD	69 26	2243*
W3URU	150 53	9938*	W5RZJ	59 24	1770*
W3GEN	77 36	3465*	K5MSE	25 15	469*
W3UTR	71 35	3106*			
W4VCB/3	60 35	2625*	W6QGKX	175 53	9275
W3APT	48 26	1560*	W6JZA	146 48	8760*
W3RXJ	44 23	1265*	W6WRT	140 47	8225*
W3WUE	41 22	1128*	K6EXV	131 50	8188*
W3GTC	23 14	322	W6GGX	110 49	6738*
W3RXV	11 8	110*	K6QD	120 41	6150*
			K60AI	90 45	4050
W4HLF	140 52	9100*	K6KCI	83 39	4046*
W4KYI	130 48	7800*	K6PWH	78 35	3413*
W4CWV/			K6EXQ	82 31	3178*
LKM	95 38	4513*	W6MWW	67 35	2931*
W4WJX	88 40	4400*	W6JMS	73 02	2920*
W4BLL	79 36	3555*	W6DXI	56 30	2100*
K4IRZ	94 36	3384	K6ANG	55 27	1856*



Mae Burke, W3CUL, and 100 BPL cards—all her own! As Mae says, all made "the hard way" too—100 consecutive BPLs for a minimum of 500 messages handled for each. So much has been written about the fabulous Mae (and the adjective is surely merited in her case). Winner of the Fifth Edison Radio Amateur Award and a top traffic handler for many years, Mae is truly an outstanding amateur and personality. At a later date, we'll try to give a detailed account of how Mae manages to handle stacks of messages like those shown on the left of her operating desk.

W6NAZ	45	28	1260	K9CQF	57	20	1425*
W6EHA	36	20	900*	W9UXL	43	21	1129*
K8ENK	35	8	350*	W9VNG	41	20	1025*
W6LFF	22	10	220	W9ZXZ	32	17	680*
W6HOI	25	7	219*	W9RTH	27	17	573*
				W9MYC	33	13	536*
W7WLX	144	44	7920*	W9STR	21	12	352
W7TGG	155	51	7905	W9LDK	17	9	191*
W7RVM	142	42	7405*	K9BWJ	2	2	5*
W7OUE	104	43	5390*				
W7DXM	109	39	5314*	K8LYV	107	42	5518*
W7DRU	86	38	4035*	K8IKL	75	33	3093*
W7HHH	94	35	3290	W8ZWL	57	30	2138*
W7RAX	64	28	2240*	K8GIC	17	26	1528*
K7BGP	66	32	2112	K8BTV	32	16	640*
W7YHO	48	27	1620*	W8JAU	26	16	520*
W7DIF	28	20	700*				
W7DIC	40	13	650*	KH8RGE	116	43	6235*
W7NJS	39	13	507	KH6CKO	97	42	5993*
W7FDE	19	13	309*	KH6AUJ	61	29	2320*
W7GUQ	8	6	48				
				KL7AZI	115	43	6181*
W8FFT	123	47	7226*	KL7BIE	117	40	5859*
W8HUX	92	40	4600*	KL7BJD	89	36	3204
W8VRH	48	29	1740*	KL7ZR	60	27	2025*
W8EIR	64	24	1516	KI7ALZ	54	26	1755*
W8RIR	42	28	1470*				
W8OTK	37	20	925*	KZ5VR	99	42	4158
W8DNF	33	18	594				
W8WUT	25	11	344*	OA1K	102	37	3774
				OA4GR	42	22	924
W9UON	105	40	5250*				
W9RUJ	82	37	3034	G2YL	18	9	203*
K9CCO	66	33	2723*	G8LY	7	5	35
W9MPX	62	28	2170*	VPIOLY	59	27	1991*
W9GME	61	24	1830*				
W9LOY	65	25	1625	ZL2JO	7	7	49

Stations submitting logs for confirmation only were: C.W. — W1TIW, W2BNC, W4SGD, W6s GGY, JZA, MWU, K6PWH, W8WQE, VE3AJR; Phone — W1RYJ, W2BNC, W3MDJ, K4s EUG, MQN, W5ECF, K6s BUS, JCL, W9MLE, VE3AJR.

## NINTH ANNUAL YL-OM CONTEST

This year's YL-OM contest should be another record breaker. In 1957 375 YLs and 1100 OMs played the merry game of hunting for each other on the bands. What will the statistics reveal this year? The lure of the sexes being what it is, how can a gal or guy *not* desire to have a little fun of

the type the YL-OM Contest offers? Here are the rules for a sure-fire good time on the first and third week ends in March:

**Eligibility:** All licensed OM, YL, and NYL operators throughout the world are invited to participate.

**Operation:** All bands may be used. Cross-hand operation is not permitted.

**Procedure:** OMs call "CQ YL," YLs call "CQ OM."

**Exchange:** QSO number; RS or RST report; name of state, U. S. possession, VE district, or country.

**Scoring:** (a) Phone and c.w. contests will be scored as sepa-



Beth Kochm W8RIR, of Midland, Michigan, is the fourth YL (of whom we've heard) to receive an Amateur Extra Class License. The other YLs who can display this class of license are W2CYX, W4MKP, and W1YYM. Beth's license is dated July 17, 1957, just three years after she became a ham. She has CPC-25 w.p.m., YLCC, and MARS-AF certificates. In 1937 she served the YLRL as chairman of the eighth district and also as nominations chairman. Beth's OM is W8QMI, who, she says, takes more pride in her extra-class license than he does in his own.

**PHONE Contest —**

Starts: Saturday, March 1, 1958, 1:00 P.M. EST

Ends: Sunday, March 2, 1958, 12 midnight EST

**C.W. Contest —**

Starts: Saturday, March 15, 1958, 1:00 P.M. EST

Ends: Sunday, March 16, 1958, 12 midnight EST

rate contests. (b) One point is earned for each station worked, YL to OM, or OM to YL. A station may be con-

tacted no more than once in each contest for credit. (c) Multiply the number of QSOs by the number of different states, U. S. possessions, VE districts and countries worked. Maryland and the District of Columbia count as one state. (d) Contestants running 150 watts input or less at all times may multiply the result of item (c) by 1.25 (low-power multiplier).

**LOGS:** Copies of all phone and c.w. logs, showing claimed score, must be postmarked not later than March 31, 1958, or they will be disqualified. Please file separate logs for each mode of operation. Send logs directly to YLRL Vice President Kay Anderson, W4BLR, 5210 Raleigh Road, Richmond 23, Virginia.

**AWARDS:** First place Phone YL — cup  
First place Phone OM — cup  
First place C.W. YL — cup  
First place C.W. OM — cup

The winner of the phone cup is also eligible for the c.w. cup. Certificates will be awarded to high place phone and c.w. winners. The highest scoring contestant in each district, where three or more logs are submitted, will receive a certificate.

W hams are extending a warm welcome to the charming YL visitors from Brazil shown in the photo (right). The three Gomes de Oliveira sisters of Bello Horizonte, Minas, Brazil are Ziza, PY4AUL, left, Etelvina, PY4APA, center, and Eunice, PY4AUT, right. All three are teachers. Ziza and Eunice, who taught in a Baptist college in Brazil, are studying religious education at a Seminary in Ft. Worth, Texas, in preparation for further teaching of the Bible to children back home. Etelvina was teaching primary school when she was stricken with polio in 1951. She came to the U. S. with her sisters for further medical treatment and recuperation at a hospital in Tulsa, Oklahoma. As active on the air as their studies permit, Ziza and Eunice share a small c.w. rig at the Seminary. A group of Tulsa hams presented Etelvina with a receiver which she uses for much bedside listening. Eunice writes that they have been made to feel at home away from home: "We have been here only three months and already we deeply feel the friendship of ham operators in this beautiful country." We might add that the matter would seem to be reciprocal, for the enthusiasm and spirit of the three girls is inspiring.



Texas YL Rosemarie Randolph, K5BDL, hopes to hear more YLs on six and two meters this year, in her area at least. Editor of the v.h.f. column in *The Monitor*, a W5 amateur publication, Rosemarie reports eleven YLs active in the Dallas-Ft. Worth area on 50 Mc: K5s BDL, BLP, CHF, COG, CSE, EWQ, HEQ, IQS, KDY, W5s AFM and FUG. W5FUG, Secretary of the Tarrant County Six Meter Emergency Corps, monitors 50.55 Mc. from 0630 to 2200 daily for anyone wishing to contact Ft. Worth. Rosemarie is currently Secretary of the Six Meter Club of Dallas.



**CCC**

Information on the Camellia Capital Chirps YL Club of Sacramento was inadvertently omitted in the YL club listing published in the December 1957 column. The Camellia Capital Chirps was organized in July, 1957, and has some 17 members. A Chirp-tificate is issued upon confirmation of contact with six members of the club. President is Wanda Gluck, W6ENK, 7317 Walnut Rd., Fair Oaks, California.

**Strays**

A *Vibristor*, which is a self-resonant, semi-conductor interrupter designed to replace vibrators in existing power supplies, has been developed by Vibration Research Laboratories of Tuckahoe, N. Y. Simply plugging the *Vibristor* into the vibrator socket completely transistorizes a power supply.

You need mighty good eyesight to read the face of W4JPP's QSL card. His call letters are set in microscopic type.



# Correspondence From Members -

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

## NEW YEAR'S RESOLUTION

13160 — 86th St.  
Renton, Washington

Editor, *QST*:

I hereby solemnly resolve and promise that during the year of Our Lord, 1958, I will:

1. Forgive the guys who spend most of a "quick break" QSO saying "break break."
2. Overlook the word "transfusion" when I know the guy means "transmissions."
3. Refrain from asking the ham who his partner is when he tells me "It worked OK6 — last night;" or "We raise spuds here." Well, maybe both of them do raise spuds.
4. Not tell another ham "you are 75 db. above 89 here, OM." Maybe "You are 10 db. above any other signal here right now" or "Your sigs are just about 5 db. above my noise level," or "You just dropped 10 db. after that last adjustment." After all, these reports might actually mean something to him.
5. Completely ignore the gink who swishes his kw. back and forth across my DX contact. Nothing will help him except a listing in "Silent Keys."
6. Never answer a series of 75 uninterrupted CQs, even if I need that state.
7. Never tell the other guy his signal is T9, when actually it reminds me of a school boy running a stick along a picket fence.

8. Write a note of appreciation to any OO who should find it necessary to send me a discrepancy notice. I used to be an OO back in the "thirty thirties" and I know some of the trials and tribulations.

9. Use a dummy antenna to tune up whenever the band is hot. And not put that gallon on the air until I listen on frequency.

10. Try to be the kind of ham I dreamed of being 25 years ago this month.

— Harry K. Long, W7COK

## THE POWER OF THE PRESS

(*QST* DIVISION)

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

Editor, *QST*:

Response to the free "Navy knob" offer in December *QST* stray was catastrophic. I was cleaned out of 200 knobs in three days and made WAS in five days, which goes to show the tremendous pulling power of *QST*.

My little daughter who handled the requests expresses keen disappointment in not being able to fill the many requests still coming in daily.

The general theme of the notes indicated a desire to send better c.w. with the knob, which reminds me of a story I heard as a boy: A patient went to an optometrist, complaining that he was not able to read. After the patient tried out many pairs of glasses and still was not able to read, it was discovered that he never could read in the first place!

— K. Nose, KH6IJ

## HAMGRAMS WIN FRIENDS

1138 No. Country Club Dr.  
Scheneectady, New York

Editor, *QST*:

Only a traffic handler can appreciate that inner feeling of self-satisfaction resulting from delivering a radio message to a stranger either by telephone or in person. Several of my rag chewing or DX-hunting friends often comment: How can you handle those dull "Having a good time. Wish you were here" messages which should be sent by mail?

Of course, I have to agree there is perhaps too much of

this kind of traffic on the nets but let us not overlook the fact that delivering this so-called "trash" message invariably places you in contact with someone who knows very little about amateur radio.

The conversation goes like this when delivering a message: "Mrs. Jones, this is Mr. Ham over on Marconi Street and I am pleased to deliver a radio message picked up today over my amateur radio station."

After leaving out the message number, station of origin and check count which mean absolutely nothing to Mrs. Jones, you relate the place of origin, date, text and signature. Usually upon hearing that the message came from her son Joe, a GI in Japan, she asks:

"Oh, did you talk to him personally?"

When you explain to the recipient that this message was relayed from one station to another with one objective — to get the message to her — I have actually had people reply, "How wonderful, and imagine for a long time I thought you radio hams were those horrible individuals who only bothered TV sets."

With an answer like this, how can you miss? This prompts a few minutes discussion of free messages, traffic nets and emergency communications. You are selling one of the most pleasant aspects of our hobby and winning a new friend. This is particularly true if you offer to take a return message. I'll wager my last 6146 that this person, her family and friends will have an entirely different conception of Mr. Radio Amateur from then on.

— George W. Tracy, W2EFU

## A RAGCHEW?

Box 291  
Washburn, Me.

Editor, *QST*:

All DX stations don't rag chew with the W stations, and the W stations brought it on themselves. I spent several years on Okinawa as KR6LJ and I could not slap a bug or hammer a key without twenty or thirty W stations calling me. I couldn't work other DX stations because there was so much W QRM. To solve this problem, I tried to work the W stations and get rid of them and bring up my country total. I gave a new country to a lot of W stations in the process and as you may have guessed I didn't work them all. I have had as many as sixty QSOs per hour with W stations and they were still in there calling. These were normal every day QSOs, not to mention what goes on during those delightful winter week ends called the DX competition.

However, DX stations do ragchew — when the W stations go out because of propagation conditions or are all off the air.

— Frank A. Jerome, K1CQP

## "THE NOVICE"

5108 35th Ave. North  
Minneapolis 22, Minnesota

Editor, *QST*:

As a member of the ARRL I wish to voice a protest against the allocation to the Novice licensees of such a large portion of the 15-meter band.

The Novice fills a definite need in amateur radio, but is given limited privileges, and rightly, due to his limited experience and ability. However, these privileges are far from limited in the allocation to him of all the frequencies commonly known as the DX phone band. You will probably agree that most of us were well content to work 80 and 40 meter c.w. with other W and VE stations in our younger years. This I am sure is all the Novice is after on 15 meters with his endless CQing. The 15 meter band may well be the

(Continued on page 168)

# The World Above 50 Mc.

1215-1300 2300-2450 3300-3500 5650-5925 10,000-10,500 21,000-22,000 30,000-9

CONDUCTED BY EDWARD P. TILTON,\* WHDQ

EVER STOP to think what impelled you to take up this crazy business of ham radio in the first place? If you're like most of us, it was probably the thrill of being able to talk to someone at a distant point, without the assistance of any commercial communication service. You wanted to talk — with anyone, anywhere, on any band. It was the communication that was important, and the means, at least in the early stages of your interest, was secondary.

So you studied up on radio theory, learned the code, and got yourself a ham ticket. You probably scrimped and saved for quite a spell to get the necessary gear together. When you made your first contact you were really living. That was a thrill you'll never forget. But in not too long a time there was a subtle change in your attitude toward hamming. Just talking was not enough; the means by which you talked became more important.

It happens to nearly everyone. We all enjoy ragchewing, and it's an important part of the game, but if we put in much time hamming we begin to pick up other interests. We work DX, handle traffic, develop an interest in antennas, go on single side band, develop a high degree of proficiency with the code, design and build our own equipment — or follow any of the other specialized lines of attack that make our hobby the wonderfully engrossing thing it is.

Get tired of ham radio? How could anyone who has the combination of curiosity and enthusiasm that makes a real hobbyist in any field? Quite the opposite, most hams who have been at it for the better part of their lives will tell you that they have hardly more than started in the game!

So it is with the true v.h.f. enthusiast. He finds so many intriguing aspects to the world above 50 Mc. that he seems never to be able to explore them all. Propagation? Where else in the radio frequency spectrum could we find so many questions yet to be answered about the means by which signals get from one place to another? Antenna projects? Where else is experimentation with high-gain arrays so simply done, or so productive? Receiver experimentation? We've a long way to go before we reach the ultimate in v.h.f. reception. Friendly ragchews? How better may they be carried on than on the frequencies above 50 Mc., where reliable communication over a considerable radius is a day-in, day-out proposition?

Now and then we hear a new ham talking with



1 W0ZJB	9 W1HDQ	16 W0SMJ	23 W0ORE
2 W0BJV	10 W5MJD	17 W0OGW	24 W9ALU
3 W0CJS	11 W2IDZ	18 W7ERA	25 W8CMS
4 W5AJG	12 W1LLL	19 W30JU	26 W0MVG
5 W9ZHL	13 W0DZM	20 W6TMI	27 W0CNM
6 W9OCA	14 W0HVW	21 K6EDX	28 W1VNH
7 W60R	15 W0WKB	22 W5SFW	29 W0OLY
8 W0INI			30 W7HEA

W1CLS 47	W4EQR 45	W6ANN 45	W9JCI 42
W1FOS 47	W4AZC 45	W6NDP 45	W9MFM 42
W1CGY 46	W41NG 45	K6GTC 44	W9SWH 42
W1LSN 46	W4CPZ 45	W6GCG 43	K9EID 41
W1AEP 46	W4FLW 45	K6HYI 43	W9EPT 41
W1RFU 44	K4HOB 44	W6ABN 43	W9IMG 40
W1SUZ 44	W4QN 44	W6NIT 42	W9KLR 37
W1KHL 42	W4RFR 42	K6RNO 41	
W1ELP 42	W4MS 42	W61WS 41	W0QIN 47
W1IKO 40	K4DNG 41	W6CAN 40	W0NFM 47
W1MFM 39	W40XC 41	K6ERG 40	W0TKX 47
W1SPX 36	W4ZBQ 41	W6BWG 40	W0KYF 47
W1UHE 35	K4GYZ 41	W60JF 31	K0GQG 47
W1CLH 35	W4FNR 40		W0ZTW 47
W1FMK 34	W4AYV 38	W7FFE 48	W0JOL 46
W1LGE 33	W41UJ 38	W7BQN 47	W0USQ 45
W1FVZ 32	W4YRM 38	W7DYD 47	W0PKY 45
W1FTF 31	W4HHC 37	W7ACD 46	W0PFP 45
W1WAS 31	W4AKX 36	W7FDJ 46	W0QVZ 45
	W4GJO 35	W71NX 45	W0OFZ 44
W2MEU 47	W4ZD 35	W7JPA 44	W0YJF 44
W2RGV 47	K4AGM 35	W7JRG 44	W0URQ 44
K2JNS 46	W4MI 35	W7BOC 42	W0JHS 43
W2AMJ 46	W4HZC 34	W7FTV 41	W0IPI 43
W2BYM 46	W4RLG 34	W7CAM 40	W0WNU 42
W2FHJ 45		W7MKW 40	K0DXS 42
W2SHV 44	W5VY 48	W7YJE 38	K0GKR 41
K2ITP 43	W5LFQ 47	W7QDJ 34	W0PKD 41
K2ITQ 43	W5GNQ 46	W7UFB 33	K0AKJ 40
K2CBA 42	W5FSC 45		W0YZZ 38
K2AXQ 42	W5ONS 45	W80JN 46	W0ZKD 37
W2GYV 40	W5LY 45	W8SQU 46	W0V1K 36
K2HPN 39	W5ML 44	W8HXT 46	K0BPM 35
W2ORA 39	W5EXZ 43	W8NQD 45	K0CLJ 35
W2QVH 38	W5VV 43	W80Z 45	W0JJR 35
K2HRB 37	W5FXN 43	W8RPF 45	W0TH 35
K2LTW 37	W5JME 42	W8LPD 44	
K2YWH 34	W5CVL 41	W8HJR 44	VE3AET 46
	W5FAL 41	W8WPD 43	VE1EF 38
W3TIF 47	W5HEZ 41	K8ACC 43	VE3AIB 37
W3KKN 45	W5BXA 41	W8BSZ 42	VE3BBX 33
W3KMV 44	K5ABW 40	K8CIC 42	VE3BHQ 32
W3RUE 42	W5EXZ 38	W8EVH 42	VE1QY 32
W3NKM 31	W5BUQ 38	W8YLS 41	VE1PQ 31
W3MQU 31	K5ABW 38	W81NQ 40	VE2AOM 31
W3MXV 41	W5HFF 38	W8PCK 38	VE3DER 31
W30TC 41	K5CYK 38	W8NOH 34	XE1GE 27
W3FPH 40	W5FRK 38		EI2W 28
W3LFC 40	W5NSJ 36	W9BRN 48	PZ1AE 26
W3EAW 36	W5WZF 33	W9ZHB 48	CO2Z 24
W3AMO 36	K5AJW 33	W9QUV 48	VE30J 22
W3TDF 36	W5ZUL 33	W9VZP 47	SM6BTT 21
W3JBA 34	K5EBW 32	W9RQM 47	SM7ZN 21
W3UJQ 32	W5ZVF 31	W9QKM 47	VE1WL 21
	W5LFM 26	W9JFP 47	CO6WW 21
W4EQM 47		W9DSP 46	VE4HS 20
W4UCH 47	W6WNN 48	W9AAG 46	LJ9MA 16
W4FBH 36	W6UXN 48	W9UIA 45	VQ2PL 10
K4DJO 46	W6BAZ 47	W9UNS 45	CO2WL 10
W4UMF 46	W6BJI 47	W9MHP 43	

\* V.H.F. Editor, QST



Trophy for first 50-Mc. operator to work all continents. Originally made available in 1947 by the West Palm Beach Radio Club, it has waited at ARRL Headquarters for more than 10 years for a winner. Anyone who has worked all continents on 50 Mc. should send information and confirming cards at once to ARRL, including a covering letter making it clear that they are for special 50-Mc. WAC award.

an air of boredom about his amateur career. How could he have gotten that way, we ask ourselves. The only answer we can think of is that this young squirt has just not taken the trouble to learn much about the game. When he does, he'll very likely feel as we do — that even one specialized segment of the hobby has more of interest than we'll ever be able to explore in a long and busy lifetime!

### 50-Mc. DX Doings

Though there was some evidence of a slackening pace, the 50-Mc. band continued to provide DX through December. There were few days when the band was not open to Europe, from at least the eastern part of the country. Transcontinental openings were less frequent, and of generally shorter duration than in November, but there were still some very good ones. Much of the work to Europe became almost routine, so no attempt will be made to recount it in detail here, but there were a few new highlights.

One was the appearance, for the first time on 50 Mc., of CT1CO, Lisbon, Portugal, Dec. 1. Stations along the Eastern Seaboard began hearing Manuel's automatic "CQ CQ CQ de CT1CO" shortly after 0800 on that date. At first not many recognized that the transmission was automatic, and when the signal would fade down or out numerous c.w. signals could be heard calling. Finally around 0920, he did stand by, and then followed a scramble such as has rarely been heard on 50 Mc. For the next three hours, CT1CO worked one station after another with a crisp DX operating style that would have gladdened the heart of any true c.w. DX man.

Since that date, CT1CO has been on daily, usually starting his automatic transmissions before 0630 EST. Your conductor has heard him as early as 0700, and as late as 1225, and missed him no more than 2 or 3 days in December. Often his signal appears, very faintly at first, when no other

DX is audible above about 48.5 Mc. If he has done nothing more, CT1CO has shown that the band has undoubtedly been open to Europe many times when we have had no evidence to show it. He also provided a new touch — a capable operator who worked c.w. only, regardless of signal strength. It is safe to say that the urge to work CT1CO has done more to bring about the installation of keying methods in certain 50-Mc. transmitters than any other development to date! Look for Manuel on 50.1 and occasionally 50.7 Mc.

Another new country activated, but not yet worked from the United States, to our knowledge, is Barbados. VP6JR passed along to W1TS that he has been hearing (and calling!) Ws with no success. On Nov. 28 he heard K2LTW W8CMS W1UVB K2HNP K2RTU and W9CFI. Nov. 29 — K2HNP W8CMS W1CRV W8HRV W1FOS K2LXI/2 W1HOY W1HFN. Nov. 30 — K2LTW W1APW. How come all these people missed this brand new chance? VP6JR operates mainly on 51.66 Mc. (End of lesson No. 1)

W1NLM sends word from VU2EJ that he is looking for 50-Mc. DX regularly. He can be reached on 28.08 Mc. for tests. His power on 50 Mc. is 25 watts, the present legal limit in India for 50-Mc. work.

Several European listeners berate us for insufficient listening on 28 Mc. for crossband calls. HB9BZ and DL7FU are among those who have heard many Ws on 6 but have found it hard to attract attention on 28 Mc. DL7FU operates on 28.1 Mc., c.w., and 28.2, phone. HB9BZ worked W8SZN W3FPII W3GXL W8CMS and W4ZXI Nov. 30. He heard many others, both phone and c.w., but was unable to raise them by calling on 28.2 Mc. HB9BZ worked a string of Ws Dec. 21.

Working 50-Mc. DX is not all big beams on 100-foot towers, say W1RF. Cliff decided to give it a whirl after hearing European 10-meter stations working Ws crossband. No 6-meter beam at W1RF, so Cliff cut two wires of suitable length for dipole and reflector, mounted them on furring strips, and laid them on top of a TV receiver cabinet and a large cardboard carton in his basement shack. Hooking on a piece of RG-8/U coax, he then tuned 10 for signs of further crossband activity. Ah — there was G3IUD looking for 6-meter Ws. One call, and W1RF had his first 50-Mc. crossband DX!

Transequatorial scatter was conspicuous by its absence during December. LU7AT, one of the most consistent PRP reporters in South America, heard no *TE* signals in the first half of the month, his DX being confined to other South American countries, and CT3AE, Japanese observers, also blessed with *TE* propagation when it is in season, report a complete lack of north-south DX in December. Don't give up on the north-south DX, however — it should be coming back for the spring period shortly after this appears in print. Ws should watch for South American and possibly South African DX particularly on days following pronounced ionospheric disturbances.

### WAS No. 30 to W7HEA

Transcontinental *F<sub>2</sub>* DX has been good for state hunters on the West Coast who lacked some of the harder-to-catch



Manuel Antunes, CT1CO, Lisbon, Portugal, whose 50-Mc. signal has been heard consistently over much of the United States and Canada since he came on the air Dec. 1. In the foreground is his automatic CQ-er, kept in operation daily, beginning at about 0630 EST.

*New countries on 50 Mc!* Late word from IARU Societies in England and Switzerland brings good news for 50-Mc. men. Qualified amateurs in the counties of Northumberland and Monmouthshire in England, Glamorgan in Wales, and the highlands and islands of Scotland may now obtain permission to operate above 52.5 Mc. G4LX is believed to have made the first contact across the Atlantic, with W8HXT, Jan. 4.

Swiss amateurs have temporary permission to work on 50 to 54 Mc. during hours when no TV stations are on the air. This means 2200 to 1400 GMT, except Sunday and Tuesday. Tuesday time extends to 1600 GMT. Sunday schedules are irregular. Maximum power: 50 watts.

PAGTN has been heard on 50 Mc. recently. No details have yet been received as to authorizations in the Netherlands.

Eastern Seaboard states, Delaware, Maine, Vermont and Rhode Island have been easy at 2500-mile distances. West Virginia, somewhat inside the usual skip minimum has been the stumbling block for many westerners of late. Conversely, the inner strip of W7 states has been holding many a W1, 2, 3 or 4 at 46 or 47 states worked.

W7HEA, Toppenish, Washington, became the first 50-Mc. operator in his state to receive a WAS award. Bish's certificate No. 30 is dated Dec. 11, 1957. W7FFE, St. Helens, Oregon, looks like a good bet for No. 31. Stan sent in 48 cards, but one of them was made out for 28 Mc. This appears to have been a slip of the pen on the part of the operator, and a proper replacement has been promised.

Examination of QSL cards, not only for 50-Mc. WAS, but for the several other awards where proof is required, shows that many huns are lax in the way they make out QSLs. If a card is worth sending at all, it's worth doing the job right. When you send out a QSL, be sure that it clearly shows the band, type of emission, date, time, and signal report, with no erasures or mark-overs.

When you send in cards for 50-Mc. WAS, include a covering note, explaining that a 50-Mc. award is desired. Just 48 QSLs, even if all are marked for 50 Mc., will not get you the specially lettered and numbered 50-Mc. certificate. If you could see the pile of cards that reaches our WAS desk daily, you'd understand why this stipulation is necessary!

### Trophy for First 50-Mc. WAC

Back in 1947, The West Palm Beach Radio Club offered a handsome trophy for the first 50-Mc. WAC. This looked like a real poser, for nobody was even close to working all continents on 6 in those days. It appeared even more remote at the beginning of the current solar activity peak, for by that time Europe had disappeared completely from the 50-Mc. band. Television had taken over on 6 — or so it appeared.

But we did not take into account the resourcefulness of European amateurs and their societies affiliated with the International Amateur Radio Union. Before the 1957 season was well under way, 50-Mc. signals began to come into the United States from Norway, Sweden and Eire, where special permission for 50-Mc. work during the IGY had been granted to qualified amateurs. Portugal followed in December.

This did not guarantee a 50-Mc. WAC by any means, for the areas of the world that are within reach of all continents on 6, even during a sunspot peak, are few indeed. Some countries of South America have superb 50-Mc. DX conditions — but they have yet to work into Europe. Japan is highly favored as to m.u.f. — but the JAs have worked neither Europe nor Africa. Eastern U.S.A. works Europe easily, South America occasionally, and Africa rarely — but no Asia or Oceania contacts have been made to date.

The West Coast never looked like a very good bet until the first contacts were made into Africa in November, and even though there was intense activity during the previous sunspot cycle peak, no two-way work had been done with Europe. Europe is still the tough one for WAC-seeking W6s and 7s.

K6GDI, Fresno, Calif., made the first W6-Europe contact with EI2W, Nov. 5, as reported last month. Bob did not have Asia at that time, but made it with JA2QR, Nov. 13. He still does not have all the QSLs at this writing, and cards or other documentary proof are required for the trophy award.

## 2-METER STANDINGS

U.S.			States			U.S.			States		
Call	Area	Miles	Call	Area	Miles	Call	Area	Miles	Call	Area	Miles
W1REZ	23	8	1080	W5NDE	8	3	520				
W1AZK	23	7	1205	W5FEK	8	2	580				
W1RFU	22	7	1120	W5VY	7	3	1200				
W1FZJ	21	6	1120								
W1KCS	21	7	1150	W6NLZ	9	3	2540				
W1HJQ	20	6	1020	W6DNG	8	3	1030				
W1AJE	20	6	810	W6WSQ	5	3	1380				
W1OAX	20	6	800	W6AJF	5	3	640				
W1MMN	18	6	800	W6BRZ	4	2	360				
W1IZY	17	6	750	W6PJA	4	3	1390				
W1UIZ	17	5	680	W6ZL	3	2	1400				
W1BCN	16	5	650	W6BAZ	3	2	400				
W1KHL	16	5	540	W6MMU	3	2	388				
W1AFO	16	5	810	W6ORS	3	2	365				
				W6LSB	2	2	360				
W2CXY	34	8	1200	W7VMP	11	5	1280				
W2NLY	33	8	1390	W7LEE	6	3	1020				
W2ORI	33	8	1200	W7JRG	4	3	1040				
W2AZL	28	8	1050	W7LHL	4	2	1050				
K2GJL	25	7	950	W7JJP	4	2	900				
W2BLV	23	7	1020	W7JU	4	2	353				
K2IEJ	23	7	1080	W7YZU	3	2	240				
W2SMX	22	6	905	W8KAY	36	8	1020				
W2AMJ	21	6	960	W8WXY	35	8	1200				
W2KIR	21	7	880	W8LOP	30	8	1060				
W2DWJ	21	6	720	W8RMH	29	8	800				
K2CGL	21	8	910	W8P	28	8	985				
K2IKJ	21	8	925	W8SRV	27	7	850				
W2OPQ	21	6	970	W8SPG	26	7	850				
W2AOC	20	7	770	W8JVY	25	8	940				
W2PAT	20	6	880	W8LLO	25	8	800				
W2CBB	20	6	740	W8LPT	25	8	750				
W2UTH	19	7	880	W8WJ	24	8	720				
W2AZP	19	6	650	W8EHW	24	8	680				
W2RGV	19	6	720	W8WRN	24	8	800				
W2LHI	18	7	620	W8BAN	23	8	675				
W2LWI	17	6	600	W8SVI	22	8	725				
W2SHT	16	6	650	W8LKY	18	7	610				
W2PCQ	16	5	650	W8P	18	7	800				
				W8ZCV	17	7	970				
W3RUE	29	8	950	W8RWW	17	7	630				
W3BGT	28	8	740								
W3TDF	27	8	880	W9KLR	37	8	1160				
W3GKP	27	7	1020	W9WOK	32	9	1050				
W3GCA	26	6	550	W9REM	27	8	850				
W3IBH	23	7	650	W9ZLH	27	8	820				
W3PEH	21	8	—	W9UCH	27	8	750				
W3KCA	21	8	—	W9FVJ	26	8	850				
W3LNA	20	7	720	W9EQC	26	8	820				
W3LZD	20	7	—	W9ZLL	25	8	760				
W3KWL	19	7	740	W9CAB	24	7	1100				
W3NKM	19	8	660	W9EHC	24	7	725				
W3BNC	18	7	750	W9BPV	23	7	1000				
				W9UED	22	7	960				
W4HHK	33	9	1280	W9KPS	21	7	690				
W4HJQ	30	8	825	W9PRP	20	8	820				
W4AO	29	8	1100	W9MUD	19	7	640				
W4UMF	26	8	1110	W9L	19	6	640				
W4LTF	26	8	1160	W9ALU	18	7	800				
W4MKJ	24	8	725	W9JCA	18	6	720				
W4JCY	22	6	660	W9MBI	16	7	660				
W4EQM	21	8	900	W9DDG	16	6	700				
W4DWU	20	6	675	W9JTY	16	7	560				
W4OLK	19	6	720	W9LEB	15	6	720				
W4TLV	18	7	1000	W9DSP	15	6	700				
W4JTV	18	7	850								
W4IKZ	18	6	720	W0IHD	27	7	890				
W4VLA	17	7	825	W0GUD	25	7	1065				
W4WNH	17	7	750	K0DOK	22	8	930				
W4CLY	15	5	720	W0SMJ	20	7	1000				
W2BHS/4	14	7	650	W0TCC	20	7	860				
W4BHI	14	5	800	W0INI	20	6	830				
W4AIB	14	5	705	W0UOP	18	6	—				
W4TCR	14	5	720	W0ONQ	17	6	1000				
W4SOP	13	5	680	W0USQ	14	6	750				
W4CPZ	12	5	650	W0IFS	14	5	725				
W4UDQ	11	5	850	W0QAC	14	5	600				
W4MJC	11	5	800	W0RYG	14	5	600				
W4KCC	10	4	860	W0MVG	13	5	700				
W4LNG	9	4	800	W0TJF	13	4	—				
W4GIS	9	2	335	W0ZJB	11	4	650				
				W0IC	2	2	950				
W5RCL	32	9	1215	VE3DIR	26	8	915				
W5DFV	25	9	1300	VE3AIB	26	8	910				
W5JG	20	8	1280	VE3BQN	17	7	790				
W5JVL	18	6	1150	VE3DFR	16	7	820				
W5HEH	15	7	830	VE3FPB	13	6	715				
W5MMW	14	5	700	VE2AQ	12	5	550				
W5FSC	12	5	1390	VE3AQF	11	2	800				
W5ABN	12	5	790	VE1QY	11	4	900				
W5ZC	11	4	650	VE7FJ	2	1	365				
W5QNL	10	5	1400	KH6UK	1	2	2540				
W5CVV	10	5	1180								
W5SUV	10	3	600								
W5ML	9	3	700								



Bob Perry, K6GDI, Fresno, Calif., heads the list of potential winners of the trophy for the first 50-Mc. WAC. His last continent was worked Nov. 13. Rig at K6GDI uses a pair of 4E27s. Antenna is 7-element long Yagi.

W6BAZ, Santa Rosa, Calif., is next in line. Paul worked EI2W only a couple of days after K6GDI got his Asian contact and he, also, is having QSL trouble, though acceptable proof of his QSOs is available in the ARRL PRP reports.

Details of the trophy award were printed in *QST* for August, 1947, page 67. The usual WAC rules apply. The award will be made on the basis of when the contacts were made, not when the cards were submitted to ARRL for proof. A reasonable length of time will be allowed for all potential winners to obtain cards or other documentary proof.

If there are other operators who have worked all continents on 50 Mc., they are hereby requested to notify ARRL at once, giving the date when the final contact was made. The award is a worldwide proposition, so there is a possibility that claimants from other countries may appear.

### Geminids DX on 144 Mc.

The Geminids meteor shower, Dec. 1-14, is probably the best of the winter showers, ranking with the August Perseids and the June Arietids as one of the three showers of the year most likely to produce 144-Mc. DX for the ping-jockeys. Many skeds were kept in this year's Geminids, and some new 144-Mc. horizons were crossed.

The best DX we've heard of was a 1200-mile break between W5RCI, Marks, Miss., and W1AZK, Chichester, N. H., certainly a 2-meter "first" between these states. W1AZK also kept skeds with W2BHS/4, W4HHK, W4EQM and W5JWL, all unsuccessful. Don had very bad antenna icing on his 64-element beam on the mornings of the 10th and 11th. Then on the 12th a snowstorm brought the static level up to the point where no weak

signals could be heard. On the morning of the 13th things were OK, and many short-duration bursts were heard from both W4HHK and W4EQM. All were too short for a QSO. Frequent bursts were heard from W5RCI, on a sked beginning at 0600, and at 0617 a long one provided an exchange of signal reports. Another big one at 0627 shot through the acknowledgements and final sign-offs, with W5RCI rolling through S5 at the end. Nothing was heard on the 14th.

The first meteor-scatter QSO from Colorado was made on an 0700 MST sked kept by ARRL Rocky Mountain Division Director, W0IC, Dec. 12th. This put W9KLR, Rensselaer, Ind., into the top spot in the country in states worked on 144 Mc., with 37. Claude and Bill had several near misses in a series of schedules running since early fall. During the first 10 minutes of the Dec. 12 sked W0IC reports that the W9KLR sig was heard frequently, and copying information was done easily. Bursts tapered off thereafter, and completion of the QSO required 25 minutes of the half-hour sked. An interesting sidelight: W0IC was running only 100 watts input, to a 6N2 transmitter. His antenna is a 32-element array. W9KLR has 64 elements and an efficient kilowatt.

Florida's "Mr. Meteor Scatter," W4LTU, worked W5FSC, Houston, Texas, for state No. 26, at 2300 EST Dec. 13. Skeds at 0600 on Dec. 10 and 11 with W1HDQ produced bursts wach way, but no QSO. Skeds with W1MMN, W0IFS and W0QDH showed only a few pings.

Taurids and Andromedes skeds kept by W1REZ, Fairfield, Conn., not previously reported, netted no contacts. Summary of results follows. Nov. 7 — W0SMJ, pings; W0RAP, nil. Nov. 8 — W0SMJ, pings; W0RAP, 2 5-second bursts and positive identification. Nov. 9 — Storm, with high rain static level; nil. Nov. 10 — W0SMJ, many loud bursts, but too short for more than positive identification; W0RAP, same. Nov. 11 — W0SMJ, similar to Nov. 10. These Taurids skeds were kept at 0030 to 0100 and 0100 to 0130 EST, respectively.

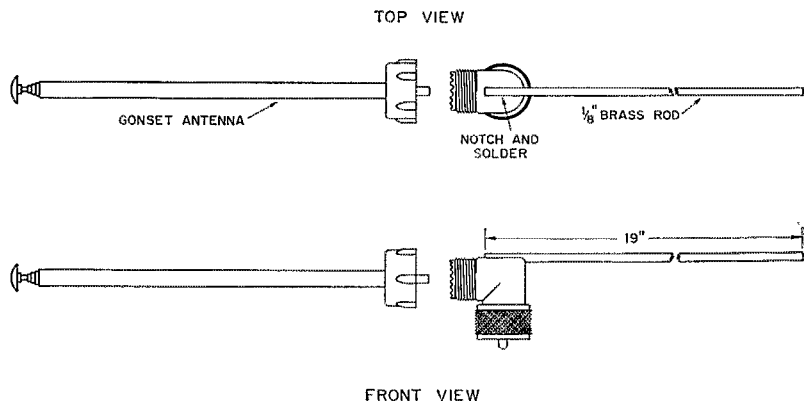
Andromedes skeds were kept with K0EMQ, 2100 to 2130; W0RAP, 2130 to 2200; W0SMJ, 2200 to 2230; and K0EMQ again, 2230 to 2300 EST. Only positive results are given below. Nov. 22 — K0EMQ, bursts, 5 seconds max. Nov. 23 — K0EMQ, 5-second bursts, partial identification; W0SMJ, pings. Nov. 24 — W0RAP, pings only; K0EMQ, partial identification, late sked. Nov. 25 — K0EMQ, short bursts; W0RAP, pings. Last sked with K0EMQ this date. Nov. 26 and 27 — skeds coincided with aurora at W1REZ; results nil. Nov. 28 — Heavy rain; no operation. Nov. 29 and 30 — weak pings on each sked. Burst rates seemed quite low during the Andromedes, compared to the Taurids.

A voice two-way on 50 Mc. was made by W4UCH, Sterling, Va., and W4RMU, Oceanway, Fla., Dec. 13, and repeated the following night. Repeating each sentence three times enabled the boys to carry on something approaching a normal voice ragchew. Bursts come close together on 50 Mc. during a good shower, and this sort of thing is possible more often than most 6-meter men realize.

### Horizontal Dipole for the Communicator

The antenna in Fig. 1 will not outperform a 64-element (Continued on page 158)

Fig. 1.—Horizontal antenna for the Communicator by W5TVW uses standard right-angle fitting, with 19-inch rod soldered to outer portion to complete the dipole.





# How's DX?

CONDUCTED BY ROD NEWKIRK,\* W9BRD

## How:

Last month we took leave of Alvis Readinquist in one of his grayer moods. They never linger, really. After Al browsed through the recap of the 23rd ARRL International DX Competition in last November's *QST* he speedily emerged from the cellar to make his peace with the NYL. This is time for maximizing domestic tranquillity, you know — the 1958 number of the epic series is at hand!

Over the years DXers have come to take these annual international electronic events in stride and quite for granted. Yet a modest application of objectivity sets the tests off as the exciting anomaly they really are: cordial wireless "Olympics" breasting a constant global tide of geopolitical tensions. Nothing new in this, of course, but ever unique. And always fun.

Visualize, if you will, an economy-size free-wheeling floor globe of the public library type. Mentally equip this model earth with tiny lamps to represent all amateur stations which will be instantaneously active in this 24th ARRL International DX Competition. Then connect it to a special imaginary wide-band receiver as a sort of spherical panadaptor. Come zero hour on those Big Week Ends this month and next, turn on this elaborate mind's eye — gosh, look at scintillating California!

See those blinkings from bleak Siberian steppes to the teeming swelter of the Congo, from Ellesmere, Antarctica and points between; concentrated brilliance from Europe, from Australia and New Zealand, from South America and from industrialized Africa; more diffused gleamings from remote Pacific islands and the far-flung Asian complex; and, brightest of all, the beacon-like blaze of our Great 48, Canada, and the rest of North America.<sup>1</sup>

Got the picture? How about it? All set to add your filament glow to this dazzling display?

— . . . —

One of our more youthful, sensitive and independent General colleagues raised his hackles over the "help-from-daddy" dig in our Novice DXCC bit, November '57 *QST*. The lad chides us for a lapse between the flaps, a downright debility of the capability. And he's perfectly right in insisting that we exclude the "help-from-junior" WN/KN DXCC approach as well.

You're on your own, daddio!

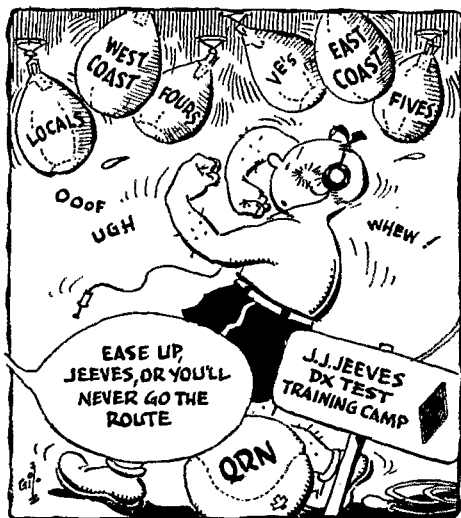
\*4822 West Berneau Avenue, Chicago 41, Ill.

<sup>1</sup> Conspicuously blacked out on our glittering globe: those few countries remaining on the ITU/FCC Ban List, Cambodia, Indonesia, Iran and Vietnam. Also absent of their own volition probably will be Albania, Red China and Outer Baldonia.

## What:

Great conditions these days, eh, gang? Our multiband DX scene rumbles and rings with sounds of the midwinter chase, from 160 through 10 meters. For W/K/VE/VO entrants in the impending ARRL DX jamboree — full participation data on pp. 76-79, last month's *QST* — there should be more stations to work and more multipliers (and new countries!) available than ever before. Overseas contestants may never have a better opportunity to complete WAS quests and to top all previous ARRL DX Test performances. This is it! . . . For this month's journey your "What" Bandwagon consolidates a bit, sufficient to carry it through this unprecedented DX-boom period without eliminating "Where" and "Whence" material. The more orderly display of DX available band by band obviously comes at the expense of individual credits, so we won't consider this arrangement permanent. Anyway, on with the show! . . .

**10** c.w., just a blank space on the dials of communications receivers through much of each sunspot cycle, now supports DX doings in amazing quantity and quality. W8KX, who works nothing but 28-Mc. code at present, sets the theme: "This looks like the biggest year for DX yet!" And W2HMLJ, who normally murders 20 meters, observes that "A guy can still have fun with QRP and a wrong-band antenna on 28 Mc." W1s AF (W1TSP and K8BIB operating), ARR HKA, W2DEC, W3s GRO LAX, W4s KFC UWA/1, W6s KG UQF ZZ, W8s BMX CSK IBX, W9s JIN JQP MAP; K2s BZT RDK, K6QHC, K8BPX, K9s CNC ELT HCK; K6s ARS GZY IIER and KL7BPK got together with items like CE4AD, CN2AQ 21 GMT, CN8s CR (28,130 kc.) 14, IF, GR6DA, GX9AJ 16, DMs 2ACA 2ADN 2AIO 3KCK, DU7SV (80) 0-4, EAs SCF 20, 9AY, F9QV/FC (90) 18, FF8s AF AJ (130) 15, AL (75) 19, FO8s AC (100) 23, AO, GCs 2FZC 18, 3HFF 18, 8DO, GDs SUB 4VH, HAs 1KSA 3MA 5DH 8WS, HE9LAC, HI8BE, IT1TAI, JAs 1ACA (100) 23, 1BI 22, 1CO 22, 1VX 3AB 23, 3AF (100) 23, 6AK (40) 22, 7AD, K6TSQ/KG6, KA2KS, KC4USA, KG6FAE, 22, KR6AF, KW6CA 21, KX6AF, LX2GH 14, LZ1BK, OD5LX 16, OE6s 1TA, 1SK 6BN, OO6s EW RU 14, OX3DL, OY1R, SPs 2AP 2DX 3AC 3DG 5AA 6XA 18, SV0WP, TFs 2WBG 3AB, TIECAH, UAs 1RF 1CK 1GF 15, 3CC 0GF 23, 0KFC (20) 2, UB5s SB 15, UA 17, WF, UC2s AX 15, KAB, UN1AB, VK9XX 0, VP6s 5FH 13 of the Caicos, 7NB (60) 0, 9CY, VO6s 2AS 18, 2EW 2GW 3SS 17-19, 4AQ 4RF 14, VU2EJ, YOs 2KAB 13, 3VI, YUs 1AG 1FC 3JN, one ZAID (90) 19, ZB1DZ 17, ZCs 41P 5AL (75) 0, ZE1JN 14, 3V8AB, 4X4s RM 16, CK FH 14, FS IX, 5ASTE (115) 19, 9S4s CH and CM 16, quite a few of these overseas



entries running less than 10 watts input. Quite a band!

**10** phone is a rougher row to hoe, mainly because of overseas tuning habits. DX stations love to work each other off the U. S. low edge and too many rare ones never tune above 28,500 kc. unless the band is flat. Our reporters **W1s** EKU PNR SRE VRK, **W2DEC**, **W3KKO**, **W4YQB** (116/85 now), **W5MIZ**, **W6IIM**, **W7VRO** (up to 87), **W8IBX**, **W9JQP**, **W0QGI** (146 on phone with 2E26 final); **K2s** BZT CMN EDK SFA, **K4JOU** (98/75), **K5IHD**, **K6s** AAW SXA, **K8BPX**, **K9s** ARS (reached No. 87), **GZY**, **HK7LX** and **HR1JH** encountered such workables as **BV1US** (500), **CN2AQ**, **CRs** 4AS 6CS 7BB 9AH (400) 14, **CTs** 2AH 22, 3AF (510) 14-17, **DM3KFD**, **DUs** 1AP 1VVS 6IV 23, **EA9BK** (470) 11-13, **EL1TI** (600) 11-13, **FF8AP** (500) 17, **FY7YH**, **HCIAGI**, **HE9LAA** (380) 18, **HHs** 2Z (470) 23, 5DS, **HLs** 7LS 8RM, **HKs** 1DZ 7LX 11-13, **HL9KT**, **HP2ON**, **HR1s** BB JH, **IS1ZDT** (185,400) 11-13, **K6BAZ**/**F08** at Arapa, **KAs** 2AL 2AP 2EB 2NA 2NY 7SL 7WW 8JT 0LJ (950) 22-23 of Iwo, **KG6s** AGO FAE, **KR6AF**'s s.s.h., **LU0DAB** ahoat, **LX1s** AI SI (300) 11-13, **LZ2KAB**, **OD5AB**, **OE1BB** (240) 11-13, **OO5s** BK DY ED KR, **OQ0DZ**, **PJ2s** AL AN AZ (452) 16, **SPs** 8CK (300) 11-13, **9FR** (670) 16, **SV9s** WP WS WU, **TG9DP** (380) 1, **TI2JE**, **UAs** 1AB (450) 11-13, 1CK (450) 11-13, 1GF, 3FE (630) 14, **UB5KAA** (525) 13, **UC2KAB**, **UR2s** BC (136) 15, **BU** (200) 17-22, **VPs** 1HA 1OLY 5BL 6NW 9DL, **VQs** 2DC 3AC (425) 18, **Ws** 4DEC/MIM off VQ3-land, 00OT/KL7, XQ8AG (490) 10-21 and see "Where", **YN1LR**, **YU2CF** (350) 11-13, **ZCs** 4IP (978) 14, **6UNJ** (650) 12-13, **ZDs** 3BFC 4BL 4CO 22, **ZP5IB**, **ZS3AG**, **3V8s** AB (910) 16, **AO BX** (600) 17, **4X4s** AB (400) 11-12, **IH** (400) 12-13, **IX** (600) 12, **5As** 1TJ 4TT and **9S4BR** (now DL8BR). Cross-hand-to-50-Mc. specialists still irk the brethren with long "CQ Six" harangues but, thank goodness, this too shall pass away.



**H8s** thrive in their heights like a species of electronic edelweiss. These quarters in cozy Sphinx Observatories at the 11,723-foot level of Jungfrauoch in Switzerland's steep Valais canton regularly shelter **H81CZ**/vs for Helvetia-22 Contest work (see panorama, p. 78, December '57 QST). Early last November Hans again fired up his 7-watt portable station as **H81CZ**/ur in rare Uri canton to provide 311 QSOs to **W/K/VEs** on 14, 21 and 28 Mc. Incidentally, those canton-indicator tags cause considerable confusion; a good percentage of **H81CZ**/ur's contacts wrote, "Thanks for first Estonia QSO," on their QSLs! (Photo via **W3GHS**)

**15** c.w. sounds enough like Big Bro Twenty lately to necessitate doublechecking one's dial and hand-switch from time to time. How's **DX**? Well, **W1s** CTW (137 on 15 c.w.), **MDO**, **W2HMLJ**, **W3s** GRO IIF LAX, **W4s** KFC UWA/1, **W6s** KG RLP (165/126), **UQF ZZ** (179 all bands), **W7s** BGU DJU GYR, **W8s** CSK IBX TTN YGR, **W0WHW** (118/90); **K1CCA**, **K2s** MRB QJM RQC TCD UPD, **K3ANA**, **K4s** JOU PHY RXQ, **K5ESW**, **K6s**, **ICS KYH PJT QHC SXA**, **K8BPX**, **K9CNC**, **K9s** ARS **AVI DMY**, **11ER**, **KL7BPK** and **KR6BW** recommend interviews with log-bait like **CN2AY**, **CN8s** BK DJ FM (Z (25) 12, **CRs** 6AI 9AH, **CXs** 1FB 2AM 2CO 3CF 7CO, **DL8AX** (ex-9S4AX), **DMs** 2ABL 19, 3KDH, **EA8BF** (40), **F2DG** just France, **F9QV**/**FC** 13, **FA9RW** (75) 19, **FB8ZZ**, **FE8AH**, **FP8AP** (60) 12, **FQ8HG**, **GCs** 2FZC 13, 3HFE, **GD3s** AIM (46) 14, **FBS UB** 13, **HAs** 1KSA (73) 20, 5KB 5KBP 8WZ, **HC1LE** (55) 3, **HE9LAC** (330) 4, **HH2OT** (10) 9, **H8CJ**, **HL2AJ**, **HP1LO**, **IT1TAI** (33) 21, **K6BAZ**/

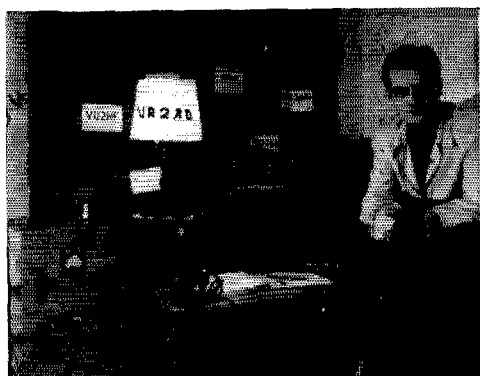
## 1958 FRENCH DX CONTEST

**F8TMM**, REF Traffic Manager, invites world-wide participation in the 1958 French DX Contest from 1200 March 1 to 2400 March 2 (phone) and again from 1200 April 12 to 2400 April 13 (c.w.). GMT times. It's a delightful chance for your DUF and DPF totals to profit substantially, because the object is for everyone to work F's, as well as FF8, FG7, FK8, FY7, and such scarcer prefixes in the possessions. Call CQ TEST or CQ REF and swap 579001- and 550002-type exchanges; i.e., signal reports plus contact serial numbers. French homeland stations tack a "department" indicator onto their calls. Examples: "DE F8CS/21," "DE F8DU-15." Similarly, those in the Union show where they are when a prefix can represent more than one spot. Examples: "DE FF8BF SG" for Senegal, "DE FF8BK C1" for Ivory Coast. Within 15 days after each contest portion, mail your logs to REF, BP 42-01, Paris R.P., France.

**F08**, **KAs** 2KS (62) 5, 7FH 08C, **KC4USB** opped by ex-**KL7BFW**, **KCs** 1EE 6AA Y 6PAE, **KP6AL**, **KR6s** EO KS QW SF, **KW6CA**, **MP4s** BCG (30) 19-20, **BCP** (40), **OAs** 4FA 7L, **OO5s** BT CP (60), **EW GU HS QS**, **OY1R** (75) 18, **PJs** 2AV 2ME 5AA, **SPs** 3PL 5AA 5GX (50) 11, **BHS** 6LB 9DN (20) 12, **SV9s** WR WZ (41) 22, **TF5TP**, **TI2CAH**, **UAs** 1AU 1DA 1DZ 1KAQ 1KBB 4CB 4KYA 13, 6AA (50) 12, 6KOB, 9CI, 9CM 9CR 9CY 9KY 9KYB 9CD 9GB, **UB5s** AQ EF KAA KAD KBR KGA UW, **UC2AX** 13, **UD6KAB** 13, **UO5AA** (48) 19, **UR2s** AO AR KAA, **VK9XK** (60), **VPs** 2LU 5FH 6UN 7NM 9CY, **VQs** 2AS (60), 2IE 2RC 3GC 4AG 4AQ (55), 4GC 4RF, **WP4s** ALC ALU, **XEs** 1AX 1JH 1RM 2FA 2FL, **YO3RF** (50) 19, **Ys** 1AA (55) 3, 10, **YUs** 3AT 3OH 6NX, **YV5FH**, **ZB1s** GULI (70) 19, **LQ**, **ZCs** 4AM BL, **ZEs** 2JC 2JH 3JO 4JA, **ZK1BS** (43) 3, **ZS3B** (80) 20, **3V8CY**, **4X4s** AM CK FK FN FS, **5A5s** TE TH, plus such **JAs** as 1AAK 1ACA 1ACB 1ALU 1AS 1VX 2UW 3BF 3CS 3T 5AI 7AD 7BO 8AI 8AQ and 9BE.

**15** phone, though flanked by feverish 28- and 14-Mc. activity, does well by **W1PNR** (134/126), **W2HOD**, **W3KKO\*** (up to 111), **W4ZMC\***, **W6s** IIM RLP ZZ, **W7VRO** (87 worked), **W8s** TTN YIN\* (67 worked on 14- and 21-Mc. s.s.b.), **W0WHW\***, **K2s** TCD (95/73), **T8W UPD**, **K4s** JOU\* **RXQ**, **K6s** ICS KYH and **SXA**—asterisks denoting side-band users—thanks to the cooperation of **BV1US** 16, **Ces** 2DE 2HV\* 3TH (238) 4, **CN8s** IH (210) 22-23, **IU** MM, **CR4AS**, **CX5AF**, **FSYRT**, **GM3CIX\*** (425) 18, **HA5DG**, **HE9LAA**, **HI4M** (250) 1, **H7LMOQ**, **HP1JF** (250) 17, **HRs** 1JH 2TC 2MC 2WC\* 4WH (240) 3, **HS1A\***, **KAs** 2MA\* 0JL 08C\* 17, **KCs** 4USA\* **USK\*** **KGs** 1DT 1HL\* 4AM (300) 11, 4AQ\* (450) 19, **KJ6BU** 11, **KR6s** AZ QW, **KS6AF**, **KX6BQ**, **MP4KAM** (220) 16, **OO5s** 5FH 16, 0DZ (210) 14, **PJ2MIC\***, **SVs** 1AE 0FR, **TG9AD\*** (425) 4, **TF2s** WBD WBG WCK, **TI2s** AB (205) 4, **JA**, **UR2KAA**

**UR2AO** makes radiotelephone contacts with Estonian **S.S.R.** reasonably available and he concentrates on 14-Mc. work. (Photo via **W9WHM**)



HL2AM was among the first Korea ticket-holders to celebrate lifting of the ITU/FCC amateur communications restriction last October. Floyd became HL9KR later, putting Osan on the ham map with a BC-610 on 20 and 40, c.w. and phone. (Photo via W1ICP)



(210) 8, VP<sub>s</sub> 1HA 2GS 3YG 4LD 4IO 7BD 7BO 7BQ 7NB 7NF 8CH (145), 9CY, VO<sub>s</sub> 3DQ (180) 15, 4RF (200), VR3A (233) 1, VS<sub>s</sub> 1EW 2DB 5AT\* 6AZ\* (305) 15, W4FCB/KS4 2, XE0ZWK, XQ8AG in Chile, YN1s JW MA (260), YS1LA 4, YV5HL (37) 4, ZB1s DC (252), SS, ZE2KR (215) 16, ZL<sub>s</sub> 2FT 2MN 2RC 3AR, ZS<sub>s</sub> 81 16, 9G (245) and 5A1Ts.

**15** Novice frequencies, headquarters for many an introductory DX thrill, hold the attention of WN2GIX, KN<sub>s</sub> 1CBR 4R1JN 5JEH 5KGF 5KIZ and 8EUX, particularly because of amiable CX2CO, DL1PQ, EA1BC, F3AD, G<sub>s</sub> 2WQ 3MPB, HA8WS, JA1VX, KA2KS, KH6s AVG JI, KZ<sub>s</sub> DNN PE, LUIDEN, OA<sub>s</sub> 4U 8B, OK1KTI, ON4s AU 1B PA, PA0s AGA SV, PY3ALX, SM<sub>s</sub> 5CFC 6BOS, TI2LA, VK3BW, VU2AA, WL7CCJ, WP4s ALC ALU ALQ AKS, XE2KA, YV5HL and ZB1GUEH, Oh, ex-KN5HGQ, now K5HGQ, actually is the "KN5AGQ" mentioned in December's text.

... KR6BW sounds a call for emphasized articulation effort on the part of Yank Novices: "Somebody should let the Novice stations know that there are such calls as 'KR6'. Have called a dozen or so on 21 Mc. and no answers, although I did hear a couple of 'em talking about the 'KR6BW' they heard and telling each other that they don't work bootleggers!" Gosh, maybe Frank is just too doggoned loud.

**20** c.w. presents its usual ponderous preponderance of pleasurable prefixes, doubtless girding for a killing ARRL DX Test pace over the next few weeks. Our key 14-Mc. operatives in the code category this month: W1s ARR DYV HKA LEO MBX RWS WPO, W2s DEC (191/122), HBV HMJ, W3s GRO KKO LAX, W4s KFC LVV, W6s DZZ KG RLP TPR UQF ZZ, W7s DJU GYR PHO RME VRO, W8IBX, W9s JJJ MAK NLJ UBI, W0s QGI WHW; K1CCA, K2s BZT QJM QXG RQC SBT VAB, K4s DAS IEX JOU OJW PHY, K5ESW, K6s PJT QHC, K9ELT, K0s ARS DMY: VE1PQ, CO2SW, HB9EU, 11ER, KR6BW, KV4AA and KL7BPK. Objects of their concern were one C9XF, CN2AK, CN8s EQ FD FQ GW ID IF, CR<sub>s</sub> 6AI 6FC (33) 22, 7AD 7IZ (64) 4, 8AC, (58) 23, one 8AN (24), CR10AA, CT<sub>s</sub> 2BO (8) 20, 3AB (58) 10, DM<sub>s</sub> 2ABE 2AGB 2AHM 2AIO 2ALN 3KQM, DU7SV 10, EA<sub>s</sub> 6AZ (71) 23, 6AW (60) 0, 9AP (21) 3, 9BM (91) 1-2, F9QV/FC, FA8RJ, FB<sub>s</sub> CC XX (39) 16, FF<sub>s</sub> AJ

The voice of OQ5HP, Stanleyville, is a familiar one to 21-Mc. phone fans (Photo via K2TCD)



BQ (60) 20, FM7AW, FOSAG, FP8AP, FQ8AP, FY7s YE YF (8) 20, GC2FZC (35) 0, GD3FBS (11) 9-10, HA<sub>s</sub> 5AM (100) 5, 5AP (80) 4, 5KBC 5KBP (88) 15-16, 0HN, HC1HL (42) 21, HE9JAC (8) 2 and 19, HH<sub>s</sub> 2LD (8) 1, 2Y (118) 3, 3L, HK3s JC TH (14) 1, HL<sub>s</sub> 2AM 9KR (30-130), 9KJT, HP1LO, HS1s JN (48) 16, WR, 15LV, IS1s ZE1 ZUL, IT1s AGA (9) 20, TAL, JAS 1AA 1ACA 1BDC 1BEJ ICC 1JG of Antarctica, 3TA 3TR 4CY 6MV 8AA, JT1AA (61) 2 and 17, KA<sub>s</sub> 2KS 2MS 2RH 5VN KC4USA (39) 3, KG<sub>s</sub> 1DQ (82) 2, 1GY 1HL 4AL 6FAE (5) 11-12, KR6s AC (30) 9, BW JL QW (54), RY, KV4AA (80) 21-23, K0LSJ/KG6, LA2JE/P (20) 6 of Hope Island, Svalbard, LU1ZE (95) 1, LX2GH (88) 20, LZ<sub>s</sub> 1AH 1KAB 1KBD 1KBL 1K1P 1KPZ 1KXZ 1UR 2DM 2KAD, OA4AP OD5s BZ (95) 9-10, LJ, OQ5QS, OX3DL (79) 1, PJ2s AP ME, PY7AN/0 of Fernando de Noronha isle, RAEM, SP<sub>s</sub> 2CJ 3FD 3PL 4KA1 6CT 8FU (75) 19, SUIC (99) 6, SV<sub>s</sub> 1AB 0WQ 0WR 0WS (5) 5, TF3AF (13) 19, TI2s PZ VA (27) 16, UA9s AA BN CM DN OI OL YP (35) 3, UA0s AG AZ KA KAD KAR KDA KJA KKB OM ON SL, UC2s AN AU, UD6s AL (51) 5, KAB, UF6s AM (32) 0, FF (40) 3, UH8KAA (44) 5, UI8s KAA KAE (55) 12, UJ8s AG (60) 3, AF (90) 13, KAA (75) 13-15, UL7s AD FA (30) 10, HB (21), KAA KAD, UM8KAA, UN1s AA AE AN, UO0s CA PW, UP2s AT KCB, UO2s AB (2) 6, AG AH KAA, UR2s AK (91) 9, AO BU (29) 2, polar UP0Ls 6 and 7 (31) 1, VK0NT (70), VK0s AB (78), DC, VP<sub>s</sub> 2LU 4LE 5CP 5FH 6NG 8BK 8BS 8CC 8CE (44) 1, VQ2s AS 4, IE (69) 4, VQ3s GC (44) 4, SS, VQ4s KRL RF (40) 3, VQ6LQ (42) 13, VQ8s AG, AS (12, 51) 2-3 of Rodriguez, VS<sub>s</sub> 1CX 1HJ 1HU 1HW 2DW (63) 23, 4BA 6DO (42) 7, 6DV 9AG (82) 4, VR6TC (19), VU2s AJ CK GE JG MD RC all 1 or 13, W<sub>s</sub> 4FCB/KS4 (44) 3, NPTJ/KG6, VESBQL/SU (22) 4, XW8s AB AE AG (40) 23, XZ2TH (80) 17, YO<sub>s</sub> 2KAB 2KBB 3FT 3CF, VK1AT (340), YV5s FL HL, ZB2A (58) 4, ZC<sub>s</sub> 4CH 4IP 5A1 (50), ZD<sub>s</sub> 3E 4BQ (42) 22, 4CM (50) 3, 6EF 8JX, ZK<sub>s</sub> 1BS 2AD, ZP<sub>s</sub> 5HF 9AU, ZM6AS, ZS<sub>s</sub> 2MT of Marion Island, 3F 7A 8R, 3V8s AU CM GA 23, 45WV (15) 12, 4X4s BX II, 5As 2TY (8) 17 and 5TH (30) 16.

**20** phone cannot be taken too lightly by the serious country-hunter, for it boasts some specimens scarcely available elsewhere (HV1CN, VQ9HAY, etc.). We're glad to perceive an increase in the suppressed-carrier phone activity reported, and we'll call upon asterisks to label users of s.s.b. Correspondents W1PNR, W2s DEC RKV, W6s IM RLP, W8YIN\*, W9UBI; K2s BZT QXG\* SBT, K4JOU\* (63/36 on side band) and HK17L pass the good word on AP2BP, BV1US, CR9AH\* (305) 5, ET2US\*, F7AN\*, F9Y/FC (170), FG7XE (140), FUSAD, FY7YE, GC<sub>s</sub> 2ASO 810, HH2Z, H18RAI, HK<sub>s</sub> 3AZ 7AB 7LX, HL9KR (129) 12, H5IA\* (327) 10, HZ1AB\* (297) 21, Ka 1FDT/KC4\* 7BDE/KG6\* 7FAE/KG6\*, KA<sub>s</sub> 2MA\* 2YA\* 7LB 7HH\* 8GM\* 0LJ 0SC\* (316) 13, KC4s USA\* USB\* USH\* USK\* (280) 10, USN\* USV\* USW\* KG<sub>s</sub> 1BB\* 1HL\* 6FAE (290) 10-11, KH6KS/KB6, KR6s JC\* (310) 13, MD\* SS USA\*, KS6AF, KX6s BU\* (292) 10-11, HP, SV0WE/Rhodes, TF2s WBU\* WCG, UA4KAB (170), UB5UW (158), UR2AO, UL7FA (129) 14, VE8s OT PT, VK9s AD (167) 4-7, HO (140), VP<sub>s</sub> 2AZ\* (320) 22, 5DM 8AQ, VO<sub>s</sub> 2BH 6ST, VS<sub>s</sub> 1EW\* 2DB\* 6AZ\* (305) 15, 6DE\*, VS4JT\* (310) 10, XQ8AG of Chile, ZC4DA\* (303) 21, ZK1BS, 3A2BX\* (310) 10, 5As 2TZ\* 5TH\* and 5TL ... K2QXG observes that "ZL1PA worked a WAC round table his first week on s.s.b." ... "Been having a grand time back on 20 phone after an absence of twenty years, and have 63 countries worked since a year ago," writes W2RKY. The old 14-Mc. A3 mob might recall Bob as ex-W8IZN, 1933-1936.

**40** c.w. tools right along and should hold up well during the ARRL DX shebang this month and next. W1s ARR BDI MBX MDO, W2s HMJ HUG, W3s IIF JHT

LAX, W4s KFC OMW, W6s KG UQF, W7PHO, W8IBX, W9s JJJ NN; K2UB, K5BGV, K6s DV ERQ PJT QHC, K9CNC and HRLJH clew us in on CE3AG (10) 8, QN8IF, DL8CM (ex-9S4CM), DU5 1MB, 7SV (28) 15, EA8BF (5) 8, EL1K, F9QV/FC (11) 4, FB8ZZ, GC3HFE (16) 1, GD3s AIM 8, UB, HA5AL (9) 6, HLs 2AM (60), 9KR, HR1JH (9) 6, ITIAGA, JA61ACA 1AEA 1BEZ 1BLM 1NI 2DA 2GF 2UG 2UW 3AF 3VE 6AK 6EX 6MF 7HL 8FO 8GE 8HX, KC6CA, K6GFAE, KR6s AK BW, KW6CA, KZ5RF, LZs 1KPB 1KRU 2KWB 2KMG, QE5SD, SPs 8HU 9DL, SV8WP (20) 23, TI2CAH (12) 11, UAs 1KAP 0FA (50), 0KJA, UO5AA, UO2KAA, VE8s OM OW, VP8 1MC 3AD (4) 5, 3VN 5FH 9CY, YS1s HP HU HY, W4FCB/KS4, XE1s KD KO, YN1AA, YO5LL, YU8 galore, YV5GY, ZS2LE, 4X4s BX (18) 22, DR (11) 4, 9S4s BR CM and 5A5TE (15) 4-5 ----- Via W1BDI we hear that W9BWW's mobile 7-Mc. phone s'gared up AP2LA. K9CNC reports fat phone signals from KG6AGY, KL7CCA and TI210.

**80** c.w. is still with us but the local traffic hounds are in command. Nevertheless, hearties GO2SW, EAs 1AB (20) 6, 4GA (24) 6, GD3UB (18) 6, GM3GJB (15) 18, HB9IN (18) 1, JAs 1AAX 6AK, KZ5s IF RF, LA7Y (8) 5 and ZL4E (16) 6 were appropriated by 3.5-Mc. men W1MBX, W4KFC; K2s BZT UPD, K6s PJT and QHC ----- Fearless phone competitors in the looming ARRL Test will find such mikers as HRLJH and YN4DT among 75-meter-phone multipliers available.

**160** c.w., last on this month's Bandwagon route but no longer least, gaped wide for W1BB and friends in late November. First indication of an impending opening was W1JNO's logging of Scotland ship-to-shore transmissions on 2185 kc. around 3 p.m. EST on the 23rd. At 0500, the 24th, W1BB was collecting 1.8-Mc. stuff on the order of G3 3PU 5JU 6BQ and DL1FF. W1ARR caught G3EGU (1830 kc.), 7, while W1PPN, K2s BWR CHQ and W3RGQ also hopped the pond for G and/or DL two-ways VPF5H (1820) 7 is designated workable by W4KFC, and other multipliers on 160 meters doubtless will be accumulated by enterprising multibandmen in the 58 ARRL DX brawl now brewing.

## Where:

**Africa** — Ex-VQ3FN now inhabits Massachusetts and he writes W1UED: "While I have sent QSLs to all stations QSO'd I would like to have those who for some reason failed to receive my cards contact me." Louis was active in Tanganyika from 1954 to '57, mainly on c.w., and years for another crack at 20 meters ----- Louis Colleau, former FB8XX staffer, tells W6NTR he can be reached in the future at 5 rue Tourot, Brest, Finistere, France ----- W7KOE, K9ELT and others struck a cul-de-sac in our December CN8IF QSL recommendation ("to W2SGC"). No such animal in the *Call Book*, so our bleary eye must have tripped over K2SGC's listing. (Life grows more complicated day by day. Jeeves.) [No, Boss, You grow more simple. — Jeeves] ----- From ex-V89AG-ST2NG through W1WPO: "Was on leave from the Sudan from June to September of '56 and found quite a stack of QSLs to be answered upon my return to ST2NG at Khartoum. I answered as many as possible until cards ran out. After stock

replenishment I mailed another batch of 450. Later it became apparent that this whole bunch had been lost, so I have had to reissue the whole lot. As of October, 1957, I have answered all cards received for ST2NG and VS9AG operation. DL7AH and W2ZGB kindly continue to assist with Germany and W/K VS9AG QSL chores, respectively." ----- CN8HM (W5RDP) advises: "When sending QSL cards to CN8s you can do so at *Stateside postal rates* by addressing Air Force QSL Service, Air Base Wing, Box A, APO 30, New York, N. Y. American amateurs in Morocco have the CN8FA-CN8JZ call-letter block set aside for them."

**Asia** — JA1AJA signed the call JA2BQ from 1953 to '55 and now seeks information on the former American holder of the label. "I file QSLs for him now, including such as Tibet. He was active around 1949" ----- Ex-V89AG-ST2NG expects to spend a few more months in Gambia before reassignment to VQ6 or YT diggings. Advise W2ZGB: "I have VS9AG's logs dating to October 20, 1957, and have sent QSLs to all who have requested them. Since there are plenty of cards remaining, I will QSL 100 per cent via bureaus — but I do not hold any of Lee's ST2NG logs." ----- W8XK learns that JA7AU lost most of his QSL file by fire. If you recall working him, a replacement QSL will bring cheer.

**Oceania** — VR6TC accepted W4TAJ's offer of QSL management and John awaits logs from Mr. Christian. Accord W4TAJ the usual courtesy of self-addressed stamped envelopes when applying for your Pitcairn pasteboards ----- From YL KW6CM via W1ARR: "The 'Fred' who bootlegged my call apparently had a gala time, judging by the cards I have received from the East Coast." ----- Persistent ZM1BL tells K4KVV to QSL via XE2FA but the latter has not informed us of such an arrangement ----- VK5AB, through W1ICP, acknowledges that quite a few JZ0PC confirmations have gone astray. "If any of the boys have not yet received Eamon's QSLs I still have a few left. Inquiries to me will be answered." ----- From Oceania laureate KH6CMM: "KW6CB gripes about W/K operators who enclose IRCs with their QSLs. Please spread the word that the postal rate for any FCC-licensed area is identical to that for the U. S. — proper, I, too, have received a lot of cards with 10-cent airmails on them and have quite a collection of IRCs. Incidentally, I learn that some of my outgoing QSLs are going astray. If after six weeks or so a fellow hasn't received an answer to his card I suggest he notify me by post or ham-gram and I'll ship him another. KH6CMM attempts to QSL 100 per cent although poor returns force me to QSL only after receiving the other station's card first."

**Europe** — Saarland DL8s are expected to retain their old 9S4 suffixes. The same goes for some Kuwait 9K2s and Ghana 9G1s; Kuwaiters also lose the "K" in their old MP4 calls ----- TF2WCD (W2LTT) closed down after pouring out 1000 QSLs since August of last year. ----- Ex-TF2WBO, now W4MFX, figures to clear his Icelandic QSL backlog by the end of this month. "After twelve months up there I've checked my logs and notice that cards came through from only about half the fellows who asked for QSLs. I'm ordering several hundred more cards just in case!" Ex-TF2WBO tells W1BDI he's already back on 14 Mc. but that "This W4 call doesn't seem to raise 'em like my TF2 prefix did." Hi! ----- According to WG1XC, LZ1AH holds the logs of LZ1s KAA KAB and KPR, and

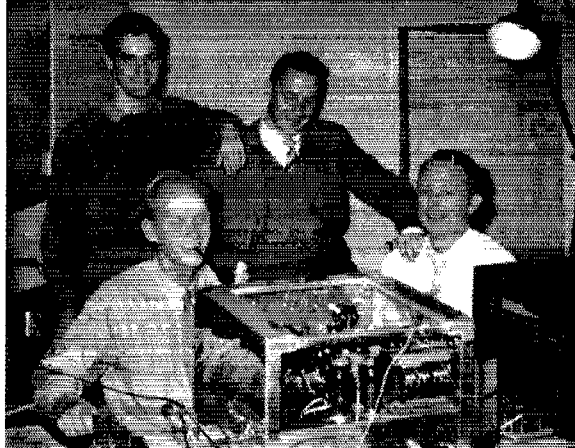
W4LVV, after four dusty hours deep in his QSL files, comes up with a neat "DXCC2" and a few cards to spare, the first W/K claimant to do so (see p. 59, April 1957 QST). Included in this display are confirmations from DXCC members W0MCF/C1, CE3AG, CN8AG, CT1JS, CRs 6AI 7LU, CX6AD, DL4ZC, DU7SV, EAs 1BC 6AF 8BF 9AP 9DF 0AB, EI3R, F3AT, FA3OA, FE8AB, FF8AG, FG7XA, FQ8AP, FR7ZA, G4CP, GC4JI, G13AXI, GM3EOJ, GW3WZ, HA5KBA, HB9BX, HC7KD, HK3PC, HP1BR, HRIAT, HZ1HZ, 11s BF/Trieste PL, I51AHK, JA8AQ, KGs 4AF 6GC, KH6JL, KL7PJ, KP4KD, KS4AI, KTIUX, KV4AA, KZ5WZ, LA3Y, LU7AS, LZ1KPZ, MD5KW, MI3ZJ, MP4KAC, OA4AK, OD5AB, OE3RE, OH2QQ,



OK3HM, ON4QF, OQ5RA, OY7ML, OX3MG, OZ1W, PA0LB, PJ2AA, PK6HA, PY2OE, PZ1AH, SM5IZ, SP1JF, SV1RX, TA3AA, TF3AR, TG7AD, TI2OE, VE7SB, VK6DX, VP5 5DC 6SD 7NM 9OO, VQs 2GW 4SGC 8CB, VR2CG, VSs 1DZ 6AE, YI2AM, YS1O, YU1CAG, YV5EZ, ZCs 1CL 4IP, ZD6BX, ZE3JO, ZL1BY, Zs 1FD 3S 7C, 4X4RE, 9S4AX and W4TO. Looking at it in one way, these pasteboards represent over 10,000 countries confirmed, a mighty mountain of DX! Any other DXers out there who have confirmed QSOs with DXCC members in one hundred ARRL DXCC Countries List areas?

Look, OMs, no headphones! Which gives an idea of what fine conditions prevail during DXpeditions to the Aland Islands these days. Here OH1ST confidently blasts a fast CQ while OH1RX, SM5KP and W0AIW (l. to r.) lend moral support. This occasion is the OH1ST/Ø-OH1RX/Ø Alands endeavor of early September last.

(Photo via W1WPO)



welcomes QSL consultation . . . . . The Greece bureau wishes to be addressed fully as: QSL Manager George N. Zarifis, P. O. Box 564, Athens, Greece.

**Hereabouts** — W4OMW informs, "I will send out QSLs for Alvin Hanlan, VP5BH, provided a self-addressed stamped envelope accompanies each incoming card." VP5BH returned to 14 Mc. thanks to an AT-1 supplied by OVARA . . . . . From Mr. Contests, W4KFC: "Recently received a phone call from W4YZC at FCC in Washington. He reported that in some unaccountable manner a batch of DX QSLs had arrived for me in the FCC mail with a rubber band around them and a note which read: 'Radio Ham Operator Sta W4KFC, c/o Federal Communications Commission, Washington, D. C. [sic]. I retrieved the batch — 59 of 'em — which included XW8AG and sundry other goodies. From this experience I conclude that it is wise to send *stout* envelopes to our QSL bureaus — the original envelope for this shipment arrived broken with a single DL QSL inside." Right, Vic. (When one works stuff in W4KFC quantities, reinforced oaken crates may be the only solution.) . . . . . That VE5MS in the list to follow was active on Turks in late summer of '56 . . . . . "Operation has concluded at YN1PM. Anyone who hasn't yet received a QSL confirming contact should send his card [to the address following]. The entire log covering operation at YN1PM is intact for checking purposes; I request stamped self-addressed envelopes." This from ex-YN1PM-W10EK-W4SXJ who plans to resume DX activity in New England . . . . . Regarding K9JNS/VE8 QSL directions to follow, W9QGR writes: "There is no mailservice out of that N.W.T. Coast Guard station all winter, so confirmations will be on the slow side. All outstanding cards will be answered upon Gene's return to the States." . . . . . "VP6PL has QSL'd 100 per cent for all cards received but I know quite a few hams in the States and elsewhere still need my QSLs." So Peter will answer requests via bureaus or direct if IRCs are provided, and he trusts to be meeting old on-the-air buddies as a G-man shortly . . . . . VE8NS remarks, "Have worked about forty States from Alert Weather Station on Ellesmere but find that W/K stations are very slow to QSL in comparison with almost-100-per-cent countries like Finland, England and Germany. I continue to QSL every station worked and hope they will eventually do the same."

Only the station sometimes active on Ice Island T-3 appears to be closer to the Pole than VE8NS — barring U.S.S.R. floaters in the same class . . . . . WIQIS of W1AW hears that K2GHL/MM returned home and will close out his QSL debit directly . . . . . Fulmination from W6RLP, among signs of the times: "QSL situation gets rougher by the day. Worked nine YOs before receiving one QSL, and W6GMF tells me he QSO'd sixteen Barbados stations before getting one VP6 pasteboard. A tough time earning foreign DX certifications. What's the solution?" . . . . . From the Colombian Andes HK7LX pens, "I've made 1250 QSOs since last June, have shipped out 1150 QSLs, and have received so far only 430 in return." Edmundo also is besieged by s.w.l. fans reporting reception of his potent 10- and 20-meter phone radiations . . . . . Via K2QXG: "KC4USK says that QSLs from 'out bases' will go forth late in February for some, early in March for others. Every station worked *will* get a card. They get mail dropped in, but can't get mail out until ships move in with relief crews." . . . . . W1s APU ARR BB EKV ELR SRE UED WPO, W2HMJ, K2s QXG RRRH SFA TCD, W3GRO, W4s KFC OMW UWA, K4s DAS JOU KYU RXC, KN4RJN, W5DAU, W6s KG NTR RLP, K6s DV ICS SXA, W7s DJU PHO, W8s OHV YIN, W9JQP, K9EAB, W0QCI, F7CO, OY7ML, VE6IZ and other trouble-takers contribute the following specific suggestions:

CE3GI, P. O. Box 761, Santiago, Chile  
 CN8FH (via W7UXP)  
 CN8GX, APO 113, New York, N. Y.  
 CN8GZ (via W6SXO)  
 CN8IJ (via W6NYG)  
 CN8IU, via USAF QSL Svc., APO 118, New York, N. Y.

Here are the most recent photos from JT1AA, taken during November. Ludvik now has two rigs on the air, one at his office and one in his living quarters. His wife, also a ham, hopes to do some operating before the year is over, which will be good news for the YL-DXCC hunters. OK1JX continues to act as general agent for JT1AA, handling his QSLs and other mail, and has recently supplied him with the SX-28 pictured here. The one photo shows JT1AA at his operating position, the other provides the genuine Mongolian atmosphere.

(Photos via OK1JX, W1ICP and W8DAW)



CO7ZC, P. O. Box 28, Camaguey, Cuba  
 DL7FZ, U. Wintzer, Berlin-Friedenau, Lefevrestr. 21  
 Germany  
 DL8AX (to 9S4AX)  
 EA9BK, F. D. Gomez, Box 124, Tetuan, Spanish Morocco  
 F7DL, G. Cogle, Hq. BASEC (Air Section), APO 44, New  
 York, N. Y.  
 FB8XX (see text preceding)  
 ex-G3GGN, F. T. Shute, VE2AZI, 1648 Lincoln Ave.,  
 Montreal, P. Q., Canada  
 GB3SHE (via RSGB)  
 HA3MA, Korasz Vivmos, Pecs Migyeri Str., Szenyvitelpe,  
 Pecs, Hungary  
 ex-HA8KWA (to HA8WZ)  
 HA8WZ, L. Kucsesra, Mezohegyes, Kozpont, Hungary  
 HC1GL, Box 691, Quito, Ecuador  
 HC1EB, Maj. E. L. Beall, U. S. Army Mission, c/o U. S.  
 Embassy, Quito, Ecuador  
 HI8CJ, Box 72, Ciudad Mundo, D. R.  
 HL2AC, College of Engineering, Seoul U., Seoul, Korea  
 HL2AE, Dong Kook Radio High School, Seoul, Korea  
 ex-HL2AM (to HL9KR)  
 HSIJN, 347 Sawankaloke Rd., Bangkok, Thailand  
 HZ1SD, U. Joseph, c/o Royal Palace, Riyadh, Saudi  
 Arabia  
 JA4LL/MM, Tomi San, 565 Nago cho, Tamashima,  
 Okayama, Japan  
 ex-JZ8PC (see text preceding)  
 K9JNS/VE8 (via W9QCR)  
 KA2KZ, 2123rd Air Base Sqdn., APO 4, San Francisco,  
 Calif.  
 KG1BW-W2ZRX/VO1, R. H. Wilder, 100 Brown St.,  
 Baldwinsville, N. Y.  
 KG4AO, D. S. Metzger, ex-KL7AIZ, CTC, Box 41, Navy  
 115, FPO, New York, N. Y.  
 KW6CM, Florence LeCaille, Box 72, Wake Island  
 OA6X, P. O. Box 43, Ilo, Peru  
 OQ5VD, A. Vandermynsbruggen, Box 195, Coquilhatville,  
 Belgian Congo  
 OQ9DC, P. O. Box 465, Usumbura, Ruanda-Urundi,  
 Belgian Congo  
 OY7ML, M. Haasen, N. Finsengstr, 23, Torshavn, Faeroes  
 PY3ALX, P. O. Box 2180, Porto Alegre, Brazil  
 PY7AN/8-PY7ACY/8 (via LABRE)  
 SP4JF, Tadek, P. O. Box 15, Bialystok, Poland  
 SP5AA, E. Pokropek, Wiktorska 90/15, Warsaw, Poland  
 SV0WO, J. W. McMin, USOC Supply Center, 30th  
 Street and Third Avenue, Brooklyn, N. Y.  
 ex-TF2WBO, A. Cobb, W4MFX, Box 832, Fern Park, Fla.  
 ex-TF2WCD, G. G. Ambrose, 1532 Park Ave., Williams-  
 port, Penna.  
 TG7JD, G. Deman, Coban, Guatemala  
 TG6AL, P. O. Box 445, Port Limon, C.R.  
 VE8NS (to VE8ML)  
 VP5BH (see text preceding)  
 ex-VP5MS, R. Schweppe, 1412 Kollogg Ave., Ames, Iowa  
 ex-VP5RR, R. M. Randolph, W5HVV, Box 954, State  
 College, Mississippi  
 ex-VP6PL, P. Level, Anchorage, Riverside, Twickenham,  
 Middlesex, England  
 VP8J, G. Riggs, P. O. Box 246, Port Stanley, Falkland  
 Islands  
 VPRCF, c/o SECFIDS, Port Stanley, Falkland Islands  
 VO2DC, R. D. Campbell, P. O. Box 19, Baneroft, No.  
 Rhodesia  
 ex-VQ3FN, L. W. Stallberg, 4 Harold St., Chelmsford,  
 Mass.  
 VQ8AM, F. Dumont, Belle Vue Harol, Mapou, Mauritius  
 VQ8AS, Ron Davis, Cable & Wireless, Rodriguez Island  
 via Mauritius (or via VQ4AQ)  
 VR6TC (via W4TAJ — see text preceding)  
 VS1JB, Koh Lian Teh, 11B, Temple St., Singapore  
 VS1JF, R. Brown, RAF, Chandi, Singapore  
 VS2CP, P. Zeid, Harvard Estate, Bedong, Kedah, Malaya  
 VS2FJ, FASARC, Box 777, Kuala Lumpur, Malaya  
 VS4BA, R. A. Hawkins, c/o GPO, Simanggong, Sarawak  
 (or via MARTS)  
 VS9AC, J. Dempster, International Aeradio Ltd., c/o Aden  
 Airways, Aden  
 ex-VS9AG-ST2NG (see text preceding)  
 VS9AJ (via VS9AD)  
 WS6AG, Dorothy J. Kellen, Pago Pago, American Samoa  
 XE2GT, W. Tapia, Box 20, Hermosillo, Sra., Mexico  
 XQ8AG, Vanguard Tracking Stn. No. 7, c/o U. S. Consul,  
 Antofagasta, Chile  
 ex-YN1PM, P. Martin, 240 High St., Hingham, Mass.  
 ZB1CH, c/o A/C Hostel, HMS Flowerdown, Winchester,  
 Hampshire, England  
 ZC4DA, Box 412, Nicosia, Cyprus  
 ZS30, P. B. J. van Heerden, Box 1025, Windhoek, South  
 West Africa  
 3V8KS (via REF)  
 5A3TO, E. J. Williams, 7272nd USAF Hospital, APO 231,  
 New York, N. Y.

**Whence:**

Africa — W2HMJ relates: "VQ8AS of Rodriguez Island



This photo of the W6AM final-amplifier bank complements views of Don's layout appearing on p. 74, November '57 QST. The kilowatt units, six in number, singly connect to a common power pack and modulator. All are deployed immediately behind the operating position (to left out of picture) so that most controls are within easy reach. (Photo via W8HCW)

is interested in 7-Mc. work and has had me listen for him on 7025 kc. His 15 watts occasionally show up around 14,012 or 14,051 kc. for an hour or so beginning at 0230 GMT." Ron expects to make Rodriguez his headquarters for the next three years. His performance as VQ8AS is hampered at present by 100-volt-d.c. mains. From ZD4CM, W2 JDR and MWV learn of Chana's pretx switch to 9c1. With his 5000-foot-high QTH at Meknes, CN8JL (W6NYG) finds DX a cinch on c.w. or phone. Franklin has been in Africa for two years and always looks for W6/K6 buddies when the wind is right. W8YIN writes, "From ZSSCZ I hear there are eight licensed ZSSs, all very inactive. Basutoland is isolated and impossible to get to by car; though it's only 200 miles from Durban I couldn't interest ZSSCZ in a DXpedition!" From CN8EM (W5RDP): "I always start a club at each duty assignment and this time it's the Nouasseur Amateur Radio Club of Morocco. We have a certification called AAM (American Amateurs in Morocco) which is available to DXers world wide who contact 15 or more. No QSLs are necessary, just log extracts submitted to our QSL bureau [see "Whence"] and all QSOs must date after January 1, 1957, and within any 12-month period thereafter." WIEKU gave ZD3BFC a "first Vermont" on 10 phone. VQ4GX tells W8TIN he'll have a 20A and 75A-1 on s.s.b. shortly. WGDXC observes that FR7ZC creeps out of the woodwork for brief Sunday appearances on 14.108 kc. around 1200 GMT.

Asia — Earthquakes near Ulun Bator failed to slow the QSO output of JT1AA: W6R1L reports Ludvik's QSLs rolling into California like shuck waves. JT1AA moved station from his office to his living quarters, a step toward increased activity. The Japanese 40-meter QRJL problem intrigues K6DV. Some 4500 JAs now are licensed and many of these use 7000-7100-ke. phone in the fashion of our own prewar 160-meter madhouse. J8AAE thinks a JA c.w.-only 25-ke. segment on the low edge may come to pass. K6DV suggests that W/K c.w.-to-phone work with JAs be kept above 7050 kc. to help minimize the mess. JA4LL/MIJ's 40-meter c.w. 15-wattor worked a dozen countries and 100 Yanks in 31 states during a recent (Continued on page 160)



# Operating News



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

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

**Novice Roundup Time.** In this annual ARRL operating activity KN-WN station-testing is the chief objective. We always select an early month of the New Year for this so conditions will be at their best. The opportunity for all amateurs to welcome these newcomers into League activities via the "NR" brings out a good bunch of old timers working near the Novice sub-bands. The "NR" runs from 6 p.m.

Feb. 1st to 9 p.m. Feb. 16th. One and all are invited to follow the full information on the NOVICE ROUNDUP which appears in January '58 QST (page 51). Don't miss this. The time-tested general call is CQ NR. You can put in a little time *each day*. Make a list of your QSOs and new states or ARRL sections with which you achieve two-way contacts. Send in your list in the form suggested in the QST announcement. Do this and we feel sure you new-timers will be surprised at your score and progress. Old timers each year send in their lists of WN/KN amateurs worked in this test too, finding it a pleasant change of pace and refreshing to exchange reports with the new men; their scores are *not* in competition for the Section Winner's Certificates to leading Novices of course.

## A.R.R.L. ACTIVITIES CALENDAR

Feb. 1-16: Novice Round-up  
Feb. 5: CP Qualifying Run — W6OWP  
Feb. 7-9: DX Competition (phone)  
Feb. 14: Frequency Measuring Test  
Feb. 18: CP Qualifying Run — W6OWP  
Feb. 21-23: DX Competition (c.w.)  
Mar. 6: CP Qualifying Run — W6OWP  
Mar. 7-9: DX Competition (phone)  
Mar. 19: CP Qualifying Run — W1AW  
Mar. 21-23: DX Competition (c.w.)  
Apr. 2: CP Qualifying Run — W6OWP  
Apr. 12-13: CD QSO Party (c.w.)  
Apr. 17: CP Qualifying Run — W1AW  
Apr. 19-20: CD QSO Party (phone)  
May 1: CP Qualifying Run — W6OWP  
May 23: CP Qualifying Run — W1AW  
June 4: CP Qualifying Run — W6OWP  
June 14-15: V.H.F. QSO Party  
June 23: CP Qualifying Run — W1AW  
June 28-29: Field Day

## OTHER ACTIVITIES

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

Jan. 1-Feb. 28: Massachusetts QSO Party, Federation of Eastern Mass. ARA (p. 124, January).  
Jan. 25-26: VE1 Contest, New Brunswick ARA (p. 146, January).  
Feb. 14-16: Anniversary RTTY Contest, RTTY Society of Southern California (p. 86, this issue).  
Mar. 1-2: French Contest (phone), REF (p. 80, this issue).  
Mar. 1-2: YL-OM Contest (phone), YLRL (p. 72, this issue).  
Mar. 15-16: YL-OM Contest (c.w.), YLRL (p. 72, this issue).  
Mar. 15-16: Delaware QSO Party, Delaware ARC (next month).  
Apr. 1-6: WAE DX Contest (phone), DARC (p. 82, last December QST).  
Apr. 12-13: French Contest (c.w.), REF (p. 80, this issue).  
May 17-18: Helvetia-22 Contest, USKA (details coming soon).

**FCC Suspends Amateur License.** At least three types of violation of FCC's amateur rules will be noted as responsible for Commission action suspending the General Class Amateur Radio Operator License of Edward P. Barrett, Woodsboro, Texas, for the three months starting July 21, 1957.

FCC ordered (June 27, 1957) that the General Class amateur operator license of Edward P. Barrett be thus suspended and that the license be turned in to the FCC for the period of the suspension, (1) it appearing that the licensee on various (stated) dates Dec. 56 to Mar. 57 inclusive *did engage in the portable operation of W5HSW at Freeport, Texas, without giving prior written notice to the FCC field office in the radio district in which such portable operation was intended* (violating Sec. 12.91); and (2) it appearing that the licensee on various dates (thirteen separate dates indicated) *permitted the operation of W5HSW by an unlicensed person in violation of Sec. 12.28 (rules) and Sec. 318 of the Communications Act; and (3) it further appearing that said licensee on numerous (stated) occasions in 56 and 57 failed to maintain an accurate radio station log, a violation of Sec. 12.136 of the Commission's Rules.*

**ARRL's 24th DX Competition and Other Activities.** See the Activities Calendar for what's doing in February and following months. Most noteworthy starting in February is the DX Test. Overseas DXers will in many cases be looking for *new states* to advance WAS standing. It will be a chance to extend *your* DX list! Airmail invitations have been issued to other national societies and to some of the rare DX. All DXers will follow the contest timetable, reporting form and other details per rules appearing pages 76-79 January QST; Phone Section starts Feb. 7, c.w. Feb. 21.

Under "other activities" RTTYers will note that on the Feb. 14th-16th week-end the annual RTTY contest (nationwide two-way exchanges like the ARRL SS but by radio-printer) takes place. Also Feb. 14th: Active amateurs with fre-



Herman P. Jolitz, W4DCQ, North Carolina OPS and ex-SCM, has made the top score in 18 Phone CD Parties since 1937 and also led U. S. A. phones in the '50 and '51 ARRL DX Contests. The three racks encase separate high-powered finals for five i.f. bands, a 50/144 Mc. rig with p.p. 4-125As, modulation monitor and speech equipment. At the operating position, the exciter unit (at left) permits full selection and control of frequency, type of emission, power input, and normal push-to-talk. Outside are four 4-element wide-spaced beams, a 144-Mc. collinear, and a 75-meter flattop. Any questions as to why W4DCQ gets out?

quency measuring gear, 100 kc. crystals and multivibrators, BC221s, LM — s etc. will want to brush up on individual proficiency by using this in the A.R.R.L. FREQUENCY MEASURING TEST. The fall announcement of how to try out in the FMT also appears this month in these columns. All who take part get individual reports from ARRL some time after. If the parts per million accuracy is good enough, one becomes eligible for SCM appointment in official observer categories — if of course he is interested in assisting other amateurs through mailing cooperative notice forms to help fellow amateurs keep in step with FCC requirements. —F. E. H.

#### ADDENDA, OCTOBER CD PARTIES

In the c.w. CD Party of October 19 and 20, open to ARRL appointees and officials. OO W6YMD set a modern scoring record of 298,782 points by virtue of 503 contacts in 66 sections. Bill accomplished this despite a stuck rotator which forced him to work half the Party off the back of his beam! Back East, Potomac Valley contest expert W4KFC, ORS/Asst. Director, averaged 40 machine-gun contacts per hour, thereby establishing a new all-time CD Party QSO figure of 772. Vic counted on 750 watts to homebrew p.p. 4-250As, spent 18 hours 50 minutes on the air, led all brass-pounders in numbers at different sections worked. OBS W6JVA, OO W3VOS, ORS W1EOB, and E. Pa. SCM W3JNQ also scored in excess of 2000 and in this last-ditch warm-up for the November Sweepstakes. Pace-setters by U. S. A. call areas were W1EOB, W2SZ, W3VOS, W4KFC, W5ZKT, W6YMD, W7V1U/7, W8PJJ, W9SZR and K0CNC, as VE6NX and VE2DR kept their homeland solidly on the CD map. But perhaps ORS KZ5IF elicited the most delighted comment — Lee's 53,000-point appearance marked the first notable activity from Canal Zone in Party history.

On phone, OPS W4DCQ (see photo) returned after an extended layoff to prove he hasn't lost the touch. Herman led the phone brethren in score, sections and contacts, racking up 148 of 166 QSOs on 75 meters. In close proximity were W2SZ, the Rensselaer club station capably operated by OPS/ORS K2E1U, and experienced competitor W8NOH, Michigan OES/ORS, while PAM/OPS K6BWD copped West Coast honors and fourth nationally. Other licensing area leaders were W1JYH, W3NF, W7RSP, W9YT and W0ALW. Altogether, 16 appointees tallied over 10,000, and ten made 100 or more contacts.

Add these to the high claimed scores on p. 82, January QST: c.w. — W4AKC 122,100, K2CMV 65,455, W1AQE 54,960, W7FRU 52,656; phone — W3NF 19,720, W3LOD 5985. Complete results were in the January CD Bulletin.

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CONTEST CORRECTIONS: The following is a recap of changes in the final results of the 1957 ARRL International DX Competition, appearing last November QST. The phone score of KH6PM should have been shown as disqualified

not that of KH6MG. Information now on hand causes us to reverse the disqualification of W1MXX; we therefore take pleasure in reinstating his E. Mass. phone score of 39,615 points. Among Michigan phones, W8WT's call was shown as W9WT. Similarly, W9NTJ/KG6's c.w. score, second place in Marianas, was erroneously attributed to W6NTJ/KG6. Add to North American phone entries, Windward Islands, VP2LU's total of 61,308 points. Sorry, fellows!

#### RTTY CONTEST NOTES

The RTTY Society of Southern California announces sponsorship of the 5th Anniversary RTTY SS Contest, to be held over a 33-hour period starting at 6:00 p.m. EST February 14 and ending at 3:00 a.m. EST February 16. Stations will exchange messages consisting of message number, originating station's call, check or RST report of two or three numbers, ARRL Section of originator, local time (0000-2400 preferred), date, and band used. Score one point for a message sent and receipted for entirely by RTTY, and one point for a message received and acknowledged by RTTY. For final score, multiply the total message points by the number of different ARRL Sections (see page 6) worked. Two stations may exchange messages again on a different band for added contact points, but the section multiplier does not increase when the same section is reworked on another band. Each foreign country counted by ARRL for DXCC credit is treated as a new section for RTTY multiplier credit. W6AEE suggests that RTTYers try to use operating procedures which take advantage of the speed which teletype operations provide. Logs should be mailed to Merrill L. Swan, W6AEE, 372 Warren Way, Arcadia, California.

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An informal Short-Shift RTTY Contest, in which f.s.k. of less than 425 c.p.s. (170 c.p.s. preferred) should be used, will be held the week end of March 15 and 16. These logs should also be mailed to W6AEE.

— \* — \* —

In the RTTY Sweepstakes of last November 1 and 2, W6BP turned in the top total of 5550, with 150 contact points and 37 ARRL Sections worked. Other high claimed scores: W2RUI 5440, W2TKO 4680, W3PYW 4672, W9TCJ 3420, W1ASZ 2700, W6MTJ 2484, W2RTW 1892, W1BGW 1850, W6AEE 1850, W5YM 1680, VE7KX 1054, W1BDI 782, W8NLY 765, K9BRL 660, W1AW 616, W6FQW 600, W1ZXA 507. Altogether, 87 stations in 47 sections were reported active.

#### W1AW OPERATING NOTE

The complete schedule of current W1AW operations appeared on p. 82 of QST for last month. See that issue for full details on when and where to look for the ARRL Headquarters Station.

#### NATIONAL RTTY CALLING AND WORKING FREQUENCIES

3620 kc.                      7140 kc.

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





# With the AREC

The expectation of reward seems, alas, to have become a prime motivating factor in most of the things we do. This is the second stage of an evolution which begins with the hope for reward, and which ends with the demand for reward or refusal to perform.

Of course, much depends on how you look at it. A reward can take several forms, from enjoyment and satisfaction to certificates and prizes. If we could be content with the former two, which are somewhat intangible, we could do without the latter two, which are very definitely material. Trouble is that to a majority of amateurs no reward is worthwhile unless it is material. Thus, the League offers certificates to contest winners, appointees, amateurs who are long-winded, amateurs who are old, amateurs who can copy the code, amateurs who can trample on their fellow amateurs sufficiently to work 100 or more countries, and amateurs who reported into a net when an emergency was in progress. Each certificate adds an incentive in its own field, and that is the reason they are offered. The certificate is a means to an end, not an end in itself.

Public service work, such as emergency communication, is a pursuit which some of us naively suppose to be entirely altruistic, but this, too, creates the demand for reward. You'd be surprised, for example, at the amount of time we have to spend corresponding and researching to ascertain why Joe Doaks did not get a public service award while his buddy did, at the arrogant demands for more publicity in QST, at the threats to "resign if I don't get better service," at the thinly-veiled implications that the headquarters is being done a favor by a writer's participation in one of the ARRL programs.

Fellows, your reward will come in heaven (if you deserve one — otherwise you will be dealt with elsewhere). Don't expect too much before then. The pitiful little pieces of paper we can offer you to hang on your shack walls to proclaim your accomplishments to the world are but small recompense for the hours, the sweat, and the money you may have expended to get them. But remember — the certificate, no matter how pretty (or how plain), in itself is a nothing compared to the accomplishment it represents. And this accomplishment is something no one can or will take from you although the certificate that represents it may brown with age and crumble into dust. We counsel you to do it for the sake of doing it, not for the sake of having something tangible to show for it. Therein lies the greatest reward of all.

♦ ♦ ♦ ♦

We were sorry to have had to whack off the above words of wisdom from last month's copy for this column, but it couldn't be helped. The net directory was so large that it crowded everything else out, so something had to go. In fact, all copy was cut to the bone. Biggest net directory we've ever had.

♦ ♦ ♦ ♦

Members of the Burlington (Vt.) Amateur Radio Club assisted police, in the week commencing Nov. 17, in the search for a lost hunter in the woods near Ripton, Vt.

A 75-meter mobile using a 100-watt rig was dispatched to search headquarters to maintain contact with WIKDY in Winooski. The mobile unit maintained contact with a ten-meter mobile which in turn served as the check-in point for a number of club-built ten-meter hand-carried units engaged in the search. At the time the report was made, the search was still in progress. Amateurs participating: W1s VSA OJU EOY TBG, KN1s CPC DQB.

♦ ♦ ♦ ♦

Tornadoes and floods during November had the Alabama AREC gang in action. On Nov. 17 tornadoes struck five communities, and Alabama Emergency Net P (AENP) was activated at 1400 CST by K4AAQ. From then until 2218 the net was in emergency session with K4s AAO OCV BTO AOZ and W4s PVG MI HON and HKK serving as NCS. W4WAZ was in the net from 1420 until 2215 giving weather reports from CAP and CAA, giving barometer readings, and monitoring the frequency. W4ZSQ went mobile into the Jasper area, hard hit by tornadoes, and was joined there by W4s HPE CIU, K4s BFF LYA. Following is a list of additional amateurs who took part: W4s AVX ALG AQZ BMM BFX CEF CZE CNU CRY DGH EXL ELX EBD ETD FYC FRI GVA GCV GXT HUS IPF LOE MEM OAO OBV PBK POI PHY RTQ RNX RNX UHA WJX WOG YOW ZSA ZSH ZWF, K4s AJG AYF AYQ AYK BWR CIU DQL DRQ DXW DSH DIQ EOG FKR GBO HMH HON IPF IXT JWB JBW JDA KJZ KGH KZQ LVE MPL OQY OPE PBY PJM QVL, W5s BEV, ZZV, WILMY, W3BRC, K5s AYP HAR EFA PFA.

On Nov. 18 tornadoes revisited Alabama, striking in the Ensley area of Birmingham. At 1042 CST W4HKK reported tornado warnings for a number of Alabama counties until 1830. The tornado struck Ensley at 1520 CST and the AENP went into emergency session handling only emergency traffic. The net handled three emergency messages for the Red Cross and civil defense headquarters. The following stations took part: W4s AUP BAI BJL BFM CEF DDH DS DGH EBD FM GET FXT GJW GDU HKK HPE HHU OAO POI PAC RUG RNX SX SXG TOI USL UHA VOQ WJX WOC WAZ WJX YEK ZRQ ZSI, W5BEV, K4s AJG AOZ AYF BTO BAI BFL DKP DYM DSH EEH HMH HJM IPF ICD IAC IXT IOX JWB JBW KJZ KZQ KDZ KAK LOE MMO MQH OQY K5HAR.

On Nov. 19 K4AOZ received a request from the Red Cross in Bessemer to check Howton's Camp on the Warrior River, as it was reported there were families stranded there by flood waters. K4AOZ checked Howton's Camp, Vines Camp, Yeargins Camp, Shore Boat Works, Bells Camp and Franklin Ferry, reported to the Red Cross that the situation was under control, picked up and passed seven welfare messages from river residents. K4MQN relayed from K4AOZ who was operating mobile. — K4AOZ, PAM Alabama.

♦ ♦ ♦ ♦

A hurricane alert on the Hawaiian Islands brought amateurs into the picture on Nov. 30 and Dec. 1. Eight amateurs were alerted by civil defense and several others were asked to help by the Kauai Chapter of the Red Cross. KH6EU set up the civil defense control station with three transmitters and an emergency generator at Lihue; he was assisted in this undertaking by KH6s LG BTO CFC BVM and AZG. KH6BMD moved his station to the Red Cross shelter at Waimea, operating on emergency power. KH6BIB moved his station to the Red Cross shelter at Eleele school, and KH6BXE operated from his home, which was near the Koloa school. The Kauai Net on 7250 kc. was operated as part of an all-islands net set up by SCM KH6AED. Over 50

Part of the radio room of the Dade County (Fla.) Civil Defense Control Center in Miami. The four main RACES positions are shown, with Station Manager W4DTV on the left and State R.O. and Eastern Florida SCM W4KGJ on the right. Six other radio-equipped zone control stations are part of this network.



written messages and many informal requests were handled with Honolulu during the three-day alert. Additional amateur stations assisting the Red Cross were KH6CHU and the Waimea High School Radio Club, KH6SN.

— KH6ARL.

Montana amateurs were involved in emergency communications in two auto accidents on Nov. 29. The first was a car-truck crash 22 miles north of Great Falls in which a man was seriously injured. A passing motorist summoned W7SFK, whose place was near who contacted W7YQZ, who summoned police assistance. W7SFK proceeded to the scene and dispatched the injured man to the nearest hospital.

The second accident was near Dnpuyer, which was discovered by W7WSW, who had a mobile rig in his car. Unable to raise any nearby amateurs, he finally contacted an amateur in Bloomington, Ill. who contacted K7ABV in Billings, who contacted the highway patrol. It was learned later, in comparing notes, that W7SFK is a cousin of the Bloomington amateur (F. J. Sakemiller). — W7KUH, Sec Montana.

Pictures, anyone? Don't any of you guys own cameras? We are in the odd position of soliciting photographs for QST at the same time being a little fussy about what we use. What we'd like most of all are action shots taken during real emergencies — shots of amateurs in action. We very seldom get them because amateur groups are usually too busy to take pictures. We'd like new and different photos for QST. Take a look back through the Operating News section for a few months, what do you see? Groups of odd-looking people, station photos, mobiles, buses — same old stuff, over and over. Once in a while an exception, but most of the pictures are posed and hackneyed. Then, someone reads a plea like this and takes some action shots and sends them in, and what happens? We don't print them. Why? Because they are technically incapable of good reproduction, or because all they show is the back of someone's head, or because there are no amateurs in the picture, or for some other reason are found unsuitable.

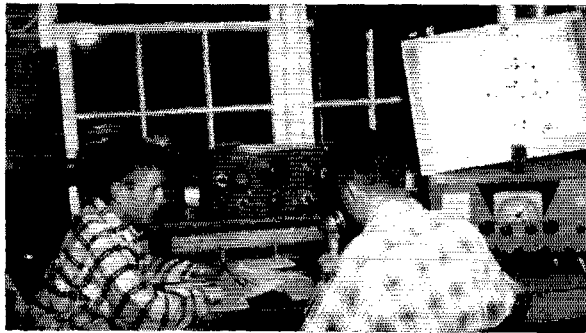
A good, unposed action picture that has amateurs in it, that is clear enough for good reproduction, showing an actual emergency situation is not just a rarity, it's also a mighty hard thing to set up in the stress of an emergency. Still, it seems to us that if some of you shutter bugs would get into the habit of throwing your camera in the car along with your emergency gear when you take off for an emergency area, then snap some shots when you are supposed to be resting, sooner or later one of them is bound to click — and would very greatly enrich the pages of QST, might even make the cover. This is much better than relying on newspaper photographers or non-amateur professional or commercial photographers. They want glamour, but we want amateurs: amateur gear, amateur atmosphere, amateurs in action. We want you to take the pictures that appear in QST. How about it, OMs?

Twenty-two SEC reports were received for the month of October, on behalf of 6383 AREC members, an increase of two reports and about 300 AREC members over October of last year. Sections reported: Ky., Conn., N. Mex., Ga., Ore., San Joaquin Valley, Colo., Minn., Santa Clara Valley, Mont., Nebr., Wash., W. N. Y., E. Fla., N. Texas, Maritime, NYC-LI, Wis., Md.—Del.—D.C., Nevada, Ala., Mo.

### RACES News

During the Altona, N. Y., forest fire near the Canadian border from Aug. 22 to Aug. 26, nine members of the Clinton County RACES organization provided auxiliary communications from the fire scene to Plattsburg. Civil defense two-meter portable equipment was used. The RACES operators were augmented by military personnel, some of whom were amateurs. The operation was under the direction of K2LTJ, Plattsburg C.D. Radio Officer.

On Nov. 4, RACES members of the Amateur Radio Caravan Club of New Mexico were asked to assist with communications in connection with floods caused by severe desert and mountain cloudbursts. At approximately midnight, it was reported that three Albuquerque hospitals



The boys in Tamaqua, Pa., set up this control station to assist in maintaining communications during Tamaqua's 125th Anniversary parade on Oct. 5. During the parade, which started at the High School Stadium where the above NCS was located, the communications group procured medication for a boy stung by a bee and was credited with saving his life. That's KN3BPT at the left and W3ZRQ with the microphone.

were without telephone communications due to damage to trunk lines. From then until 0600, when wire service was restored, the following RACES club members provided radio link between the affected hospitals and city police: W5s UWA ZHN EYS, K5s JMP IVZ. — K5GOJ.

On October 1, the radio amateurs of Erie County Civil Defense (N. Y.) networks were asked by the police chiefs of Kenmore and Tonawanda to provide radio communication for the collection workers of the Community Chest. Eight mobile units and one base station were utilized to provide the proper coverage during the collection campaign. Both the police chiefs and the fund officers expressed publicly their gratitude for the help and cooperation of the radio amateurs. Nine amateurs participated. — W2PPY, Radio Officer Erie Co., N. Y.

The City of San Diego is now operating five joint RACES/AREC nets. Radio Officer is K6JPI with assistants on 2 (K6QJP), 6 (K6GEL), 10 (K6HIQJ) and 75 (W6EWU, also EC) meters. The Mt. Soledad Amateur Radio Club is located at c.d. headquarters and its station W6VMS is both RACES and AREC net control station. Drills are held each week with a full scale simulated disaster drill once a month. Hospitals are linked on two meters, 13 San Diego areas on 10 meters, welfare units on 6 meters and all unassigned RACES and AREC operators report into the 75 meter net. A very comprehensive and all-encompassing master plan in San Diego!

The Thompsonville (Conn.) RACES organization is conducting radio courses leading to the restricted radiotelephone operator's permit, in order to supplement amateur operators with auxiliary police and rescue personnel. As permits are obtained and RACES operators authorized, drills are held each month to give them practice in procedure and operation of the equipment. All local amateurs not in RACES are invited by notice to attend these drills. Meanwhile, new equipment is being purchased, used police equipment is being modified to work on 2 meters, and newspaper publicity is seeking to locate more volunteer operators. Amateurs oversee the operation on the control center and all equipment. A progressive group in Thompsonville under the leadership of radio officer W1SRB.

### NATIONAL CALLING AND EMERGENCY FREQUENCIES (kc.)

3550	3875	7100	7250
14,050	14,225	21,050	21,400
28,100	29,640	50,550	145,350

Charlie Harris, VE6HM, is one of those traffic men who specializes in handling letter-length messages to and from boys stationed at far northern (Arctic) stations. He keeps three schedules with the VEBs every day, and handles over 100 messages each month. In recognition, he was recently enrolled as a radio technical advisor to the RCAF Ground Observer Corps far northern posts and was presented with RCAF GOC wings. *Canadian National Defence Photograph.*



## TRAFFIC TOPICS

Delivering local traffic can be embarrassing, especially when the traffic is old or garbled. The temptation is always there to chuck it in the waste basket. Most of us learn the hard way when it is prudent to put it on a post card and drop it in the mail, even when the delivery point is within local telephone range.

The first point to remember in delivering traffic is that we are obliged to deliver it, no matter how ridiculous it might seem. If the message text refers to arrival three days before the date you received it, you still are duty-bound to deliver it. If the message is hopelessly garbled, it makes no difference. If the text is "mushy," as many of them are, this is neither your business nor your doing. You deliver it anyway, one way or another.

If you are the type who is easily embarrassed or sensitive, you can use your own judgment on the method of delivery. After all, a message text which says "Dearest darling sweetheart I love you so much I can't sleep nights," to be delivered to some sweet young thing, is still a message and it has to be delivered, but who wouldn't feel silly about reading a text like that over the telephone to an embarrassed recipient? Who wouldn't feel squeamish about delivering a message that says "See you Friday the thirteenth" when you didn't receive it until Monday the sixteenth? Who isn't slightly annoyed when a telephone recipient of a message asks "What's the gag? Who is this, really?" Those are the things we traffic men have to contend with, and they are more than made up for by the recipient who is truly grateful and acknowledges that the message has considerable value to him.

It shouldn't be necessary to say this, but judging by the number of undelivered messages brought to our attention, it is: deliver the message *regardless* of its contents. If you balk at telephoning it, at least mail it. If you undertake to handle a message in the first place, you are undertaking the responsibility for delivering it if this falls to your lot. If you don't do it, sooner or later the intended recipient will learn that it was sent and have a bad impression of amateur radio — worse than if he had received the message late. Delivery is important! It's as much a part of the training in handling traffic as is the on-the-air part itself — maybe more, because after all delivery is the end object of message handling. Deliver that message, OMI!

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Miscellaneous reports: Interstate SSB Net reports 30 sessions, 48 average stations in the net, traffic 544. North Texas Oklahoma Traffic Net reports 30 sessions, 1071 check-ins, traffic 469. Transcontinental Phone Net reports the following traffic: 1st Call Area, 1962; 2nd Call Area, 2193; 4th, 9th and 0th Call Areas, 1409; total, 5564.

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*National Traffic System.* Getting so that we'll have to present our diatribes in installments if we're going to be so long-winded. Most of what we started out to say under this heading last month met with the editorial ax when the net directory gobbled up all the available space. Here's the rest of it:

Now, if we were to be asked which of the regional nets is "the best," we would give considerable pause before answering. The best is what? In traffic handled? In representation? In "rate"? The best net manager? No, you say, just the best all around. Well, we could give an opinion based on general impressions, but if we did that ten regional net managers would accuse us of prejudice, malice aforethought and, or just plain stupidity.

What do cold, hard, unbiased, emotionless statistics show? Well, all we can do is use statistics from the summary in each QST<sup>1</sup> (which are all we have), strike an average on each factor, average the averages and see who comes

out on top. Description of the actual mechanics used is too voluminous to be included here, much as we'd like to, but here are the results for the years 1954 through 1956.

1954	1955	1956
1. 1RN	1. RN5	1. 9RN
2. TEN	2. 1RN	2. TEN
3. 3RN	3. 2RN	3. RN5
4. 9RN	4. 3RN	4. 2RN
5. RN6	5. TEN	5. 1RN
6. TRN	6. 9RN	6. 3RN
7. RN5	7. RN6	7. RN6
8. RN7/4RN	8. 8RN	8. 8RN
9. RN7/4RN	9. RN7	9. RN7
10. 2RN	10. TRN	10. ECN
11. 8RN	11. 4RN	11. 4RN

Now if you take the average of the average average over all seven years of the NTS' existence (not including 1957, which isn't over yet), you find that it comes out this way: 1. TEN; 2. 9RN; 3. RN6; 4. 5. 1RN/2RN; 6. RN5; 7. 3RN; 8. RN7; 9. 4RN; 10. ECN (TRN); 11. 8RN.

Interesting? Those low on the totem pole, or not as high as they think they ought to be, will object, but our conclusions are based on this principle: that the best all-around regional net is the one which has the best all-around performance in number of sessions, total, traffic handled, rate, average traffic per session and representation *plus a manager who will report these things regularly each month.* Leadership is important! This has been proved time and time again — that a net without an active, energetic manager, no matter how proficient its operation, is only half as efficient as a good net with a good manager. Want more statistics?

### November reports:

Net	Ses- sions	Traf- fic	Rate	Aver- age	Repre- sentation (%)
EA.N. ....	23	830	.702	38.0	98.5
CAN. ....	30	1210	.776	43.3	98.9
PAN. ....	30	979	.408	32.8	100.0
1RN. ....	26	391	.356	15.0	89.01
2RN. ....	51	422	.312	8.3	97.3
3RN. ....	42	276	.288	6.7	88.1
4RN. ....	42	341	.261	8.1	79.5
RN5. ....	52	538	.172	10.3	88.5
RN6. ....	45	513	.233	11.4	—
RN7. ....	50	227	.138	4.5	—
8RN. ....	46	164	—	3.6	86.9
9RN. ....	52	996	.430	19.1	80.3
TEN. ....	90	1509	.527	16.8	60.1
Sections <sup>2</sup> . . .	861	5080	—	5.9	....
TCC Eastern	55 <sup>3</sup>	339	—	—	—
TCC Central	67 <sup>3</sup>	208	—	—	—
TCC Pacific.	84 <sup>3</sup>	1074	—	—	—

### Total

Summary . . .	1439	15097	CAN	10.1	PAN
Record. . . . .	1439	15097	....	12.6	100.0

<sup>1</sup> Regional net representation based on one session per day. Others are based on two or more sessions.

<sup>2</sup> Section nets reporting: CN & CPN (Conn.); GSN (Ga.); QKS & QKN (Kans.); So. Dak. 40 & S. Dak. 75 meter; ILN (Ill.); SCN (Calif.); STX (S. Texas); AENB, AENP & AENT (Ala.); WVN Iowa 75 Meter; FN (Fla.); KPN, KYN & KNN (Ky.); TLCN (Iowa); MSN (Minn.); MDD (Md.-Del. D. C.); WSN (Wash.); NJN (N. J.); ORVTN (Tenn.); QAIN (Mich.); NAMN (N. Mex.).

<sup>3</sup> TCC functions reported, not counted as net sessions.

An almost unprecedented thing happened on CAN; RN5 missed a session! New Jersey Net made 100% representation on 2RN in November; New York State Net is showing up better now that W2RUF is back in the saddle. Sessions at 1945 and 2130 have been resumed by 3RN. W4SHJ has given 4RN a new lease on life; 4RN certificates have been issued to W4QDY, K4BVX, K4DNW and K4JLO. W7GMC is still struggling with RN7, getting little organized support except from Washington & Oregon. W6CMA is the new RN6 manager, replacing W6ZRJ; RN6 is back on daily sessions with two sessions per day. W9VAY has earned his 9RN certificate.

*Transcontinental Corps.* W0KQD is retiring as TCC Director Pacific Area effective the first of the year. We're sure going to miss Irene's firm hand at the helm. No replacement decided upon yet. Otherwise, TCC rolls along about as usual; far from perfect, but still improving.

Area	Func-tions	Suc-cessful	Traf-fic	Out-of-Net Traffic
Eastern	55	94.5	1100	339
Central	67	100.0	1544	208
Pacific	84	98.8	2169	1074
Totals	206	98.1	4813	1621

The TCC roster: Eastern Area — W1s AW EMG TYQ NJM, W2s HDW ZXC, W3s COK WG, W9s DO CXY; Central Area — W9s CRY DO, W0s BDR LXC LGG SCA; Pacific Area — W5DWB, W6s ADB GIW PLG EOT VZT BPT HC, K6s DXX GZ ORT GID, W7s VIU GMC, W0s KYQ YQ (WMK).

### HIGH CLAIMED SCORES 1957 A.R.R.L. SWEEPSTAKES

There is small need for us to call upon our supply of superlatives to describe the ringing success of the 24th Sweepstakes Contest of last November. The scores below are eloquent proof that conditions were at their peak, past records were broken, and this SS was the biggest ever. Summation: *Wow!*

Here are all claimed c.w. totals above 130,000 points and phones over 70,000, with score, number of QSOs, and number of different sections worked shown in that order.

C.W.	Score	QSOs	Sections
W2IOP	239,166-1316-73		
K4LPW	225,023-1234-73		
W4KFC	220,369-1212-73		
W3JNQ	201,663-1105-73		
W9YFV	201,662-1105-73		
W3EIS	199,980-1111-72		
W9RQM	191,430-1064-72		
W3GAU	190,710-1076-72		
W9APY	190,369-1074-71		
W3FYF	189,000-1050-72		
K9GGT	188,995-1030-73		
W4PNK	183,330-1020-72		
W7KEV	183,180-1036-71		
W3ALB	183,048-1003-73		
W3VKD	182,500-1000-73		
W3MSR	182,044-999-73		
W3GHM	179,945-990-73		
W6ZVQ	179,580-984-73		
W8LQA	179,363-1022-71		
W0CDP	177,755-974-73		
W3AEL	172,800-960-72		
W1JYH	171,988-1178-73		
W4CC	168,995-926-73		
W2IWC	168,812-925-73		
W2IVS	166,258-911-73		
W3LEZ	163,620-909-72		
W3CPS	162,990-931-72		
W8DJN	161,878-891-73		
K4GEZ	161,639-905-72		
W1EOB	161,622-1107-73		
W9ZAB	160,600-880-73		
W1BTH	160,290-892-72		
W9AMU	158,650-873-73		
W5YDC	159,650-820-73		
K5DGL	158,550-906-70		
W8OYL	157,500-927-68		
W6MVQ	157,320-874-72		
W9OCB	156,678-920-69		
W5LGG	152,600-872-70		
W1AW	152,508-1075-71		
W3GRF	151,470-850-72		
W0T	151,200-840-72		
W0DYG	150,300-840-72		
W0TKX	150,150-850-70		
W0NPC	150,110-883-68		
W3MFW	150,075-870-69		
W2OIB	149,633-843-71		
W1FEA	148,575-850-70		
W9UDK	147,237-833-71		
W3CTJ	147,060-817-72		
W0IRH	146,125-856-70		
W2DMJ	145,585-848-69		
W3VOS	145,373-821-71		
W8VTF	144,038-835-69		
W9WBL	143,587-821-70		
W6NLI	142,740-793-72		
W0FZO	142,625-817-70		
W3BES	142,168-779-73		
W3ARK	141,575-809-70		
W2HDW	141,488-864-66		
W2HQL	141,255-774-73		
W7GWD	139,156-763-73		
W8SDJ	138,700-760-73		
W2QND	137,788-755-73		
W6IXK	137,550-792-70		
KH6LJ	136,364-934-73		
W9AZM	136,000-803-68		
K4DAS	135,810-771-72		
K6SKA	135,230-743-73		
W9RCJ	135,078-768-71		
W2TUK	134,723-781-69		
VE6NX	134,190-757-71		
W9NII	133,567-753-71		
W6SBB	133,464-790-69		
W3IYE	133,225-730-73		
W7CJZ	132,480-740-72		

W9PZT	132,300-756-70
K2KCE	131,947-725-73
W2SHM	131,920-776-68
K0BIT	130,220-766-68
K3CBQ	130,140-725-72

### PHONE

W0EDX	186,880-854-73
K6EVR	175,455-840-70
W1YWU	158,118-730-73
W5DQK	152,643-700-73
W6PQW	147,864-815-61
W7BSW	133,152-608-73
W0YQ	130,065-667-65
K6BWD	129,384-600-72
W2VCZ	124,830-570-73
W6BSY	121,890-600-68
W8AJW	121,764-560-73
W7CAF	121,440-645-64
W5MYL	121,095-594-69
W5VU	108,570-517-70
W9OHO	106,810-521-69
W6IIM	106,128-529-67
W7BJV	105,216-548-64
W0VQC	105,053-514-69
W3MSK	104,244-478-73
K2HHP	102,900-493-70
W7CBP	102,837-581-59
W1FZ	102,711-470-73
W7BLX	100,022-524-64
K5HEW	98,604-505-66
W3WQN	97,152-740-66
K2TCD/2	95,220-462-69
W0PRZ	94,389-650-73
W9AII	93,968-470-67

K4CTU	93,130-700-87
W7ZCA	93,000-500-82
W6ZZC	92,664-432-72
W1EKO	90,825-410-70
W7NPV	90,630-532-57
W9HPM	90,991-448-69
W6QIV	89,094-482-62
K4KBA	88,128-438-68
K5EDM	87,045-417-70
K8AEK	86,505-400-73
K2MPH	84,150-428-66
W3MDE	84,000-400-70
W9PQA	83,232-410-68
W6CBE	81,760-560-73
W8VOV	81,558-400-69
W6AMH	79,794-404-66
W1CGU	77,880-405-64
K6OOW	77,184-392-67
W1BFB	76,527-388-66
K0CHE	76,170-368-60
W2YDX	75,885-385-67
W1EOR	75,056-524-72
W9NZM	72,720-506-72
W5HMU	72,192-381-64
K4BZJ	71,556-356-67
K9CLO	71,426-503-71
W5NXP	71,400-519-70
W4FGH	71,264-524-68
K6LOM	70,737-323-73

- <sup>1</sup> Multioperator station.
- <sup>2</sup> W1WPR, opr.
- <sup>3</sup> W8IFX, opr.
- <sup>4</sup> K0HEM, opr.

Complete results coming soon! These will include complete information on just who won the section, club, and novice certificates, plus a goodly supply of photos and cartoons.

### FREQUENCY MEASURING TEST FEBRUARY 14

ARRL invites every amateur to try his hand at frequency measuring when W1AW transmits signals for this purpose starting at 9:30 p.m. EST (6:30 p.m. PST) Friday, February 14. The signals will consist of dashes interspersed with station identification. These will follow a general message sent to help listeners to locate the signals before the measurement transmission starts. The approximate frequencies used will be 3529, 7145 and 14,175 kc. About 4½ minutes will be allowed for measuring each frequency, with long dashes for measurement starting about 9:36 p.m. It is suggested that frequencies be measured in the order listed. Transmissions will be found within 5 or 10 kc. of the suggested frequencies.

At 12:30 a.m. EST, February 15 (9:30 p.m. PST, February 14), W1AW will transmit a second series of signals for the Frequency Measuring Test. Approximate frequencies will be 3625, 7106 and 14,017 kc.

Individual reports on results will be sent to all amateurs who take part and submit entries. When the average accuracy reported shows error of less than 71.43 parts per million, participants will become eligible for appointment by SCMs as Class I or Class II OOs respectively.

This ARRL Frequency Measuring Test will be used to aid qualification of ARRL members as Class I and Class II observers. Present observers not demonstrating the requisite average accuracy will be reclassified appropriately until they demonstrate the above-stated minimum required accuracy. Class I and Class II OOs must participate in at least two FMTs each year to hold appointments. SCMs (see listing, page 6) invite applications for Class III and IV observer posts, good receiving equipment being the main requirement. All observers must make use of cooperative notices, reporting activity monthly through SCMs, to warrant continued holding appointment.

Any amateur may submit measurements on one or all frequencies listed above. No entry consisting of a single measurement will be eligible for QST listing of top results. Listing will be based on over-all average accuracy, as compared with readings made by a professional lab.

## DX CENTURY CLUB AWARDS

### HONOR ROLL

W6AM.....274	W8BRA.....269	Z12GX.....266
W1FH.....274	PY2CK.....268	W2HUQ.....266
W8HGW.....272	W8NBK.....268	W3JNN.....266
W9NDA.....272	W6SYG.....268	W8KT.....265
KV4AA.....271	W2AGW.....267	W3BES.....265
W6ENV.....270	W6RW.....267	G2PL.....265
W6MX.....270	W6TPT.....266	W7AMX.....265
W3GHD.....269	W6CIUQ.....266	W8TIA.....264
W6DZZ.....269		W6TS.....264

### Radiotelephone

PY2CK.....266	W8HGW.....255	W9RBI.....248
VQ4ERR.....261	Z86BW.....255	W9NDA.....247
W1FH.....258	CN8ALM.....251	W3JNN.....247
W8GZ.....256		CK2CO.....245

From November 15 to December 15, 1957 DXCC certificates and endorsements based on postwar contacts with 100-or-more countries have been issued by the ARRL Communications Department to the amateurs listed below.

### NEW MEMBERS

E19Y.....177	W6ZMN.....106	W9UDK.....102
W2ORX.....159	K2JGG.....105	W2NCL.....101
DL3DP.....151	W8ZPX.....105	W2PUX.....101
K4GEZ.....142	W9YFT.....105	W6JDO.....101
W0MAF.....121	H99PV.....105	W7FTT.....101
OK1JX.....120	W6OBH.....104	H18BE.....101
W9VAG.....118	W9PIO.....104	W1ACB.....100
W4EFX.....116	L44HE.....104	W3KQD.....100
DJ2LM.....112	SMS5CHG.....104	K4HRG.....100
OK1KTW.....112	W2IVS.....103	K8AEK.....100
W0RSZ.....109	W9VLL.....103	K8CFB.....100
W4WML.....108	W9LFW.....103	CNSDJ.....100
W8LOF.....108	G4JJ.....103	L45G.....100
K6GXG.....105		V83DKY.....100

### Radiotelephone

W9REX.....181	4X4BO.....106	W3ALB.....100
ON4SZ.....169	W3FGN.....102	W3MS.....100
DL3DP.....129	W5HWK.....101	W7SEK.....100
DL3TJ.....121	V82AHE.....101	W8RDX.....100
VE7JB.....118	VE8AAZ.....101	W9ZSZ.....100
I1BRN.....113	W1PFP.....100	F8VU.....100
	K2JGG.....100	

### ENDORSEMENTS

W8DAW.....252	W4EPA.....231	W2CNT.....220
W1BHL.....250	G8DO.....230	W0NTA.....220
W9LNM.....250	W9IV.....227	W6PFB.....211
W6LDD.....242	OK1IB.....226	PY1HX.....202
W837R.....240	K2GMO.....223	W3MFW.....200
W0AZT.....232	W7ENW.....222	W9Y8X.....197
SM5KP.....232	W4PIJ.....221	W9CQL.....194

Z82AT.....193	W28SC.....160	W3MQC.....131
W3MDE.....191	W4GHP.....160	W6WTH.....130
W6KEK.....190	W61PH.....158	W9F8Q.....130
W6ULS.....190	K2PIC.....153	W0DMA.....130
W8DUS.....190	DL7EN.....152	R0JAP.....130
DL1GT.....190	VE3ADV.....152	SM5BE.....130
W3DTC.....190	W3DTC.....150	DL1KV.....129
K6EVR.....186	W3KFK.....150	DL3TJ.....128
W1ICP.....183	I1FO.....150	W0UBU.....125
W0UQV.....183	ON4HB.....150	W2NTN.....123
W1FZ.....182	W9SFR.....149	K6KJR.....122
OK1HI.....181	ON4TX.....147	W0UYC.....122
K2OFA.....180	W0DKC.....145	W2AXB.....121
W3MLW.....180	W7QON.....143	VE5KG.....121
VOIDX.....180	G8HCL.....143	W1CTW.....120
W68UQ.....174	W6FUP.....142	W1JSS.....120
W7FBD.....174	W8WFB.....142	W2FXA.....120
W0BPA.....174	W8ZCK.....141	W3G8N.....120
W6NJU.....171	EA7CP.....141	W8CGL.....120
W2EQS.....170	VE2WA.....141	W9ROK.....120
W4JLL.....170	W1TS.....140	K5BGT.....117
C6RC.....170	W3WPG.....140	W0VBK.....114
GT1DJ.....167	W5NGG.....140	W8YPT.....113
GZ8SS.....167	W7ACD.....140	VE2BK.....113
G6VQ.....165	VE3IR.....140	W8YGE.....112
O5LP.....164	Z86JZ.....134	K21GN.....110
W38VW.....163	K6J3.....133	W313.....110
Z86KK.....163	W0DSP.....133	W3RZL.....110
W1NLM.....162	W6BSY.....132	W5RDL.....110
W3WGH.....162	W6UOV.....132	W9PQA.....110
K4BVQ.....162	GM5RH.....132	W0EWH.....110

### Radiotelephone

SM5KP.....221	W1FZ.....145	I1A1J.....128
W3DHM.....200	W0GEK.....145	W188S.....120
PY4PI.....190	W6ARD.....140	H0R8S.....120
W1GLX.....191	I1THZ.....135	I1ASO.....117
PY4APE.....191	W0QGL.....134	W0MAF.....115
W4ESP.....183	E8ASX.....132	K6EVR.....113
W9Y8X.....155	W5NGG.....131	W4EFX.....112
K4BVQ.....154	W2BYP.....130	W3BIW.....111
W2BQM.....150	W8WZ.....130	I1W3L.....111
W4DQU.....147	W8ZET.....130	W1LLE.....110
	DL3VZ.....130	W1VAN.....110

### W/VE/VO Call Area and Continental Leaders

W4TM.....255	VE3QD.....210	VE7ZM.....233
W5ASG.....262	VE4XO.....118	VE8AW.....195
W0AIW.....252	VE5QZ.....140	Z86BW.....257
VE1PQ.....183	VE6VK.....180	4X4DK.....234
VE2VW.....203		VO6EP.....190

### Radiotelephone

W2BXA.....210	W0AIW.....232	VE8NX.....106
W4HA.....212	VE1CR.....120	VE7ZM.....185
W5BGP.....224	VE2VW.....131	ZL2GX.....236
W6AM.....243	VE3AIU.....170	EA2CQ.....230
W7HIA.....190	VE5RU.....116	4X4DK.....223



Precision readings are a specialty with Official Observer Louis A. Williams, W4JUI, as his standing in ARRL's September FMT will attest. Louis has four bays of equipment in addition to that at the operating position. A partial listing includes 200-20,000 kc. and 20-1000 Mc. oscillators, RC audio oscillators, several temperature-controlled 100 and 1000 kc. standards, multivibrator chains, crystal-controlled WWV receiver on 5 Mc., Heath scope, counter and timer, 75A, radio compass receiver, BC-221, and homebrew transmitter.

## CODE PROFICIENCY PROGRAM

Twice each month special transmissions are made to enable you to qualify for the ARRL Code Proficiency Certificate. The next qualifying run from W1AW will be made on February 18 at 2130 Eastern Standard Time. Identical texts will be sent simultaneously by automatic transmitters on 1885, 3555, 7080, 14,100, 21,010, 28,000, 50,900 and 145,600 kc. The next qualifying run from W6OWP only will be transmitted on February 5 at 2100 PST on 3590 and 7128 kc.

Any person can apply. Neither ARRL membership nor an amateur license is required. Send copies of all qualifying runs to ARRL for grading, stating the call of the station you copied. If you qualify at one of the six speeds transmitted, 10 through 35 w.p.m., you will receive a certificate. If your initial qualification is for a speed below 35 w.p.m., you may try later for endorsement stickers.

Code-practice transmissions are made from W1AW each evening at 2130 EST. Approximately 10 minutes' practice is given at each speed. References to texts used on several of the transmissions are given below. These make it possible to check your copy. For practice purposes, the order of words in each line of QST text sometimes is reversed.

Date Subject of Practice Text from December QST

- Feb. 3: Note on Satellite Monitoring, p. 13
- Feb. 6: Microlock, p. 20
- Feb. 10: Notes on Product Detector, p. 42
- Feb. 13: September V.H.F. Party Results, p. 54
- Feb. 19: Break, Break, Break!, p. 57
- Feb. 21: Navassa—1957, p. 58
- Feb. 25: Official Observers, p. 66

## BRASS POUNDERS LEAGUE

Winners of BPL Certificates for November traffic:

Call	Orig.	Recd.	Rel.	Del.	Total
W2KEB	124	1687	1394	405	3610
W4PFC	337	1462	1438	23	3260
W7BA	36	1159	1118	36	2339
W3WVQ	115	804	902	110	1931
W8CA	14	937	939	0	1914
W9NZZ	370	605	4	601	1580
W3CUL	214	727	408	219	1568
W8CPL	18	701	670	31	1420
W4PL	7	664	634	19	1324
W6LGG	48	595	523	51	1217
W5RCF	10	597	564	33	1204
W9DO	22	545	476	41	1084
W9CXY	2	522	478	44	1046
W1UEQ	4	516	445	74	1039
W7PGY	27	464	381	81	953
W6LCX	15	408	380	28	861
W9JQZ	12	425	414	6	858
K6BCG	1	436	4	416	855
W6BLI	3	424	413	6	846
W6IA	11	401	400	1	843
K4DSN	16	416	387	11	830
W6BDR	30	402	350	1	783
W6GAR	4	372	376	8	760
W8UPH	20	360	370	81	731
K2PHE	150	314	232	8	704
W1TYQ	24	346	314	12	696
W6KQD	33	321	291	11	656
K2TNI	53	326	236	39	654
W7VAZ	24	313	240	73	650
K4FGJ	4	316	309	7	646
K4BDC	6	319	299	4	628
K6OJZ	6	309	286	23	624
W6GYH	235	181	182	7	611
W6ZWL	6	312	7	264	589
W6MAK	20	279	210	58	567
W6C	8	274	255	19	546
K6UOD	14	270	187	83	554
W4IA	20	283	232	6	541
W7APF	18	255	251	2	526
W6PZO	7	266	238	11	522
W4SHJ	386	76	34	25	521
W6BFP	0	258	255	3	516
W1EMG	10	252	216	35	513
W4QDY	87	212	172	32	503
Late Report:					
W5FCX (Oct.)	20	254	230	24	528

### More-Than-One-Operator Stations

Call	Orig.	Recd.	Rel.	Del.	Total
K6MCA	72	384	436	0	892
KG1DT	330	218	3	215	766
W3PQT	0	281	328	6	615
W6ZJB	318	111	54	17	500

### BPL for 100 or more operations-plus-deliveries:

W8OCU	236	K0CLES	123	W6YDT	106
K6GDF	223	VE2ATL	123	K6GYD	105
W9EJT	266	W9JYO	120	KN9JLD	101
W6KJM	146	W2EWZ	116	K2UNR	100
W1YBH	142	K6GZ	114		
W6N1Y	138	W9PCQ	114	Late Reports:	
W1WZJ/1	135	W9SA	112	W6BJP (Oct.)	185
W9TT	126	K4LYE	110	K9CKW (Oct.)	113

### More-Than-One-Operator Stations

K3WDJ	203	W1AW	156	W3YDX	111
K17FLA	181	K4FDH	132		

BPL medallions (see Aug. 1954 QST, p. 64) have been awarded to the following amateurs since last month's listing: K1BCS, W4IA, K6OQD, K8SXA, W6IA, VE2ATL.

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

## 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 Section. 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 addresses 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 the 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
Yukon *	Feb. 10, 1958	W. R. Williamson		Mar. 17, 1949
Eastern New York	Feb. 10, 1958	George W. Tracy		Jan. 27, 1958
Washington	Feb. 10, 1958	V. S. Gish		Apr. 15, 1958
Tennessee	Feb. 10, 1958	Harry C. Simpson		Apr. 15, 1958
Arizona	Feb. 10, 1958	Cameron A. Allen		Apr. 15, 1958
Alberta *	Feb. 10, 1958	Sydney T. Jones		May 1, 1958
New Mexico	Feb. 10, 1958	Ray Birch		Resigned
Louisiana	Mar. 10, 1958	Thomas J. Morgavi		May 31, 1958
Eastern	Apr. 10, 1958	Frank L. Baker, jr.		June 15, 1958
Massachusetts				
Ontario *	Apr. 10, 1958	Richard Roberts		June 15, 1958

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

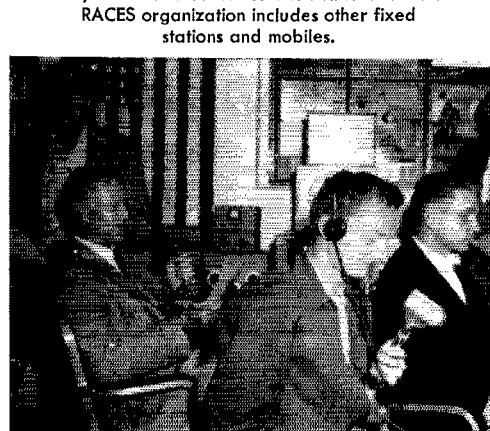
## ELECTION RESULTS

Valid petitions nominating a single candidate as Section Manager were filed by members in the following Sections, completing their election in accordance with regular League policy, each term of office starting on the date given.

San Joaquin Valley	Ralph Saroyan, W6JPU	Oct. 10, 1957
Illinois	Edmond A. Metzger, W9PRN	Dec. 15, 1957

In the Alabama Section of the Southeastern Division, Mr. Clarke A. Simms, jr., W4HKK, and Mr. Thomas E. Franks, W4WOG, were nominated. Mr. Simms received 153 votes and Mr. Franks received 81 votes. Mr. Simms' term of office began December 14, 1957.

The San Luis Obispo County (Calif.) RACES group boasts this fine control center setup. Seated, left to right, are W6CNY, K6HIU, and K6HRT. With earphones at far right is W6LB, chief c.d. radio communications officer. The RACES organization includes other fixed stations and mobiles.



## RESPECT THOSE SCREENS

**A** GREAT number of us amateurs feel that a transmitter is not fully adequate unless we can maintain a solid QSO at all times. This is a must, regardless of propagation characteristics of a given ham band at any specific time or even if it is just QRM.

**A** MATEURS install highly efficient antennas and still run into difficulty. Thus, the next step indicates an increase in transmitter power.

**S** INCE the low power rig is operating fb, why not build a high power amplifier? When faced with such a task, a vast majority of amateurs lean toward the use of tetrode tubes.

**T** HE advantage of low driving power requirements is most welcome. We immediately build up a unit and proceed to enjoy its punch on the air.

**U** NFORTUNATELY, too many of us have experienced short lived delights. The power amplifier tube or tubes have gone soft. Before we start to blame the tube manufacturer, let us analyze our design. The odds are that we overlooked our screen grid dissipation.

**W** E HAVE been observant during our initial tests on our amplifier relative to grid drive, grid bias, plate current and overall efficiency. We applied the book value screen voltage but did not check the screen dissipation when we were fully loaded and enjoying our loud booming signal on the air. When operating screen grid tubes in parallel, we should provide individual control of each screen, as screens seldom have identical characteristics.

**T** UBE manufacturers have investigated tubes returned to them for having gone soft. Too often they have found that the screen grid had boiled away because of abuse.

**O** BVIOUSLY, more care must be taken. The investment required for proper screen grid checking will result in prolonged reliable tube life. This has been a topmost consideration in the Hallicrafters designs. The fixed pi-output network aids in this respect. Let us suggest you look at Hallicrafters HT-32 or HT-33 in the event your present gear doesn't perform as you feel it should. This is one suggestion you'll be glad you followed.

SAM HYMAN, W9VRX

*Bevel Halligan Jr. W9AC*

for **hallicrafters**

# The Customer is Always Right!



Whether you're one of the more than 50,000 radio-electronics engineers who will attend this year's convention and show or one of the 800-plus exhibitors, you made this what it is today. It's big... but just big enough to bring you all that's new in radio-electronics research and development!

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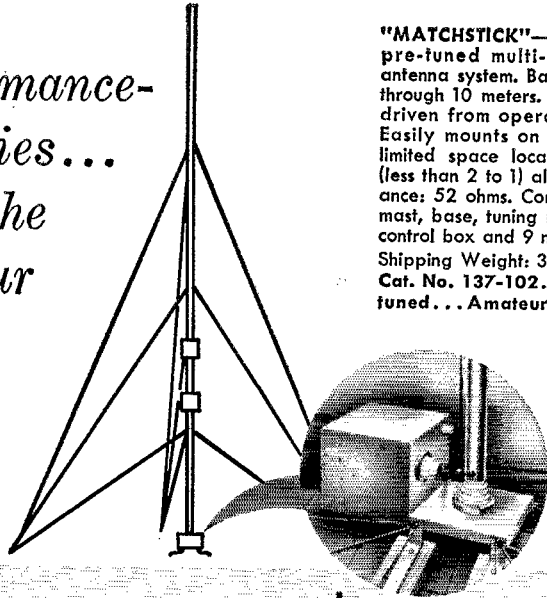
REGISTRATION: IRE Members \$1.00  
Non-members \$3.00



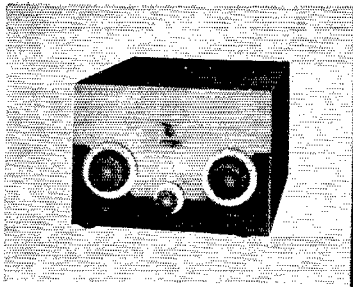
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*Johnson performance-  
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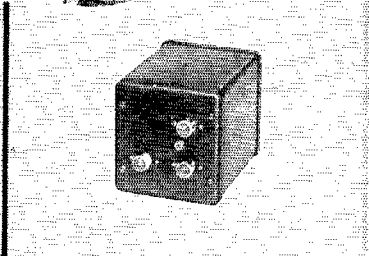
**"MATCHSTICK"**—Fully automatic, pre-tuned multi-band vertical antenna system. Band-switching 80 through 10 meters. Remotely motor driven from operating position. Easily mounts on roof top or in limited space location. Low SWR (less than 2 to 1) all bands. Impedance: 52 ohms. Complete with 35' mast, base, tuning network, relays, control box and 9 nylon guy ropes. Shipping Weight: 38 lbs. Cat. No. 137-102. Pre-tuned... Amateur Net \$129.50



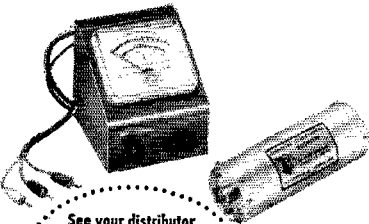
**275 WATT "MATCHBOX"**—Performs all antenna loading and switching functions required in medium power amateur stations. Bandswitching 80, 40, 20, 15, and 10-11 meters. Matches balanced antennas from 25 to 1250 ohms and unbalanced or single wire antennas from 25 to 3000 ohms. Input impedance, 52 ohms, rated 275 watts. Built-in transmit/receive relay grounds receiver antenna terminals in "transmit" position. Independent adjustment for matching antenna to receiver input. Fully shielded. Provision for RF probe. Cat. No. 250-23. .Wired and tested.. Amateur Net \$54.95



**KILOWATT "MATCHBOX"**—Band-switching 80, 40, 20, 15, and 10-11 meters—self-contained. Use with transmitters up to 1000 watts input—handles unbalanced line impedances from 50 to 1200 ohms and balanced line impedances from 50 to 2000 ohms. No coils to change, no "tapping down" on the inductor. Transmit/receive relay grounds receiver antenna terminals in "transmit" position. Adjustment for matching antenna to receiver input. Fully shielded. Provision for RF probe. Cat. No. 250-30. .Wired and tested... Amateur Net \$124.50



**T-R SWITCH**—Provides instantaneous high-efficiency electronic antenna switching. Excellent receiver isolation. Gain: 0 db at 30 mcs.; 6 db at 3.5 mcs. Rated at 4000 watts peak power. Instantaneous break-in on SSB, DSB, CW or AM. Will not affect transmission line SWR—provides an effective impedance match to most receivers through 3 to 30 mc. range. With tube, power supply, and provision for RF probe, etc. Cat. No. 250-39. .Wired and tested... Amateur Net \$25.00\*



**DIRECTIONAL COUPLER AND INDICATOR**—Provides continuous reading of SWR and relative power in transmission line. Coupler may be permanently installed in 52 ohm coaxial line—handles maximum legal power as specified by FCC. Standard tip jacks permit use of commercial multimeter as indicating instrument—reference sheets showing curves supplied for popular multimeter basic ranges. Indicator is a 0-100 micro-ammeter calibrated in SWR and relative power. Monitors incident or reflected power quickly with flip of a switch. Cat. No. 250-37. .Coupler, Wired and tested..... Amateur Net \$11.75 Cat. No. 250-38. .Indicator, Wired and tested..... Amateur Net \$25.00

\*Tentative price—subject to change.

See your distributor  
\*See your distributor for a plan tailored to your budget. The 10% down payment price listed above is typical of the convenient terms offered by most authorized Johnson distributors.

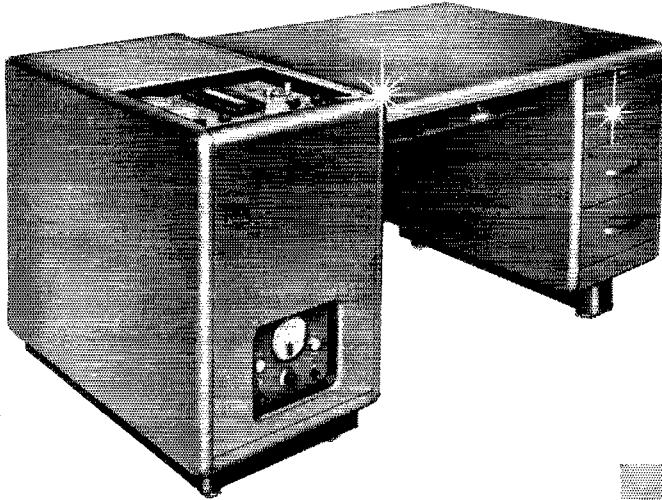


**E. F. Johnson Company**

2804 SECOND AVENUE S.W. • WASECA, MINNESOTA

# Choose your next transmitter

## 1st choice\*



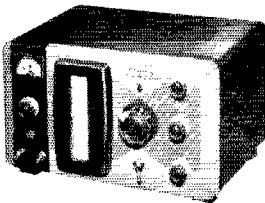
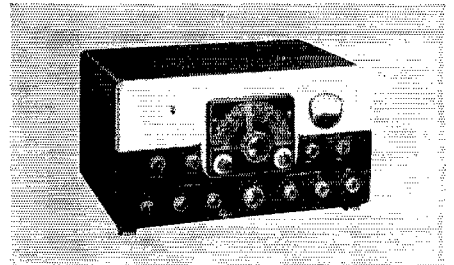
**VIKING "KILOWATT" AMPLIFIER**—Boldly styled, effectively TVI suppressed—contains every conceivable feature for safety, operating convenience, and peak performance. 2000 watts P.E.P.† on SSB—1000 watts CW and AM. Continuous tuning 3.5 to 30 mc.—no coil change necessary. Compact pedestal contains complete kilowatt—rolls out for adjustment or maintenance. Excitation requirements: 30 watts RF and 10 watts audio for AM; 2-3 watts peak for SSB. Completely wired and tested with tubes.

Cat. No. 240-1000..Wired and tested.....Amateur Net \$1595.00

Cat. No. 251-101-1..Matching accessory desk, top, back and three drawer pedestal.....FOB Corry, Pa. \$132.00

**DRIVE IT WITH THE "PACEMAKER"**—This exciting transmitter offers you the ultimate in single sideband . . . 90 watts SSB P.E.P. and CW input . . . 35 watts AM. Self-contained—effectively TVI suppressed. Instant bandswitching on 80, 40, 20, 15, and 10 meters. Excellent stability and suppression. Temperature compensated built-in VFO . . . separate crystal control provided for each band. VOX and anti-trip circuits provide excellent voice controlled operation. Pi-network output matches antenna loads from 50 to 600 ohms. More than enough power to drive the Viking Kilowatt or grounded-grid kilowatt amplifiers. (Requires use of Cat. No. 250-34 Power Divider when used with Viking Kilowatt.) With tubes and crystals, less key and microphone.

Cat. No. 240-301-2..Wired and tested.....Amateur Net \$495.00

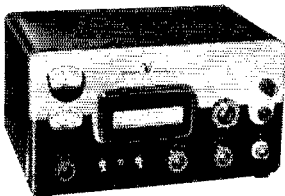


### New Power-packed Desk Top Linear Amplifiers!

**VIKING "COURIER" AMPLIFIER**—Rated a solid one-half kilowatt P.E.P. input with auxiliary SSB exciter as a Class B linear amplifier; one-half kilowatt input CW or 200 watts in AM linear mode. Completely self-contained desk-top package—may be driven by the Viking "Navigator," "Ranger," "Pacemaker," or other unit of comparable output. Continuous coverage 3.5 to 30 mcs. Drive requirements: 5 to 35 watts depending upon mode and frequency desired. Pi-network output designed to match 40 to 600 ohm antenna loads. Fully TVI suppressed. Complete with tubes and built-in power supply.

Cat. No. 240-352-1..Kit.....Amateur Net \$244.50

Cat. No. 240-352-2..Wired and tested.....Amateur Net \$289.50



**VIKING "THUNDERBOLT" AMPLIFIER**—The hottest linear amplifier on the market—delivers over 2000 watts P.E.P.† input SSB; 1000 watts CW; 750 watts AM linear; in a completely self-contained desk-top package. Continuous coverage 3.5 to 30 mcs.—instant bandswitching. May be driven by the Viking "Navigator," "Ranger," "Pacemaker," or other unit of comparable output. Drive requirements: approximately 10 watts in Class AB<sub>2</sub> linear, 20 watts Class C continuous wave. With tubes and power supply.

Cat. No. 240-353-1..Kit.....Amateur Net \$524.50

Cat. No. 240-353-2..Wired and tested.....Amateur Net \$589.50

†The F.C.C. permits a maximum one kilowatt average power input for the amateur service. In SSB operation under normal conditions this results in peak envelope power inputs of 2000 watts or more depending upon individual voice characteristics.

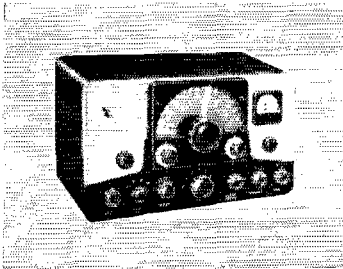
\*Results of a recent nationwide survey conducted by an impartial organization prove that Johnson Viking transmitters in use outnumber those of any other manufacturer. Published copies of this survey available on request.

# from the line that's among the nation's amateurs!

**VIKING "RANGER" TRANSMITTER**—This outstanding amateur transmitter will also serve as an RF and audio exciter for high power equipment. As an exciter, it will drive any of the popular kilowatt level tubes. No internal changes necessary to switch from transmitter to exciter operation. Self-contained, 75 watts CW or 65 watts phone input . . . instant bandswitching 160, 80, 40, 20, 15, 11, and 10 meters. Extremely stable, built-in VFO or crystal control—effectively TVI suppressed—high gain audio—timed sequence (break-in) keying—adjustable wave shaping. Pi-network antenna load matching from 50 to 500 ohms. Easily assembled—with tubes, less crystals, key and microphone.

Cat. No. 240-161-1. . . Kit. . . . . Amateur Net \$229.50

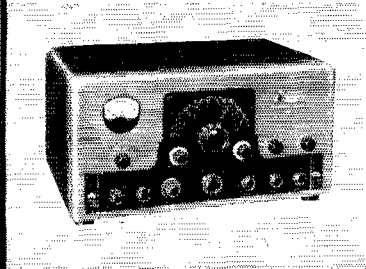
Cat. No. 240-161-2. . . Wired and tested. . . . . Amateur Net \$329.50



**VIKING "VALIANT" TRANSMITTER**—Designed for outstanding flexibility and performance. 275 watts input on CW and SSB (P.E.P. with auxiliary SSB exciter), 200 watts AM. Instant bandswitching 160 through 10 meters—operates by built-in VFO or crystal control. Pi-network tank circuit will match antenna loads from 50 to 600 ohms—final tank coil is silver-plated. Other features: TVI suppressed—timed sequence (break-in) keying—high gain push-to-talk audio system—low level audio clipping—built-in low pass audio filter—self-contained power supplies. With tubes, less crystals, key, and microphone.

Cat. No. 240-104-1. . . Kit. . . . . Amateur Net \$349.50

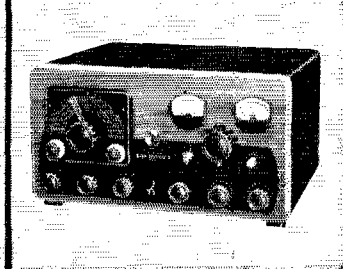
Cat. No. 240-104-2. . . Wired and tested. . . . . Amateur Net \$439.50



**VIKING "FIVE HUNDRED" TRANSMITTER**—Rated a full 600 watts CW . . . 500 watts phone and SSB. (P.E.P. with auxiliary SSB exciter.) All exciter stages ganged to VFO tuning. Two compact units: RF unit small enough to place on your operating desk beside receiver—power supply/modulator unit may be placed in any convenient location. Crystal or built-in VFO control—instant bandswitching 80 through 10 meters—TVI suppressed—high gain push-to-talk audio system—low level audio clipping. Pi-network output circuit with silver-plated final tank coil will load virtually any antenna system. With tubes, less crystals, key, and microphone.

Cat. No. 240-500-1. . . Kit. . . . . Amateur Net \$749.50

Cat. No. 240-500-2. . . Wired and tested. . . . . Amateur Net \$949.50



**VIKING "ADVENTURER" 50 WATT TRANSMITTER**—Used to earn first Novice WACI (Worked All Continents.) Self-contained, effectively TVI suppressed, instant bandswitching 80, 40, 20, 15, 11, and 10 meters. Operates by crystal or external VFO. An octal power receptacle located on the rear apron provides full 450 VDC at 150 ma. and 6.3 VAC at 2 amp. output of supply to power auxiliary equipment such as a VFO, signal monitor, or modulator for phone operation. This receptacle also permits using the full output of the supply to power other equipment when the transmitter is not operating. Wide range pi-network output handles virtually any antenna without separate antenna tuner. Break-in keying is clean and crisp. With tubes, less crystals and key.

Cat. No. 240-181-1. . . Kit. . . . . Amateur Net \$54.95

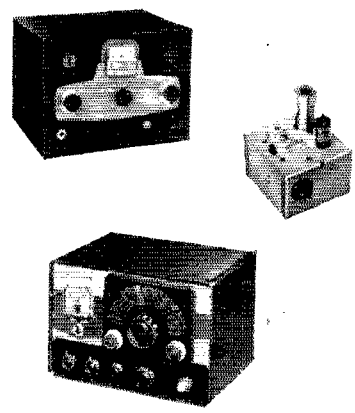
**SPEECH AMPLIFIER/SCREEN MODULATOR**—Designed to provide phone operation for the "Adventurer". High gain—use with either crystal or dynamic microphones. Simple installation—only minor wiring changes necessary in "Adventurer". With tubes.

Cat. No. 250-40. . . Kit. . . . . Amateur Net \$12.25

**VIKING "NAVIGATOR" TRANSMITTER/EXCITER**—This compact, flexible CW transmitter has enough RF power to excite most high powered final amplifiers on CW and AM. 40 watts—bandswitching 160 through 10 meters. Highly stable, built-in VFO is temperature compensated and voltage regulated—may also be operated crystal control. Timed sequence keying—effectively TVI suppressed. Pi-network antenna load matching from 40 to 600 ohms. With tubes, less crystals and key.

Cat. No. 240-126-1. . . Kit. . . . . Amateur Net \$149.50

Cat. No. 240-126-2. . . Wired and tested. . . . . Amateur Net \$199.50



If you're in New York during the IRE Convention—don't forget the Annual Single Sideband Dinner on March 25th at the Hotel New Yorker.



**E. F. Johnson Company**

2803 SECOND AVENUE S. W. • WASECA, MINNESOTA

All of these licensed radio amateurs make important contributions to the Heath line of fine ham kits. In a sense, they are your personal representatives within the company, because their design ideas and performance preferences reflect not only their own "on-the-air" experiences, but those of the amateur fraternity with which they are in constant contact. With this kind of representation in Benton Harbor, you can continue to rely on high-performance Heathkit amateur radio equipment designed by hams, for hams!



CLELL K6DKY



DAR K8ADS



DICK K9BMJ



DOUG K8GNA



AL W8HTX



REX K8GND



FRED K8GMY



GIL W8QAH



WAYNE W8YRW



FRANK W8WUN



AL K8BLI

# HEATH *hams work to bring you*



CHUCK K1CJ1

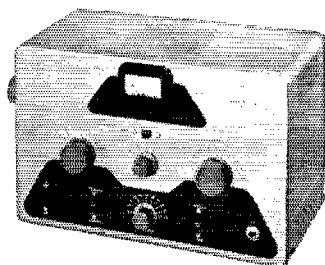


**ROGER MACE (W8MWZ)**  
SENIOR HAM ENGINEER  
HEATH COMPANY

## HEATHKIT 50-WATT CW TRANSMITTER KIT

MODEL DX-20

**\$35<sup>95</sup>**



If high efficiency at low cost in a CW transmitter interests you, you should be using a DX-20! It employs a single 6DQ6A tube in the final Amplifier stage for plate power input of 50 watts. The oscillator stage is a 6CL6, and the rectifier is a 5U4GB. Single-knob band-switching is featured to cover 80, 40, 20, 15, 11 and 10 meters, and a pi network output circuit matches antenna impedances between 500 and 1000 ohms to reduce harmonic output. Designed for the novice as well as the advanced class CW operator. The transmitter is actually fun to build, even for a beginner, with complete step-by-step instructions and pictorial diagrams. All the parts are top-quality and well rated for their application. "Potted" transformers, copper-plated chassis, and ceramic switch insulation are typical. Mechanical and electrical construction is such that TVI problems are minimized. If you desire a good clean CW signal, this is the transmitter for you! Shpg. Wt. 18 lbs.

# HEATHKIT DX-100 PHONE & CW TRANSMITTER KIT

MODEL  
DX-100

\$189.50

Shipped motor freight unless otherwise specified. \$50.00 deposit required on C.O.D. orders.



You get more for your transmitter dollar when you decide on a DX-100 for your ham shack! Recognized as a leader in its power class, the DX-100 offers such features as a built in VFO, built in modulator, TVI suppression, Pi network output coupling to match a variety of antenna impedances from 50 to 600 ohms, Pi network interstage coupling, and high quality materials throughout. Copperplated No. 16 gauge steel chassis, ceramic switch and coil insulation, silver-plated or solid silver switch contacts, etc., are typical of the kind of parts you get, to use in assembling this fine rig. The DX-100 covers 160, 80, 40, 20, 15, 11, and 10 meters with a single band switch, and with VFO or crystal operation on all bands. RF output is in excess of 100 watts on phone and 120 watts on CW, with a pair of 6146 tubes in parallel for the final Amplifier, modulated by a pair of 1625 tubes in parallel. Other tubes featured are: 6AL5 bias rectifier, 5V4 low voltage rectifier, 2-5R4GY high voltage rectifiers, OA2 voltage regulator, 12AX7 speech amplifier, 12BY7 Audio driver, 6AV6 VFO, 12BY7 crystal oscillator-buffer, 5763 r.f. driver, and a 6AQ5 clamp tube. VFO tuning dial and panel meter are both illuminated

for easy reading, even under subdued lighting conditions. Attractive front panel and case styling is completely functional, for operating convenience. The DX-100 was designed exclusively for easy step-by-step assembly, and no other transmitter in this power class combines high quality and real economy so effectively. Listen to any ham band between 160 meters and 10 meters and make a mental note of how many DX transmitters you hear! This kind of acceptance by the amateur fraternity testifies to the performance and quality of the rig. Its the kind of a transmitter you will be proud to own, and one that will give you a very respectable signal on the air. Time payments available! Shpg. Wt. 107 lbs.

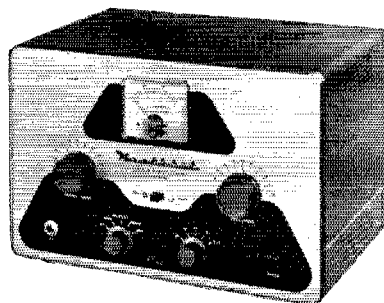
*...top quality at lowest prices!*

## NEW HEATHKIT PHONE & CW TRANSMITTER KIT



MODEL  
DX-40

\$64.95



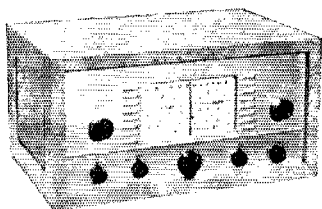
The new DX-40 incorporates the same high quality and stability as the DX-100, but is a lower powered rig, for crystal operation, or for use with an external VFO. Plate power input is 75 watts on CW, permitting the novice to utilize maximum power. An efficient, controlled-carrier modulator for phone operation peaks up to 60 watts, so that the rig has tremendous appeal to the general class operator also. Single-knob switching covers 80, 40, 20, 15, 11 and 10 meters. Pi network output coupling makes for easy antenna loading, and Pi network interstage coupling between the buffer and final amplifier improves stability and attenuates harmonics. A line filter is incorporated for power line isolation. The efficient oscillator and buffer circuits provide adequate drive to the 6146 final amplifier from 80 to 10 meters, even with an 80 meter crystal. A drive control adjustment is provided, and the function switch incorporates an extra "tune" position so the buffer stage can be pretuned before the final is on, and so

the operator can locate his own signal on the band. Tubes used are a 6CL6 Colpitts oscillator, a 6CL6 buffer, a 6146 final amplifier, a 12AX7 speech amplifier, a 6DE7 modulator, and 5U4GB rectifier. The modulator, incidentally, has plenty of "punch" for clear, strong phone operation. A switch selects any of three crystals, or a jack for external VFO. A high-quality meter with D'Arsonval movement mounts on the front panel for tuning. Whether you are a newcomer or an old-timer, you will find the DX-40 an ideal rig in its power class Shpg. Wt. 26 lbs.

**HEATH COMPANY**

A Subsidiary of Daystrom, Inc.

BENTON HARBOR 9,  
MICH.

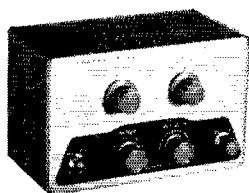


ALL-BAND RECEIVER

### HEATHKIT ALL-BAND COMMUNICATIONS-TYPE RECEIVER KIT

Ideal for the short wave listener or beginning amateur, this Receiver covers 550 KC through 30 MC in four bands. It provides good sensitivity and selectivity, combined with fine image rejection. Amateur bands are clearly marked on the illuminated dial scale. Features transformer type—power supply—electrical band spread—antenna trimmer—separate RF and AF gain controls—noise limiter—internal 5½" speaker—head phone jack and AGC. Has built-in BFO for CW reception. An accessory power socket is also provided for connecting the Heathkit model QF-1 Q Multiplier. Will supply 250 VDC at 15 ma MODEL AR-3 and 12.6 VAC at 300 ma. Shpg. Wt. 12 lbs. Cabinet: Fabric covered cabinet with aluminum panel as shown part 91-15A. Shpg. Wt. 5 lbs. \$4.95

**\$29.95**

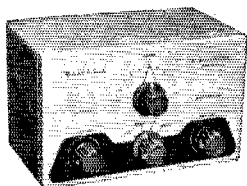


ELECTRONIC VOICE CONTROL

### HEATHKIT ELECTRONIC VOICE CONTROL KIT

Here is a new and exciting kit that will add greatly to your enjoyment in the ham shack. Allows you to switch from Receiver to Transmitter merely by talking into your microphone. Lets you operate "break-in" with an ordinary AM transmitter. A terminal strip is provided for Receiver and speaker connections and also for a 117 volt antenna relay. Unit is adjustable to all conditions by sensitivity and gain controls provided. Easy to build with complete instructions provided. Requires no transmitter or Receiver alterations to operate. Shpg. Wt. 5 lbs.

MODEL VX-1  
**\$23.95**



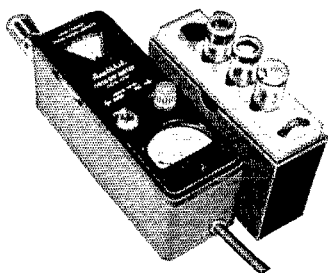
"Q" MULTIPLIER

### HEATHKIT "Q" MULTIPLIER KIT

This fine Q Multiplier is a worthwhile addition to any communications, or Broadcast Receiver. It provides additional selectivity for separating signals, or will reject one signal and eliminate a heterodyne. Functions with any AM Receiver having an IF frequency between 450 and 460 KC that is not AC-DC type. Operates from your Receiver power supply, and requires only 6.3 VAC at 300 ma (or 12.6 VAC at 150 ma), and 150 to 250 VDC at 2 ma. Simple to connect with cable and plugs supplied. Effective Q of approximately 4000 for sharp "peak" or "null". A tremendous help on crowded phone or CW bands. Shpg. Wt. 3 lbs.

MODEL QF-1  
**\$9.95**

*more fine ham gear from the pioneer*



GRID DIP METER

### HEATHKIT GRID DIP METER KIT

A Grid Dip Meter is basically an RF Oscillator used to determine the frequency of other Oscillators, or tuned circuits. Numerous other applications such as pretuning, neutralization, locating parasitics, correcting TVI, adjusting antennas, designed procedures, etc. Features continuous frequency coverage from 2 MC to 250 MC, with a complete set of prewound coils, and a 500 ua panel meter. Has sensitivity control and a phone jack for listening to the "Zero-Beat". It will also double as an absorption-type wave meter. Shpg. Wt. 4 lbs. Low frequency coil kit: two extra plug-in coils extend frequency coverage down to 350 KC. Shpg. Wt. 1 lb. No. 341-A \$3.00

MODEL GD-1B  
**\$21.95**

## HEATHKIT VARIABLE FREQUENCY OSCILLATOR KIT

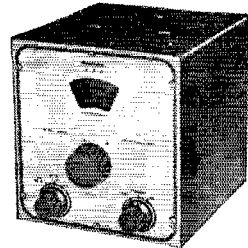
Enjoy the convenience and flexibility of VFO operation by obtaining this fine variable frequency oscillator. It covers 160-80-40-20-15-11 and 10 meters with three basic oscillator frequencies. Better than 10 volt average RF output on fundamentals. Requires 250 volts DC at 15 to 20 ma, and 6.3 VAC at 0.45 a, available on most transmitters. It features voltage regulation for frequency stability, and has illuminated frequency dial. VFO operation allows you to move out from under interference and select the portion of the band you want to use without having to be tied down to only 2 or 3 frequencies through the use of **MODEL VF-1** crystals. "Zero in" on the other fellows signal and return his CQ on his own frequency! Shpg. Wt. 7 lbs. **\$19<sup>50</sup>**

## HEATHKIT REFLECTED POWER METER KIT

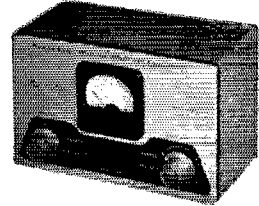
A necessity in every well equipped ham shack, the model AM-2 lets you check the match of the antenna transmission system, by measuring the forward and reflected power or standing wave ratio. Handles up to one kilowatt of energy on all bands from 160 to 2 meters, and may be left in the antenna system feed line at all times. Input and output impedances for 50 or 75 ohm lines. No external power required for operation. Meter **MODEL AM-2** indicates percentage forward and reflected power, and standing wave ratio from 1:1 to 6:1. Shpg. Wt. 3 lbs. **\$15<sup>95</sup>**

## HEATHKIT BALUN COIL KIT

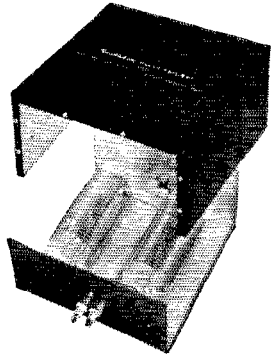
This convenient transmitter accessory has the capability of matching unbalanced coax lines, used on most modern transmitters, to balanced lines of either 75 or 300 ohms impedance. Design of the bifilar wound Balun Coils will enable transmitters with unbalanced output to operate into balanced transmission line, such as used with dipoles, folded dipoles or any balanced antenna system. Can be used with transmitters and Receivers without adjustment over the frequency range of 80 through 10 meters. Will handle power inputs up to 200 watts. Shpg. Wt. 4 lbs. **MODEL B-1** **\$8<sup>95</sup>**



VARIABLE FREQUENCY OSCILLATOR

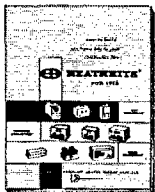


REFLECTED POWER METER



BALUN COIL

*...in do-it-yourself electronics!*



**FREE**  
**1958**  
**Catalog**

Send for this Free informative catalog listing our entire line of kits, with complete schematics and specifications.

Rush Free 1958 catalog.

## HEATH COMPANY

BENTON HARBOR 9, MICH.

a subsidiary of Daystrom, Inc.



name \_\_\_\_\_

address \_\_\_\_\_

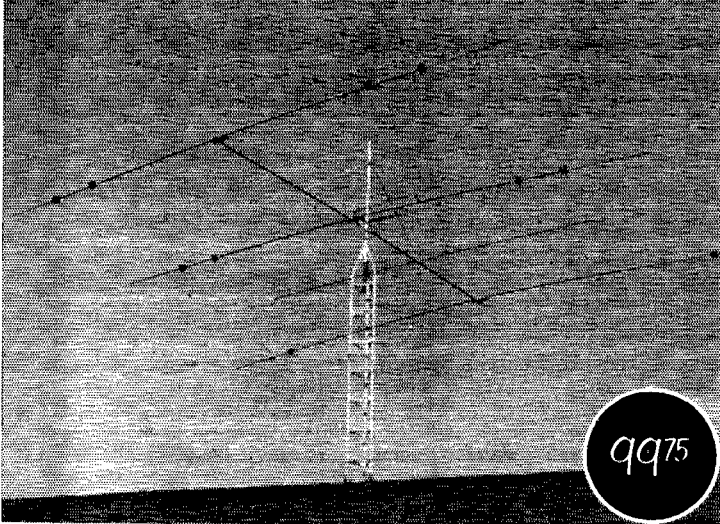
city & state \_\_\_\_\_

QUAN.	ITEM	MODEL NO.	PRICE

\$ \_\_\_\_\_ enclosed. Parcel post, include postage—express is shipped collect.

there are more hy-gain trap tribanders in use

# the hy-gain.



9975

## Automatic Switch Action!

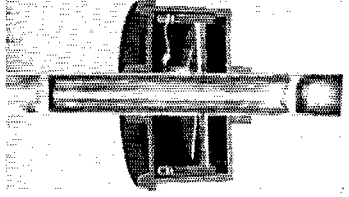
Streamline, silhouette traps, only 3" in diameter, make possible for the first time a really efficient multi-band antenna system, acting as insulator at its resonating frequency, but allowing radio energies of other frequencies to pass, isolating various sections of the antenna. Mechanically and electrically stable, the hy-gain traps are hermetically sealed at the factory in a polyethylene cover and cap. Hi-Q coils wound on large 3" diameter styron

# trap

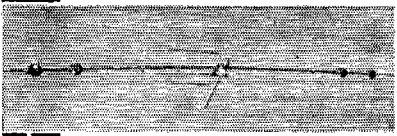
form. Capacitor dielectric is solid styron. No air dielectric.

## No Bulky Sleeves!

The hy-gain lumped constants trap circuit accomplishes decoupling in the smallest, most efficient, most weather-proofed manner possible. Housed in a tight, 3" unit, they eliminate moisture,

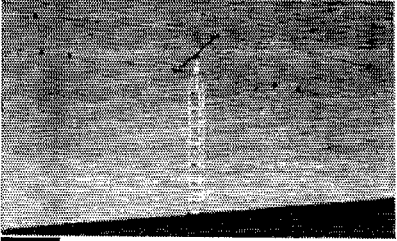


The 3-Element Tribander is now considered the standard of performance in the field of amateur radio communications. F/B Ratio: approx. 25 db. Forward gain: average 3 db. All lengths predetermined from experimentally derived data enable assembly and operation as specified with no test instruments needed.



Three band performance at the lowest possible cost. This dipole may be rotated or mounted stationary due to its broad polar response pattern. Single transmission line for all bands.

3995



The 2-Element Tribander is for use in limited space for top quality transmission on 10, 15 & 20M. Single transmission line. F/B ratio: average 18 db. Forward gain: average 5.8 db.

6950



Here's the world's champion; the finest, highest gain rotatable array; the 5-Element Trap Tribander. Heavy duty construction. Uses 36', 2x3" rectangular aluminum boom. F/B Ratio: average 25 db. Forward gain: average 12 db.

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dust and breakdown. Compare this with trying to weatherproof an eight foot sleeve. The creative design of the hy-gain traps guarantees less total wind loading area than any other full-sized 3-band beam in existence.

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The new traps now take 3 KW RF Power, enough to handle the most modern high powered linear amplifiers, more than any other tribander now made.

hy-gain traps are guaranteed for the life of the beam!



Tremendously rugged construction is used throughout, including this slip-proof Boom/Mast and Element/Boom clamp, with 12 Ga. galvanized steel channel for positive grip. All hardware is heavily galvanized and iridite treated for max. weather resistance. Hot dipped galvanized booms and Alcoa 6061T6 aluminum elements offer max. strength versus wind resistance.

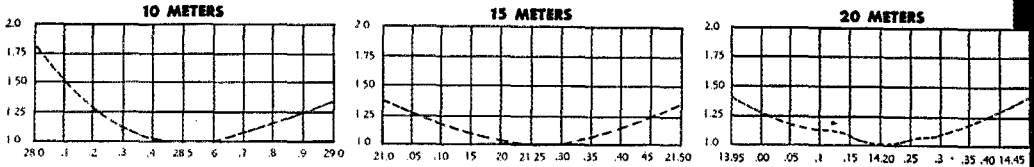
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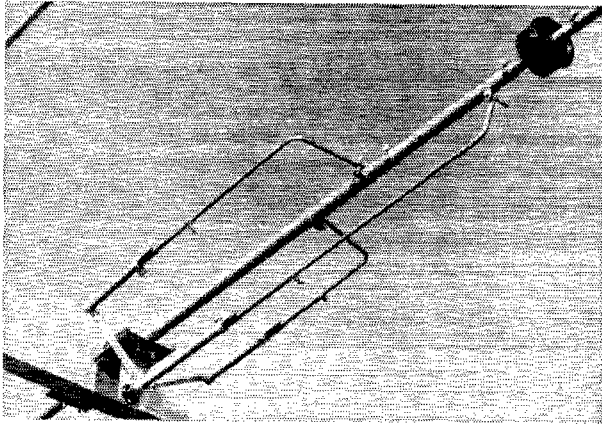
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each band. No external baluns, antenna tuners or matching networks needed. The Triaxial Gamma Match System completely obsoletes the "old fashioned" split dipole feed, maintaining perfect balance. Used exclusively in the *hy-gain* 3-band beams, this System is factory preassembled, weather sealed, and requires no test instruments for perfect matching.

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• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.

### ATLANTIC DIVISION

**EASTERN PENNSYLVANIA**—SCM, Richard B. Mesivro, W3JNQ—SEC: DVB, RM; YAZ, PAM; TEJ. The E. Pa. Net meets at 3610 kc. 1830, Mon. through Fri., PFN meets at 3850 kc. at 1800. New appointments: CMN and CSP as ORS; GYP as 00; GYP and ZRQ as OBS; RCV as QES, CUL makes the BPL for the 101st consecutive time! The Frankford Radio Club elected ALB, pres.; KT, vice-pres.; CGS, secy.; LEZ, treas. K3ANS announces the formation of the Breakfast Net, which meets at 0900 on 3740 kc., Sun., and a teenager net on the same frequency (all ages welcome!). CSP is QRL with a high school drama. EU leaves the big city for his farm and received a new car from his XYL for Christmas. YDX makes the BPL again on deliveries. GYP's traffic total is the same as his QSO total in the SS. YAZ produced another E. Pa. Newsletter, a bang-up job again. TEJ received certificate No. 13 of the 13 Hex Club for working 13 Lancaster Co. stations. BES is rebuilding his modulator in preparation for the ARRL DX test. CMN is QRO with a new Viking II and is working DX. BNR has a 15- and 10-meter quad percolating. BBS has a new 10-meter beam. AMC spent the month of December working in the wilds of Canada. KN3ALS is approaching WAS and probably will reach it before OM GQC, who was QRT because of sickness. ZRQ is building a tri-band converter for 14, 21 and 30 Mc. NOH, armed with his new quad, hears much more on 20 meters. On November 25 the North Penn ARC, staffed entirely by AREC members, set up a 2-meter net for the Lansdale Jr. C. of C. Mardi Gras Parade. Twelve net members did a bang-up job and received the thanks of the officials. AXA has more time for operating as his youngsters get older. The Philmont Mobile RC had 138 attend its annual banquet and gave QQH an award as the Most Valuable Member for '57—his second such award! BQA reports increasing interest in the Harrisburg RAC's award. Information will be given on request. RKN built a new shack for his gear (what a switch that is). HOX returns to the air after several years of inactivity. CFL is operating from Virginia while on the job. The Tamaqua ARC announces its 4th Annual Banquet for April 19, 1958. JNQ spent most of the month copying logs from the October CD Party and the SS. Traffic: W9CUL 1568, WHK 327, TEJ 232, YDX 194, BFF 137, YAZ 102, ZRQ 68, NE 51, CMN 48, PDJ 27, EPL 25, AXA 25, DVB 21, BBM 15, AMC 13, FVT 12, FAW 12, PUY 10, UEU 10, DTK 9, OGD 9, BNR 6, KFI 6, NQB 6, JNQ 4, BES 2.

**MARYLAND-DELAWARE-DISTRICT OF COLUMBIA**—SCM, Louis T. Cronberger, W3QCR—Asst. SCM for Delaware: Ray deCourcelle, 3DQZ, SEC: PKC, Section Nets: MDD, 3650 kc. M-S 1915 EST; MEPN, 3820 MWF 1800, SS 1300 EST. The Mountain ARC held "Old Timers' Night" on Nov. 7 with many former Cumberland OTs present. Certificates of service were awarded to old-timers of long service by President UFI. The Kent County ARC started its fifth Novice course in October with ZNF teaching theory and IZHE the code. The Delaware ARC has announced that the next "Delaware QSO Party" will be held the week end of Mar. 16 and 17. Delaware and all others are invited to participate. Members of the Red Hen Mobile Radio Club, SQV pres.; TKM, vice-pres.; PCZ, secy.; and UMW, treas., are receiving "first Aid" instruction at the Wilmington chapter of the ARC, their regular meeting place. KDV spoke on "Net Procedures" at the

BARC Nov. 4 meeting. Harford County ARA's new call is K3CJT. New officers of the WTVI committee are OBR, chairman; 4HY, vice-chairman; 4ZAI, corr. secy.-treas.; AKB, rec. secy.; with ECP continuing as coordinator. Win. M. Pulford, of Bendix Radio, gave a talk on transistors at the GARC meeting of Nov. 11. At the Nov. 1 meeting of the WRC HCC spoke on "Operation Moon Watch" and optical tracking of Sputniks, etc. WRC has a new club net on 7150 kc. on the off Friday night of the club meetings. PYW spoke on "RTTY" at the RCARA on Nov. 8. At the RCARA meeting of Nov. 22 RGN spoke on "What the Professionals are Doing in Communications." The GARC and the BARC have joined the Foundation of Radio Amateur Clubs. QRL is preparing a new RACES plan for St. Marys County. EOY was the recipient of certificate No. 1 for "Worked WMRC." MSK has a new six-element beam on 15 meters. GD has been elected a director of the MEPN. TDU, at Ft. Gordon, Ga., operates K4WAR when time permits. DQZ reports QNR has gone phone. K3BRM, ex-8ZJL, is now on 2 meters in Delaware. KET has a new final (a pair of 4X250s). EEB is the new chairman of the Wilmington TVI committee. JEW is teaching theory classes to 17. QXL has returned from Florida, where he managed to work EHA on 20-meter s.s.h. AKB and BWT are getting settled in their new QTH. KDC and IQX now are General Class. MUG joined Silent Keys while a patient at Baker Memorial Hospital, Martinsburg, W. Va. KN3BVII is on the air with a Globe Scout 680 and vertical. KN3CH is on 2 meters with a Communicator. SW and BFL have installed new tri-band beams. EQK had a visit from K9IVR, who he had patched through to his mother while she was a patient in a Baltimore hospital. K3ARK worked many on 2 meters while aeronauticalmobile between N.Y.C. and N.C. CU at the ARRL NATIONAL CONVENTION AUG. 15-16-17, 1958. Traffic: (Nov.) W3PQT 615, UE 354, K3WBJ 287, W3HIZ 214, CVE 190, PQ 90, TN 84, PZW 77, BUD 59, AHJ 55, COK 42, EOY/DAG 39, UCR 37, RCP 32, CN 15, WSE 13, OYX 9, HKS 8, AKB 7, BWT 4, JZY 4, LZY 2. (Oct.) W3CVE 169, CN 57, WSE 35, BKE 4. (Sept.) CVE 178.

**SOUTHERN NEW JERSEY**—SCM, Herbert C. Brooks, K2BG—SEC: YRW, PAM; ZI, K2OGQ, of Hampton Lakes is a new OPS. The SJRA reports the following new officers: OGZ, pres.; K2HOD, vice-pres.; QBH, corr. secy.; K2MBD, rec. secy.; and K2BG, treas. The SJRA reached an all-time high with over 260 members. SCARA is sponsoring a code and theory class consisting of 45 members, under the guidance of K2YYB with several assistants. The SCARA meets the 2nd Fri. at the Northfield Fire House, Burlington Co. Radio Club's new officers are K2HOD, pres.; K2GX, vice-pres.; K2PDR, treas., and K2KPF, secy. Pleasautville's outstanding OO, LS, again reports over 70 out-of-band stations as a result of his observations. Six-meter activities in the Burlington, Camden and Gloucester Counties Area is on the increase as a result of SJRA's "Project X." Over fifty transmitters and converters are being built. K2SOX, a new ORS, also is a member of MARS. K2ITP, Riverton, has worked 12 countries and 4 continents on 6 meters. Joe runs 400 watts into a ten-element beam. HDW, HiNella, has been appointed net manager of N.J.N. The net members held their annual meeting at New Brunswick. Look for the N.J.C.D. Phone Net Sun. at 9:30 A.M.; also the 2-Meter C.D. Net at 10:30 A.M. Sun. on 145.68 Mc. K2HPV, Penns Grove, is heard regularly on 15 meters. K2QOS, Trenton, is one of our new traffic-handlers on the 8-Meter Traffic and Emergency Net. Many fine reports are being received, indicating a very active section. Keep up the fine work. Traffic: W2RG 163, HDW 143, K2JGU 97, W2ZI 44, K2SOW 32, QOS 30, PPT 22, W2BZJ 14, K2JKA 9, SOX 6, HPV 3.

**WESTERN NEW JERSEY**—SCM, Charles T. Hansen, K2HUK—SEC: UTH/FRL. RMs: RUF and ZRC. PAMS: TEP, NAI and LXE. NYS C.W. meets on 3615 kc. at 1800. ESS on 3590 kc. at 1800. NYS Phone on 3925 kc. at 1800. TAR on 3570 kc. at 1700. NYS C.D. on 3509.5 and 3993 kc. at 0900 Sun., TCPN 2nd Call Area on 3970 kc. at 1900. SRPN on 3980 kc. at 1000. LSN on 3970 kc. at 1600. UTH/FRL has resigned as

(Continued on page 106)

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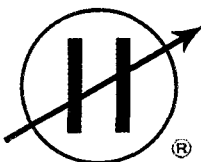
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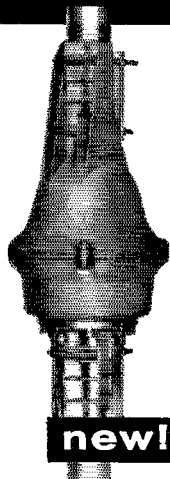
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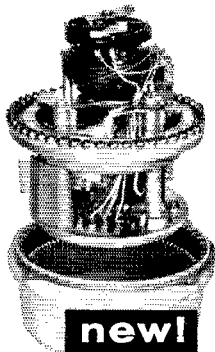
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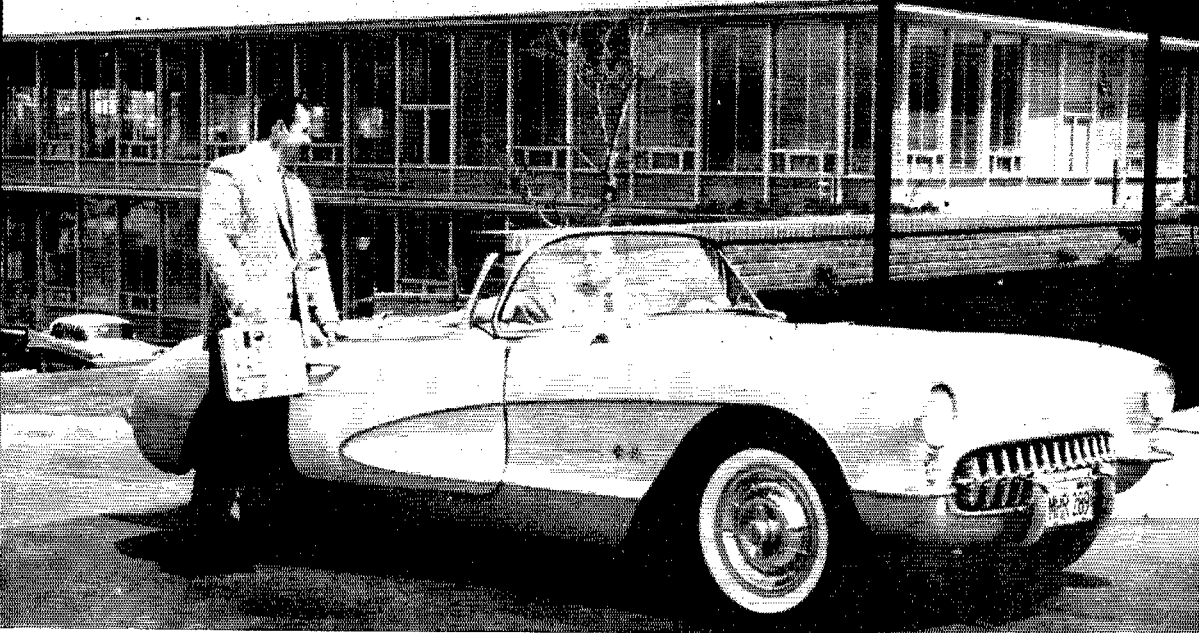
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SEC after serving in this capacity for five years. He has done an excellent job and I'm sure you'll all join me in a resounding "well done." K2HUK has a KWM-1. K2VOZ worked 52 countries as a Novice and is now on 2 meters. UTH received a QSL from 1A9T confirming the first LA-W QSO on 6 meters. BKC has a 4-250A Final on the air at 800 watts with controlled carrier modulation on 75-meter phone. K2QPC has a five-element beam up on 6 meters and is interested in contacting those interested in a traffic net. QJ has a full-size 20-meter beam in operation. K2RHQ put up his tri-band beam four times in four weeks. He has been elected President of the Kenmore High RC, with K2ERP and KN2YJN Vice Presidents. K2RAA has a new homebrew modulator. K2JFV has his tower back in the air after a slight mishap with the wind. K2UNR makes BPL this month. K2YCU, the club station at the U. S. Veterans Hospital in Buffalo, now has wide-spaced three-element Telrex beams for 15 and 20 meters on the roof. Said roof is 250 feet high and a 75A-4 and a KWS-1 are used as antenna tuners. K2PWJ has a new 6-meter rig. RUJ is now on 2 meters, complete with hand rotated beam. AH has completed a final for two-twenty using a 4X150A. PFI treated RARA with a terrific color slide show of the ARRL Convention. BZN is on s.s.b. with a 20A and a homebrew VFO. TTQ is trying out a new HT-32 and HT-33 combination. ZS has a new HT-32, K2TYJ, K2JFV, POM and ALL are on 6-meter s.s.b. SNI now has 103 countries on 15-meter phone. QMJ has a new tri-band rotary. ICE is ready for DXCC. The RAGS Review now runs photos. The RARA Rag has a new look which is impressive. The Corning ARA reports that its own club house is almost a reality. K2OAR has a new HQ-110. Six-meter activity is growing by leaps and bounds. EUP has been appointed OO Class III. New EC appointees are YLM, Broome County; KIJ, Chemung County; CVX, Delaware County; IXR, Oneida County. Renewals: RQF as OPS, ZRC as RM and ORS. Traffic: (Nov.) K2YF 250, W2RUF 197, K2UNR 180, W2SIL 135, YTD 103, ZRC 95, RHY 86, K2RYH 86, W2VZJ 67, K2GQV 52, JBX 52, W2QHH 44, FEB 36, COB 32, K2BBJ 23, DG 20, RTN 19, CUQ 18, W2SEC 14, BKC 8, K2HUK 8, W2RQF 7, K2RIT 2. (Oct.) K2GWN 98, KIR 31, W2PMB 13.

**WESTERN PENNSYLVANIA**—SCM, John F. Wojtkiewicz, W8GJY—Asst. SCM, Anthony J. Mroczka, 3UHN. SEC: OMA, RBMS: NUG and GEG. It is with deep regret that this column records the passing of QYF and NCJ. The WPA Traffic Net meets Mon. through Fri. at 1900 EST on 3585 kc. New appointees are PDY and GIL OBS, K3ABN and YDK as OOS, LXU and EPM as ORSS. TOC is crowding the two-hundred-dollar mark in his "Jimmy Walker" Campaign fund. RBF has been reelected pres. and RTB, rec. secy. of the Western Penna. DX Society. Meetings are held the first Thurs. of each month at the WQED-TV transmitter site. DX enthusiasts are welcome to attend meetings. Newly-elected officers of the Allegheny Kiski ARA are CDK pres.; UHV, vice-pres.; UDV, secy.; HQW, treas.; WGH, RAR and LPQ, board of directors. ZFJ will head up the club's 6-meter transceiver project and will present several circuits from which one will be chosen. MTY chases DX when he tires of rag-chewing on 28-Mc. phone. RBF installed a key-click filter in his DX-100. CRA is funneling r.f. into his beam, which was damaged by a wind storm. BSE snagged JT1AA for a new one on 14 Mc. Congrats to Gil at YA on his reelection as Director. ZHIQ and NUG took part in the ARRL Sweepstakes. LFK/5 fell out of a tree while installing an antenna. EPM is providing the WPA Traffic Net with a 6-meter link for Pittsburgh traffic. LXU teaches a code class at YDW, a club station. YOZ was startled by excellent results after taping his 2-meter dipole on the driven element of his TV antenna. UHN's NYL is home from the hospital. LKC is now RTTY and NQA soon will join him. YDK informs us that the Western Penna. School for the Blind ARC meets each Thurs. evening. The Whitehall Community Lions conducted a raffle, the proceeds to be used for the purchase of equipment for this club. The station call is K3AQE. Two students at the school, KN3BZZ and BT.A, are newly-licensed. KNQ shows up on the WPA Traffic Net at the most opportune times. NSQ is doing fine OBS work. ABN and UGV are building heterodyne frequency meters to qualify as OO Class I. JWZ wants to contact u.h.f. propagators. His address: A. Cowles, B-309 Dravo, Lehigh University, Bethlehem, Pa. Up Erie way: YWL is back on 6 meters WDK, FVH, BFB, BPB, LSS and K4IWM are building up the Six-Meter Club. WDK, KLD and LKJ are on the trouble-shooting committee. JTF puts out a hundred watts on 6 meters with a new Johnson Six and 2-meter transmitter. UCZ, FIQ, and JQV also emit on

(Continued on page 108)

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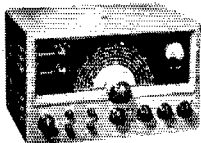


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## CENTRAL DIVISION

**ILLINOIS**—SCM, Edmond A. Metzger, W9PRN—Asst. SCM: Grace V. Ryden, 9GME. SEC: HOA. Cook County EC: HPG. RAI: MAK. Section net: ILN meets Mon. through Sat. on 3515 kc. at 7 p.m. CST. This is my first report as your newly-elected SCM. It is my sincere desire to carry out all of your wishes and to make this section one of the finest in the League. With your help it can be done. To George T. Schreiber, the retiring SCM, goes my humble praise for a four-year job well done. ICT, after 25 years, made WAC by working Asia while recuperating from the flu. HUX and IWF are sporting new beam antennas. CKP is returning to W4-Land. New officers of the Sangamon Valley Radio Club are YJF, pres.; PNO, vice-pres.; BPM, secy.-treas.; and CAG director. Hats off to KN9GXB on his 40-meter WAS. New Novices heard are KNs IAB, IAQ, BHN, IBX, IHK, IHM, IJL, JKP, HYQ, JZT and KHU. A new General Class licensee is K9KLL. The election at the Kishwaukee Club resulted in GYB, ARN, BHG and WTF taking over the helm as new officers. Listen for the SCEN on Sun. at 1:30 p.m. and Thurs. at 7:00 p.m. on 3877 kc. CAG is net control. BUK says that he badly needs downstate stations on the ILN. He also could use one in the Peoria Area. FAZ is back after two weeks mobiling. KDQ is the new club station for Neoga High School, with EHA and GHP operating the Ill. Teen-Age Net there on Fri. at 6:00 a.m. on 3955 kc. YJF and RZC invested in 10 kw. generators for emergency power. KQL spoke before his local Rotary Club with a 6-meter demonstration. Don't forget that the new W/K9 QSL Manager is DSO, of 2801 Gordon Drive, Flossmor, Ill. His is a tremendous job so help him out by sending the correct size and plenty of envelopes for those QSLs. The CARCC is planning a "Join An Amateur Radio Club" month. Peterson spoke Dec. 10 at the (CHD) V.H.F. Club meeting while Dick Siebert spoke of transvertors at the regular (CHD) Mobile Club meeting. The *Northside Star*, in the Windy City, published a swell front-page story about the YLs and XYLs tracking the satellite atop the Edgewater Beach Hotel along with the Ground Observers' Corps. Fellows, if you have an official appointment, please check the date. This must be renewed yearly. If you are interested in an appointment, get in touch with your SEC for an EC appointment or the SCM for others. The SCM's address is on page 6 of QST. The ECs also must endorse all AREC appointments. News items regarding clubs, new hams, equipment, etc., are always welcomed by your SCM. MAK reports that the ILN cleared 349 messages in 26 sessions during November and that he also received his 35-w.p.m. Code Proficiency award. K9BQW is licking his Channel 2 harmonic trouble. The North Central Phone Net handled 594 messages in November, reports CSW. A new call heard on ILN is K9JJU. Another new call in the area is KN9KLK. The Chicago Suburban Area Radio Assn. officers are DWD, BPW, FBP and IDO. YH, at the U. of Ill., has a complete antenna revision program calling for abandonment of the old Sterba curtain. LI has been spending what little ham time he has building a super-sensitive receiver to snag the DX from under the noses of his brother GDI and NN. JAIG has 8000 square feet of antenna space and still can't make up his mind. TZN, another old-timer, is getting a kick out of the traffic nets and has boosted his code speed to 35 w.p.m. Traffic: W9DO 1084, MAK 567, PCQ 281, K9GVD 148, W9IDA 116, KN9JLD 101, W9FAW 48, BUK 40, YFS 25, YH 12, K9BQW 6.

**INDIANA**—SCM, Arthur G. Evans, W9TQC—Asst. SCM: Seth Lew Baker, 9NTA. SEC: CMT, PAMs, BKJ, KOY, SWD and UXX. RMs: DGA, JOZ and TT. New station appointments are FJR, HUF, KSR and RTH as ORSs and DFW as OO. RTH is doing a swell job of building c.w. operators in the Seymour ARC Net which meets each Sun. BKJ is on his way to KH6-Land and hopes to be on the air from there. HXR received a 25-w.p.m. Code Proficiency sticker. NTR reports that his new beam is working fine. TVI committees have been set up for Hammond and Indianapolis. UXX is remodeling his house and will provide more room for the shack. K9DWK is active on the DX bands. K9HCE has a Viking II and AYH is completing a 2E28 rig for 6 meters. KN9KIZ is new at Seymour. BUQ, NTA, SVL, ZHL and ZSL are getting on s.s.b. IDI is operating portable from the U. of Idaho. K9HTT is on 6 meters with a new Globe 680. WTY reports that the 2-meter RACES group in South

*(Continued on page 112)*

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ELDICO's  
ALL-BAND  
SSB MOBILE  
TRANSMITTER

(see announcement  
in March QST)

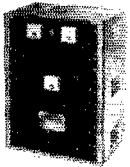
**ELDICO**  
ELECTRONICS

29-01 BORDEN AVENUE, LONG ISLAND CITY, NEW YORK

A Division of Radio Engineering Laboratories, Inc.

More **WORKABLE WATTS** Per Dollar

IN THE **WRL Electronics DESIGN!**



**Globe King 500C**

Bandswitching Xmtrr. for 540W fone, CW & SSB (PEP), with external exciter. 21 x 22 x 14 3/4". TVI-shielded cabinet. Latest design: built-in VFO, relay controls, separate modulator power supply, compression circuit, grid-block keying, pi-net for 52-600 ohm matching, provisions for SSB input and operation.

\$795  
Net



**Globe Champion 300A**

Bandswitching Xmtrr. (10-160M) for 350W CW, 275W fone, 300W SSB (PEP) with external exciter. TVI-shielded 12x12 3/4x17" cabinet. Class "B" modulation, compression circuit, built-in VFO and antenna relay, time-sequence keying.

W & T:  
\$495  
Kit:  
\$399



**Globe Scout 680A**

Bandswitching Xmtrr. (6-80M), 65W CW, 50W fone, plate modulated. Built-in power supply, pi-net output or PA amplifier. 11 1/2-coupled in GML. Designed for TVI-suppression.

W & T:  
\$119.95  
Kit:  
\$99.95



**Globe Chief 90A**

Bandswitching Xmtrr. (10-160M) for 90W. Well-filtered, built-in power supply. Pi-net, grid block keying, provisions for VFO input and operation.

W & T:  
\$74.50  
Kit:  
\$59.95



**Linear Amplifier LA-1**

Grounded Grid type with well-filtered power supply built-in. Operates either Class B or C. Requires 7-15W F driving power depending on operation. 8x8x14", TVI-shielded cabinet.

W & T:  
\$124.50  
Kit:  
\$99.50



**Universal Modulator UM-1**

Supplies 10-45W audio output as Class A or B modulator, driver, or PA amplifier. Matches 500-20,000 ohms impedance. Wired model complete with 4 tubes. Kit comes less tubes. Steel cover extra, \$3.00.

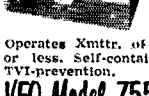
W & T:  
\$49.95  
Kit:  
\$32.50



**Antenna Tuner AT-4**

With built-in VSWR, handles any Xmtrr. with final RF input power up to 800W, 80-10M. Monitors actual SWR. 8x8x14", RF shielding cabinet.

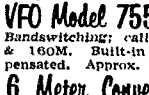
W & T:  
\$79.50  
Kit:  
\$69.50



**Antenna Tuner AT-3**

Operates Xmtrr. of power input 100W CW, 75w fone, or less. Self-contained. In 5x4x4" steel cabinet for TVI-prevention.

W & T:  
\$15.95  
Kit:  
\$11.95



**VFO Model 755**

Bandswitching; calibrated for 160-10M; output on 40 & 160M. Built-in power supply. Temperature compensated. Approx. 50 RF V. output.

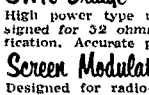
W & T:  
\$59.95  
Kit:  
\$49.95



**6 Meter Converter**

Crystal converter for receivers, 10-14 mc. Special order frequencies available. Shielded input/outputs. High sensitivity. 3x5 1/2x4

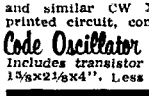
W & T:  
\$27.50  
Kit:  
\$19.95



**SWR Bridge**

High power type up to 400W fone, 1000W CW; designed for 52 ohms; furnished with 72 ohms on specification. Accurate post 30 megacycles.

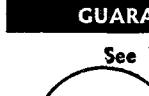
\$16.95  
Net



**Screen Modulator Kit**

Designed for radio-telephone operation of Globe Chief and similar CW Xmtrrs. Self-contained. All parts, printed circuit, complete instructions.

\$11.95  
Net



**Code Oscillator Kit**

Includes transistor & printed circuit, easy to assemble, 1 1/2x2 1/2x4". Less key.

\$4.95  
Net

**GUARANTEED FOR ONE YEAR!**

See Your Favorite Distributor  
or write to

**WRL Electronics**  
Phone 2-0277

Broadway at 34th • Council Bluffs, Iowa

Bend has been commended for providing communications which were a great help in solving the parking problems at the U. of Notre Dame. You should be hearing more from DFW with his new 40-ft. tower and almost complete kw. SWD reports 1FN morning traffic as 252 and evening at 248. JOZ gives QIN traffic as 284. TT reports 49 for RFN and 1246 for UTL. CAEN traffic is 57, as reported by EHZ. 1FN has been plagued by unmodulated carriers turned on for ten minutes at a time. HST has a new DX-100. QR is working lots of DX with his new 10-meter beam. NZZ still maintains skeds with the Arctic. ETM has regular skeds with the Byrd stations in the Antarctica. Those making BPL this month were ETM, JOZ, JYO, NZZ and TT. Traffic: (Nov.) W9NZZ 1580, JOZ 858, TT 465, ETM 334, VAY 295, EQO 248, JYO 198, ZYK 154, SVL 139, BKJ 130, EHZ 100, KTH 97, EJW 96, TQC 95, BUQ 58, SWD 55, FJR 51, DOK 44, YX 43, SNQ 38, VNY 38, BDG 36, NTA 30, WEL 28, AB 26, CG 26, HUF 26, HXR 25, GJS 22, IMT 21, MLF 21, BDP 20, KN9IXD 20, W9ENU 19, HGF 18, UQP 17, HRW 15, IMU 15, DDT 13, DGA 12, EZW 11, JBG 11, QR 7, K9AYI 7, W9CWD 6, SVZ 6, ZSW 6, QYQ 5, WAU 5, CYZ 4, NTR 4, VQP 4, VPJ 3, YVS 3. (Oct.) W9VAY 408 K9DFK 4.

**WISCONSIN**—SCM, George Wolda, W9KQB—SEC: YQH, PAMS; NRP and AJU. RALs: KJJ and K9AEQ. YQH's new address is P. O. Box 179, Oshkosh. Credit is due ONY and K9CJF for the interesting bulletin they get out for the Milwaukee Club. DYX handles the DX portion of the bulletin. IXA has a new Novice class. VHP, along with SAA, favors a slow-speed net. If more requests are received, it will be started. After four years of Navy e.w., FFB is sending perfect code from a rocking chair. GAB has a new 2-meter antenna; a 64-element collinear array. K9CEF, our new 75-meter OBS, schedules his Official Bulletins at 1745 CST on 3950 kc. Mon, Wed, and Fri. GFL, the only Class I OO in our section, was 029 cycles low on the 80-meter test; 008 cycles low on the 40-meter and 121 cycles low on the 20-meter Frequency Measuring Test. RQM made WAS during the first 16 hours of the SS and 7 new countries makes his DX totals 187 worked, 170 confirmed. The Wausau Hamfest is scheduled for May 17. Mark your calendar. K9GDF is headed for the BEN with a new Globe Champ. K9ELT now is RCC. PJT has a new DX-100 and desires word from all teen-agers who would like a teen-age net. There is a new 75A-4 at the GIL-K9CAN shack. New in Milwaukee is KN9ICI, the daughter of ZAD and AFT. QNO and LSV made DXCC. DKH worked AFT on 2 meters using a Gonset Communicator and his regular 80-meter Window antenna. ERW, the 80-meter c.w. OBS, is on 3535 kc. at 2000 CST Tue, Thurs, and Sat. VCL has a QSL from ZLIAAX for an 80-meter s.s.b. contract. VZK has 32 countries on 10-meter phone. SZR has a new ground plane. The Duluth-Superior Club was visited by Director Doyle and also BGY, who spoke on his African trip. Activity on 160 meters runs high at Oshkosh. IXA is back on WIN after a few years layoff. CXY, SAA, K9GDF and K9CKW made the BPL Traffic: (Nov.) W9CYC 1046, K9GDF 362, WSAA 238, K9E 201, DYC 76, K9ELT 76, AEQ 63, W9SZR 44, VT 33, NRP 25, KJJ 23, ERW 13, FXA 13, GFL 11, KJW 11, QJW/9 10, PJT 8, FZC 6, GIL 6, CBE 5, OVO 5, RQM 5, SIJ 5, RKP 2 MUM 1. (Oct.) K9CKW 146, W9QJW 78, SIJ 9.

**DAKOTA DIVISION**

**SOUTH DAKOTA**—SCM, Les Price, W8FLP—Asst. SCM: Gerald F. Lee, WYKY. SCM assistants: NEO and FKE. SECS: YOB and GDE. V.H.F. PAM: SCT. U.H.F. PAM: ORE, RM: GWS. The S.D. 75-Meter Phone Net reports 33 sessions, QEK 4, SCT 10, K9CRD 3, CTZ 2, EXX 5, GQH 3, NEO 3, OQZ 3; QNI 915, high 42, low 8, average 27.72; traffic 28, high 5 (twice), low (16 times), average .847; informal 101, high 8 low 0 (twice), average 3.06. QNI is way up. The S.D. 40-Meter Phone Net reports 26 sessions, K9ARF 3, K8DPD 5, NNX 8, EXX 5, SCT 5; QNI 410, high 20, low 6, average 15.77; traffic 58, high 6, low 0 (7 times), average 2.23; informals 39, high 3 (4 times), low 0 (twice). The S.D. S.S.B. Net was started with NEO as NCS and had 30 sessions at 8 P.M. CST; QNI high 27, low 8, average 15.9; QTC high 5, low 0, average 1. The S.D. WX Net, which meets at 7:25 A.M. MST with ZWL as NCS and alternates VAJ on Wed. and K9ARF on Sat., had 25 sessions, QNI 374, high 22, low 11, average 14.9; QTC 381, high 28, low 11, average 15.2. The S.D. C.W. Net, GWS as NCS, reports QNI 61, high 8, low 2, average 5; QTC 19, high 3, low 0, average .4. PDARC member KN9HNH, in the Navy, was home on leave recently. His address is 320 02 58, EFSA, U. S. Navy, San Diego

(Continued on page 122)



# YOU COULD WORK WONDERS IF YOU HAD A GOTHAM BEAM!



**TYPE OF BEAM.** All Gotham beams are of the full half-wave plumber's delight type; i.e., all metal and grounded at the center. No wood, tuning stubs, baluns, coils, or any other devices are used.

### MORE DX CONTACTS

**GAIN.** Gotham beams give the maximum gain obtainable. Our 2-element beams give a power gain of four (equivalent to 6 db.); our 3-element beams give a power gain of seven (8.1 db.); and our 4-element beams give a power gain of nine (9.6 db.)

### THOUSANDS IN DAILY USE

**MATCHING.** Matching of the transmission line to the beam is extremely simple and quick. No electronic equipment or measuring devices are required.

### ALCOA QUALITY ALUMINUM

**ASSEMBLY AND INSTALLATION.** No special tools are required for assembly and installation. Entire job can be done by one man in less than an hour. Full instructions are included with each beam.

### CONSISTENT PERFORMANCE

**MAST.** Any Gotham beam can be mounted on a simple pipe mast. Diameter of the pipe should be between  $\frac{3}{4}$ " and  $1\frac{1}{2}$ ".

### YOU WILL WORK THE WORLD

**STANDARD AND DELUXE BEAMS.** Standard beams in the 6, 10 and 15 meter bands use  $\frac{3}{8}$ " and  $\frac{1}{2}$ " tubing elements; the deluxe models for these bands use  $\frac{7}{8}$ " and 1". In 20 meter beams, the standard has a single boom, while the deluxe uses twin booms.

## TRIBANDER BEAMS

6-10-15 TRIBANDER.....\$39.95  
10-15-20 TRIBANDER..... 49.95

Do not confuse these full-size tribander beams with so-called midgets. The Tribander has individually fed (52 or 72 ohm coax) elements and is not frequency sensitive, nor does it have baluns, coils, traps, or other devices intended to take the place of aluminum tubing. The way to work multi-band and get gain is to use a Gotham Tribander Beam.

### TWO BANDER BEAMS

6-10 TWO BANDER.....\$29.95  
10-15 TWO BANDER..... 34.95  
10-20 TWO BANDER..... 36.95  
15-20 TWO BANDER..... 38.95

Each Two Bander has twin 12' booms, and full-size half-wave elements.  $\frac{7}{8}$ " and 1" aluminum alloy tubing, all castings and fittings are supplied. Assembly is easy.

**FREE! FREE! FREE!** Details, Specifications and Characteristics of 30 antennas!

You could work KC4USA in the Antarctica with only 90 watts on 15 meters, as W4SK did.

You could work over 100 countries with a three element 10 meter beam, and be a top man on the frequency, like WØDEL.

You could work terrific skip and DX with reports of 20 over 9, with as little as 36 watts input on 20 meters, as W. E. Woods did.

You could work 29 states in three months on six meters, with low power, as K2LHP did.

**NO TRAPS, COILS, BALUNS, STUBS OR INSULATORS USED!**

**Airmail Order Today — We Ship Tomorrow**

**GOTHAM** Dept. QST

**1805 PURDY AVE., MIAMI BEACH, FLA.**

Enclosed find check or money-order for:

### TWO BANDER BEAMS

6-10 TWO BANDER.....  \$29.95  
10-15 TWO BANDER.....  34.95  
10-20 TWO BANDER.....  36.95  
15-20 TWO BANDER.....  38.95

### TRIBANDER

6-10-15 \$39.95  10-15-20 \$49.95

### 2 METER BEAMS

Deluxe 6-Element 9.95  12-El 16.95

### 6 METER BEAMS

Std. 3-El Gamma match 12.95  T match 14.95  
 Deluxe 3-El Gamma match 21.95  T match 24.95  
 Std. 4-El Gamma match 16.95  T match 19.95  
 Deluxe 4-El Gamma match 25.95  T match 28.95

### 10 METER BEAMS

Std. 2-El Gamma match 11.95  T match 14.95  
 Deluxe 2-El Gamma match 18.95  T match 21.95  
 Std. 3-El Gamma match 16.95  T match 18.95  
 Deluxe 3-El Gamma match 22.95  T match 25.95  
 Std. 4-El Gamma match 21.95  T match 24.95  
 Deluxe 4-El Gamma match 27.95  T match 30.95

### 15 METER BEAMS

Std. 2-El Gamma match 19.95  T match 22.95  
 Deluxe 2-El Gamma match 29.95  T match 32.95  
 Std. 3-El Gamma match 26.95  T match 29.95  
 Deluxe 3-El Gamma match 36.95  T match 39.95

### 20 METER BEAMS

Std. 2-El Gamma match 21.95  T match 24.95  
 Deluxe 2-El Gamma match 31.95  T match 34.95  
 Std. 3-El Gamma match 34.95  T match 37.95  
 Deluxe 3-El Gamma match 46.95  T match 49.95

(Note: Gamma-match beams use 52 or 72 ohm coax. T-match beams use 300 ohm line.)

### NEW! RUGGEDIZED HI-GAIN 6, 10, 15 METER BEAMS

Each has a TWIN boom, extra heavy beam mount castings, extra hardware and everything needed. Guaranteed high gain, simple installation and all-weather resistant. For 52, 72 or 300 ohm transmission line. Specify which transmission line you will use.

Beam #R6 (6 Meters, 4-El).....\$38.95  
 Beam #R10 (10 Meters, 4-El)..... 40.95  
 Beam #R15 (15 Meters, 3-El)..... 49.95

Name.....

Address.....

City.....Zone....State.....



# ROHN TOWERS

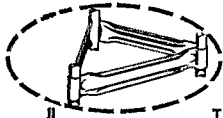
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## ELMAR

ALL SIZES  
AND TYPES

Featuring . . .

**ROHN NO. 6**  
all-purpose  
**TOWER**



This tower fully meets a great many amateur and general communications applications.

Heavy duty construction features 1 1/2" equilateral triangle design with securely welded-on, 2 1/2" wide cross bracing which is corrugated for exceptional strength.

Extremely easy to install . . . strong . . . stable . . . permanent.

ROHN No. 6G, Hot dipped galvanized, 10' sections, 14.85 ea. (Weight 31 pounds) f.o.b. store Oakland.

also available

**ROHN NO. 7**

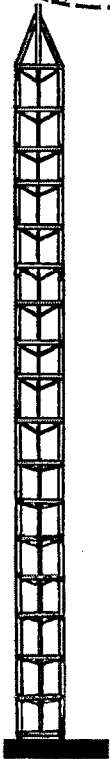
1 1/2" equilateral triangle design. Painted finish only, 10' sections, 11.80 ea. (Weight 28 pounds) Prices are f.o.b. store, Oakland, Calif.

**ROHN NO. 30**

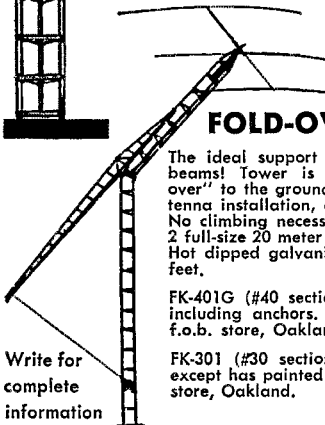
1 1/2" equilateral triangle design. Painted finish only, 10' sections, 24.20 ea. (Weight 50 pounds) Prices are f.o.b. store, Oakland, Calif.

**ROHN NO. 40G**

Super heavy duty, 1 1/2" equilateral triangle design. Hot dipped galvanized, 10' sections, 34.20 ea. (Weight 60 pounds) Prices are f.o.b. store Oakland, Calif.



**ROHN**  
**FOLD-OVER TOWER**



The ideal support tower for amateur beams! Tower is designed to "fold over" to the ground in seconds for antenna installation, change, adjustment. No climbing necessary. Can safely lift 2 full-size 20 meter beams plus rotator. Hot dipped galvanized. Height is fifty feet.

FK-401G (#40 sections) with hardware including anchors. Galvanized. 308.85 f.o.b. store, Oakland.

FK-301 (#30 sections) same as above except has painted finish. 255.05 f.o.b. store, Oakland.

Write for complete information

Complete accessories such as mast top sections for rotators, bottom plates, adjustable house brackets, guy wire brackets, circular plates etc. are available.

# ELMAR

ELECTRONICS

140 11th St., Oakland 7, Calif.

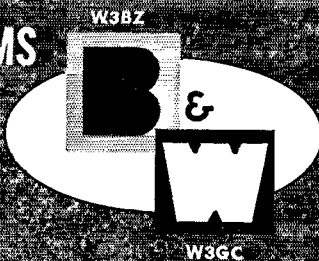
33, Calif. A son was born to KØEWH and his XYL Oct. 23. A girl, Valerie Gay, was born Nov. 12 to WUU and his XYL. KØEAW got the worst of a siege of a serious illness a few years ago, so suffers easily from colds, etc. On Oct. 20 his station was moved to his bedside by some of the local gang. Wilmer reports that the brother-in-law of KØGGB is a new licensee, KØLSL. DVB reports that Jimmy left California for Japan Oct. 2. May 1 express sympathy to DVB on the passing of her father on Nov. 18. On Nov. 19 Marie Mathews, SOV, checked into the 40-meter net with a good signal. Martha, ZWL, has 57 contacts, mostly on 15 meters and Lois, KØDHA, had 46 mostly on 10 meters in the YL Anniversary Party. RYP and family left Rapid City Oct. 24 for a visit with families in Minnesota before leaving for England. Correction: The calls at the bottom of page 12 of Aug. 8-Barks should be KØLEI and WØLEI. A new licensee at Dell Rapids is Arnold Nemmers, KØNLXF. He has an 8-40B and DX-100. We express sympathy to KXZ and family on the death of his father. The PRARC met Nov. 12 at KØEWJ's farm. New officers elected were ZVV, pres.; LXD, vice-pres.; KØEWJ, secy.-treas.; SCT, pub. mgr.; WUU, chief operator. KØCFX and ZVV told of representing PDARC by assisting the "Operation Moonwatch" team of Yankton college to observe Sputnik 1. The XYL Club of Rapid City recently enjoyed a very pleasant tour of India by way of colored slides and a most interesting travelogue by Mrs. Dorothy Jacobsen, of Rapid. The Sioux Falls ARC had a side-band demonstration put on by NTW of the Burghardt Radio Supply of Watertown, Nov. 25. The SFARC is growing steadily in membership and has a new class of 15 students. Rod, SVI, and Grace, KØARF, have purchased the Rapid City branch of McKenzie Dist. (formerly Power City Radio) and will operate it as Ellis Electronics. GWA has the cards to apply for WAC. DIY has built an s.s.b. transmitter. Harve Rempier's dad, ex-9CDS, passed away in October. Traffic: WØZWL 589, SCT 311, BAIQ 100, NEO 69, AIE 36, NNS 28, BQR 25, FLP 18, WBW 18, INZ 14, BQS 8, DIY 7, GWS 7, OOO 2.

**MINNESOTA**—SCM, Robert M. Nelson, WØKLG—Asst. SCM: Bob Schoening, ØTKX. SEC: WVO, RAMs: DQL and RQJ. PAMs: JIE and LUX. MJN, the Minnesota Slow-Speed Net reconvened Dec. 9, scheduled for Mon., Wed., and Fri. at 1700 CST with the NCS on 3700 kc., tuning for Novices. The new net manager is KØDIA from Dawson. It is a training net for Novices and others wishing to learn c.w. net procedure. A balloon carrying cosmic ray research gear was launched from a site near Dassel, about 100 feet from KLG's shack, by a group of science students from St. Louis Park High School. Three members of the group were hams, namely KØHLA, KØIYZ and WDY. MXC, our former SCM, was critically injured when he fell from a scaffolding while working at his occupation of sign painting, but is now home from the hospital. PHY is now the acting secretary of the Mankato Area Radio Club, replacing KØALL, who is attending school in Minneapolis. He reports the club now has 65 members, of which 45 are licensed. PBI, RLL, TKX, WDW and YCR competed against each other for the high Minnesota Sweepstakes score. OES VYI reports that the S.E. Minn. Emergency Net meets on 50.4 Mc. at 2200 CST Sun. Emphasis is on mobile communications for emergency purposes. KØIOE is in the process of erecting a new WRL trap vertical and expects it to reach up 110 feet. PBI now has 70 countries worked. KØGLS has been appointed Asst. EC for Ottertail County. QXF is now an ORS. Newly-elected officers of the Lake Region Amateur Radio Club are AAU, pres.; and KØEES, treas. KØEOW, secy., reports that the club is giving basic electronic courses to pre-Novices and others interested. The Minneapolis Radio Club elected BSI, pres.; TBX, vice-pres.; QXA and QXF, secy.; SFU, treas.; DQL, PKO and VLZ, directors. Thirty-two members of the KMG Net received Public Service awards from Keep Minnesota Green, Inc. The net supplied fire, weather and road condition reports which were used with information from the State Department of Forestry to aid in the prevention of forest fires. The net manager states the net has been disbanded until spring. Traffic: (Nov.) WØKJZ 376, RQJ 79, RUO 56, KØGCN 52, WØKFN 48, UMX 47, OJG 46, VYI 43, KLG 40, PET 34, LUX 32, WMA 29, CGK 24, HEN 22, KØEPT 21, WØTCK 20, IRJ 18, QVR 15, SZJ 14, KØIDV 11, DIA 9, WØFGP 9, ZMK 8, KØGVX 6, ABE 4, GKI 4, WØLST 3, UCV 1.

## DELTA DIVISION

**ARKANSAS**—SCM, Ulmon M. Goings, W5ZZY—SEC: K5CIR, PAM: DYL. RAM: CAF. Judging from the small number of station activities reports received, it seems there is a lull in activities. Six-meter activity (Continued on page 114)

FROM A COUPLE OF SEASONED HAMS  
comes the ultimate  
in versatile rigs



5100-B \$525.00

The B&W 5100-B TRANSMITTER was conceived by well seasoned amateurs for amateurs. These men *know* from long personal experience, just what you as an amateur need.

Since your need was their need—and every true ham can appreciate this burning desire for fulfillment—they turned loose their company's engineering staff to develop their ideas. The result is a transmitter that's the ultimate in flexibility and performance.

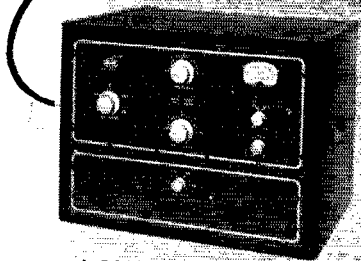
The thousands who have proved the dependability of the B&W 5100-B over the years will attest to its unparalleled advantages, including 145 w. input AM, 180 w. input CW, 180 w. PEP SSB with 51SB-B.

For the oldtimer, or the novice, B&W's 5100-B will put you on the air with a top quality rig at a minimum expenditure. And when you're ready, you can add this:



51SB-B  
\$265.00

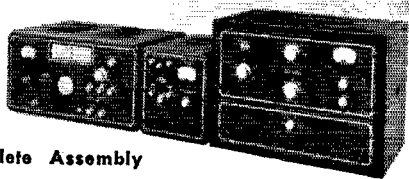
B&W SSB GENERATOR\*—Just plug it into the 5100-B transmitter and the 51SB-B immediately assures an outstanding signal. At your fingertips you have VOR, selectable sideband and speaker deactivating circuit (anti-trip). Then when you're ready for full power you can invest in the:



L-1000-A  
\$495.00

B&W L-1000-A GROUNDED GRID LINEAR—Final stage of a complete rig, this 1-KW Final with a pi-network output offers precision tuning and loading from 80 to 10 meters. Rating, 1000 watts peak envelope SSB power, 875 watts CW, and 375 watts linear AM phone.

Here is a complete package that you can pit against any on the air. And it won't break you to start, then add as you progress. For real operating pleasure—whether you are a novice or a seasoned amateur—use a rig, with all of the latest features, designed by skilled engineers who are well-seasoned amateurs. Write for B&W's catalog today . . . it's free!



Complete Assembly

\*Use Model 51SB for Viking I, II; Collins 32V series or other commercial or ham rigs. Information supplied on request.



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OTHER B&W AMATEUR EQUIPMENT: Transmitters AM - CW - SSB • Single Sideband Generators • Single Sideband Receiving Adapters • Dip Meters • Match Masters • Frequency Multipliers • Low-Pass Filters • T-R Switches • R.F. Filament Chokes • Transmitting R.F. Plate Chokes • Audio Phase Shift Networks • Band Switching Pi-Networks • Cyclometer-type Counters • Antenna Co-axial Connectors • Baluns • Variable Capacitors • Fixed and Rotary Type Coils • Band Switching Turrets • Standard Inductor Materials • Miniductors • Complete line of Amateur Air-wound Plug-in Coils • Variable Plug-in Links • Faraday Shielded Links • Misc. Coil Mounting Assemblies • Misc. Frequency Marked Dial Plates • Misc. Knobs • Ceramic Jack and Plug Bars

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\*Patent Applied For



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seems to be on the upswing. The Wonder State Six-Meter Net meets each Tue. at 2000 with about 65 percent of the members participating. K5FZI is net control, running 65 watts. K5HSO has a new final using a pair of 4-125s. The club in Russellville still is progressing with its training program and reports another new ham, KN5OES. FPA has made his WAS. KAN now has a mobile running about 10 watts. We urge all amateurs to support the various traffic nets in this section. The Arkansas Emergency Phone Net meets on 3885 kc. each morning at 0600 Mon. through Sat. The OZK C.W. Net meets on 3790 kc. at 1900 Mon. through Fri. We invite station activities reports from all amateurs. Traffic: W5BYJ 139; KRO 36; C'EU 14; ZZY 13; K5HSO 10; W5PX 8, YHT 2.

**LOUISIANA**—SCM, Thomas J. Morgavi, W5FMO—The highlight of activities in Louisiana was the visit of 1BUD to Lake Charles and New Orleans. At New Orleans a group of 36 attended a supper-social get-together topped off with a little talk from the guest of honor. A visit was made by the SCM to Monroe. The meeting was held at the c.d. headquarters and was well attended. Eyeball QSOs were had with KME, HBV, EGU and AXU while on the trip. K5DGI rebuilt the quad antenna for 10/15 meters for the DX Contest. He received No. 130 sticker for DXCC. JGW built the HBR-14 rx from QST and it's working 'B. K5AGJ is busy with MARS and traffic on 40-meter c.w. MXQ wants to organize a 6-meter Red Cross local emergency net. Interested persons, please contact him. JET is active mostly on 15-meter s.s.b. with a Pacemaker and tri-band beam. PFG completed the new-200 watt rig and is now on 75 meters. VAR is active on the Crayfish Net. JPV has a new all-band Elmac on the air. K5DMA sends in a traffic report. RM EA is eager to start c.w. nets over the state. K5DDH is active on 10 meters. Sorry to have missed CEZ at the New Orleans Fest. K5KLA worked in the SS on 40 and 15 meters and racked up 3000 pts. K5HXY joined the Gulf Coast S.S.B. Net with a Phasemaster II and kw. final. He also is mobile with an Elmac receiver and transmitter. HEJ is back on the air with a new DX-100. Thirty transceivers are being built by the Baton Rouge Club for the 2-Meter Net. Four new Novices on the air at Kentwood are KN5MPM, KN5MPN, K5MPO and K5MOQ. They are the products of HKJ activities. The first three are using DX-40s and the last has an ART-5 on 80. The Emergency Frequency for the Baton Rouge Area is 3825 kc. Tue. 8 p.m., 10P NC, K5LJH Alt. NC. Traffic: W5CEZ 133, MXQ 109, K5AGJ 95, HXY 32, W5JPV 32, K5DMA 26, W5EA 26, VAR 12.

**MISSISSIPPI**—SCM, John Adrian Houston, SE., W5EHH—1EO reports the Central Mississippi 6-Meter Net meets every Sun. at 1330 on 50.1 Mc. and every Tue. at 2000. 1EO, NCS, welcomes any new stations who wish to join the net. The MUF has reached 50 here in Mississippi. On November 5 and 6 stations worked were LA7Y and LA9TLA, also on the 16th and 17th KL7CDG and LA9TLA were worked. JHS reports an attendance of 50 at the recent side-band supper on the Mississippi Gulf Coast. K5HPV is the proud owner of a new Globe King. The Cleveland Amateur Radio Club elected K5IUE, pres.; EEC, vice-pres.; HYO, secy.-treas.; DQZ, program chairman. K5DLN is working real DX with his new home-brew mobile on 75 meters. Appointments for the month are K5HYO as SEC, AYP as EC for LeFlore County and W5ART as EC for Clay County. K5LEA is planning on a tri-band antenna in the new future. Traffic: W5JHS 40, EHH 27, K5HYO 12, W5RIM 10.

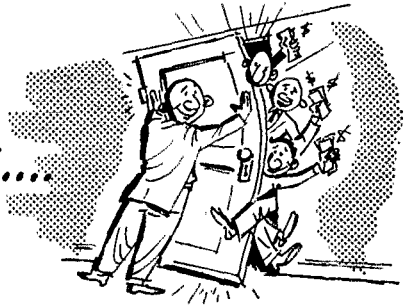
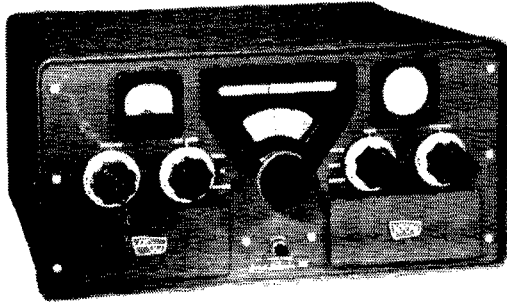
**TENNESSEE**—SCM, Harry C. Simpson, W4SCF—SEC: RRV. PAM: PQP. RM: IV. Congratulations to FRB on his election as president of the Memphis Club. This most active group had a very successful year under DCH. WRH reports a new club in Bristol. Our outstanding PAM PQP sends a copy of his latest TPN roster, which includes 126 members in 68 cities in 4 states! Fifty-seven stations reported in on Dec. 1, for a new record! The Oak Ridge ROC is one of the section's outstanding bulletins. Ed Handy visited Oak Ridge in December. K4DJO still is active with South Pacific traffic schedules. K4AUF, K4EZZ and OGG are new OPS members. DIZ and DHA again are active, after replacing their wind-blown antenna. ONQ, a new ORS, is Thurs. NCS on both TN and TPN. IGW worked 46 states and 63 sections in the SS contest! TDZ has finished his new 6-meter antenna installation and reports that the Frye ARC had a fine fall outing recently. RM IV reports good c.w. activity on TN invites all stations to meet this net on 3635 kc. at 1900 CST, reminds that VJ is now running a Morning Net on 3715 kc. at 0630 EST and HTH operates the 160-Meter Net on 1818 kc. Sun. at 2100 EST. UYU reports the Athens ARC holds a six-meter net Mon. and Thurs. at 2000 EST on 50.55 Mc. This very active

(Continued on page 116)

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**PRECISION LINEAR VFO BUILT IN:** Direct reading 1 KC calibration all bands. Separate .1 MC slide rule dial and KC window. Two speed tuning knob turns precision leadscrew in new Patent Pending permeability tuned two tube oscillator circuit. Fast tuning 100KC per turn; Slo tuning 750 CYCLES per turn!

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**SIZE AND STYLING:** Equal to 600L      **PRICE:** \$595.00

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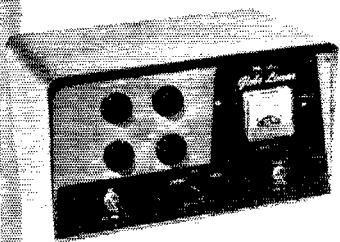
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First available linear amplifier operating either Class B or Class C, with Grounded-Grid Final. Capable of 200 watts input operated AM Class B linear, 300 watts DC input, or 420 watts PEP input, Class B linear SSB or DSB. Requires 7-15 watts driving power depending on type of operation. Pi-net output circuit covers all amateur bands, 80-10M; matches output loads 30-150 ohms, 52 ohm Pi-link coupled output on 6M. Meter for monitoring final plate currents also indicates approx. RF output voltage, enabling operator to tune for max. efficiency and output. Extensively by-passed, filtered and shielded for TVI. Housed in attractive 8x8x14" steel cabinet.

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The Linear Amplifier LA-1 makes an ideal companion for the Globe Scout 680A, Central Electronic 20A, Gonsel 6-Meter Communicator and similar transmitters. Is easily driven. Converts all Globe Scouts to 200 watt fone transmitters. With the Scout and other Transmitters of 20-75 watts input, a power attenuator is required. The WRL Power Attenuator PA-1 is available for use with the Scout and Xmttrs. of similar power.

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club holds meetings at the McMinn County Courthouse the 2nd and 4th Tue. and, in addition to teaching code and theory, is building a club station. K4MVM worked Sweden and Northwest Canada on 6 meters. Manager 5RCP reports very high activity on RN5, with a traffic average of 37! PL suffered from flu. As a result of his illness, no doubt, his BPL total is down to a mere 1324! Traffic: W4PL 1324, W5RCF 1204, K4ONQ 165, W4VJ 80, PGP 76, IV 49, NHT 41, UVL 41, SCF 36, DJO 26, UVS 26, PEP 19, GFL 10, JPP 9, IGW 2, DHA 1, DIZ 1, GND 1, HSX 1, HUT 1, RRV 1, TDZ 1, WRI 1.

## GREAT LAKES DIVISION

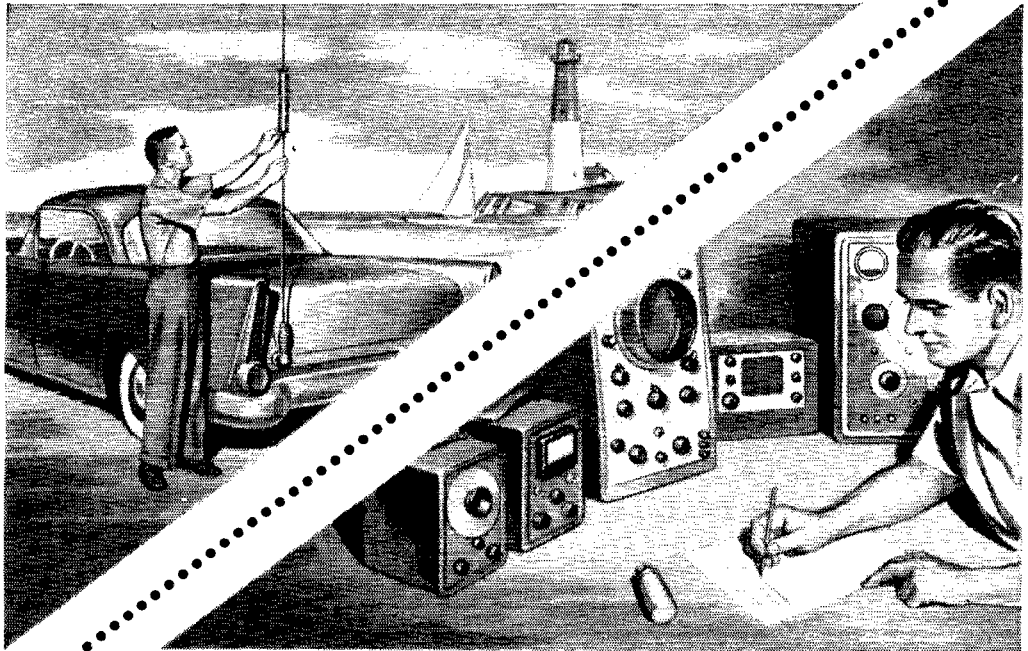
**KENTUCKY**—SCM, Albert M. Barnes, W4KKW—SEC: JSH, RM: K4A1S, PAMs: SUD and K4ECJ. QCD has resigned as RAI after a very busy year reorganizing KYN into a fine double-daily section net. K4A1S is our new RM. KYN operates daily on 3600 kc. at 1700 and 1900 CST. K4ECJ was appointed PAM for the s.s.b. group and was the organizer of the s.s.b. net, KSN, now operating Mon. through Fri. on 3075 kc. at 1830 CST. All of the ARRL appointee groups have grown during the past year except the OES group. This ARRL appointment is especially designed for those hams interested in 50-Mc.-and-above operation. If you are active on 2 or 6 meters or any of the v.h.f.-u.h.f. bands, please let me know. Official Observers upgraded are K4ITO, now Class I; MWR, Class I; K4GAG now Class II. New OPSs: K4KHE, BBD and K4KIS. KNN certificates were sent to Net Control Stations K4CSH, K4OAH and K4PGF and net members KN4MPY, KN4PNA and KN4MHJ. PAM SUD reports the KPN traffic total of 200 with 30 sessions held an average of 6.6 per session. MWX, manager of KNN, reports 35 messages were cleared in 21 sessions liaison to the 9th Regional through K4OAH. QCD reports KYN cleared 381 messages in 56 sessions averaging 6.8 per session. New stations QNI are K4MYD, K4IZW, K4LCN and K4JKL, K4LWL, EC in Ft. Knox, says the big rig is ready to go with 4-125As in parallel. He also has a 30-watt 2-meter rig with a 5-over-5 beam and will liaison KYN, KPN and the local 2-meter Net. KKG sends a fine color photo of the station and the OM keeping West Coast skeds on 10 meters. HSI talked to his daughter in Los Angeles via phone patch. CDA is working on a keying monitor. HOJ reached 105,225 points in the SS. BBD was active in c.d. work during the local flood. K4HOE let his license expire but all is OK now. JUI continues his good work as Class I OO. JCN is now active in a new QTH. OMW is QRL as QSL Manager for VP5BH. K4DLI is active on 10 meters. Traffic: (Nov.) K4A1S 343, GAH 255, W4KKW 176, K4CSH 141, W4ZDB 131, SUD 112, QCD 93, BAZ 86, JSH 82, RPF 79, K4LWL 66, W4KKG 60, K4KQK 55, W4HSI 48, OGY 47, MWX 36, NGN 29, K4M1W 20, W4CDA 19, K4JGN 18, W4NIZ 16, K4PGF 18, W4HJ1 14, HOJ 12, SZB 8, BBD 4, K4HOE 4, W4JUI 4, MWR 2.

**MICHIGAN**—SCM, Thomas G. Mitchell, W8RAE—SEC: YAN. Don's appointment as SEC is effective immediately, but it may still be news to some of you. He is very well qualified for the job and deserves all the cooperation and assistance that we can give him. He has been active in many aspects of the AREC and RACES organizations and has accepted the appointment with high hopes of doing the job in a way that will justify the office. His prime job is, of course, to bring the AREC organization up to the level of preparedness expected and to coordinate that organization with RACES as it develops. All pertinent files have been transferred to him and future correspondence relative to AREC activities should be directed to him to avoid any delay if sent through this office. One BPL certificate was issued for November traffic to OCUE. News of ARR's passing was a shock to all of us who knew him. His activity was concentrated on the 144- and 432-Mc. bands. FGB is having good luck with a horizontal 75/80-meter cubical quad. It is supported 40 feet above the ground which acts as a natural reflector and he feeds it with 600-ohm line at one corner of the array. TIN is spending most of his time on 435 Mc. with an 882 final. A new DX-100 is the reason behind RTN's huskier signal out of the State. Here is the new panel of officers for the Genesee County Radio Club: QIC, pres.; DTZ, 1st vice-pres.; IAN, 2nd vice-pres.; ABW, 3rd vice-pres.; ACQ, secy.; and GJH, treas. The Third V.H.F. Conference at Western Michigan U. on Dec. 7 was a well-attended success as usual. Aside from CVQ and JUU, who master-minded the event, the following persons were on the program: ELW, HDML, PYY, NOH, BNX, HCW, AHX, ACC, CJI and PQO. The Kalamazoo ARC and the W. Mich. U. RC also

(Continued on page 118)

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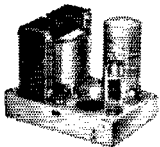
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The Mallory 1500 series vibrators are heavy duty types, especially designed

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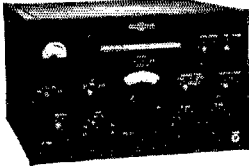
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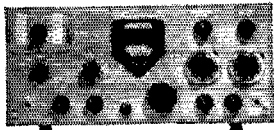
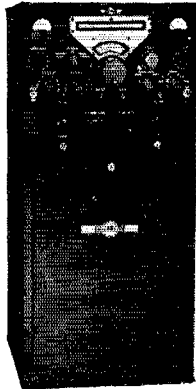
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**COLLINS 75A-4** This SSB Receiver offers all the proven Collins features — excellent image rejection through double conversion, precise dial calibration and high stability of Collins VFO and crystal controlled first injection oscillator, and the ideal selectivity of Collins Mechanical Filter in the IF strip.  
Net Price .....\$695.00

**COLLINS KWS-1**  
Companion transmitter to the 75A-4. Unmatched performance in minimum space for a kilowatt. Extremely accurate 70E VFO, Pi-L output network and Mechanical Filter.  
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**COLLINS KWM-1**  
The first mobile SSB transceiver in the Amateur field — 175 watts PEP, 14-30 mc. Fixed station use without modification.  
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assisted in staging the conference. Traffic: (Nov.) W8DJN 340, OCU 324, ILP 144, NAW 121, NUL 121, WGU 120, YAN 84, NOH 80, DAP 51, RVZ 46, FX 42, RTN 36, FWQ 32, QIX 29, ARR 24, AUD 22, CKI 22, SCW 22, HKT 15, RAE 14, WVL 9, TIN 8, DSE 4, FGB 4, WXO 4, TIC 3, OGY 2. (Oct.) W8ARR 8.

**OHIO**—SCM, Wilson E. Weckel, W8AL—Asst. SCM: J. C. Erickson, 8DAE. SEC: UPB, RMI; DAE and FYO. PAMS; HPP, HUX and HZJ. The Canton ARC and your SCM suffered a terrific loss in the passing of TND, who was a past-president and vice-president, edited the club bulletin, was on the TVI committee and had been a member of the board of directors since the club started. He was the means of transportation for your SCM to all the Ohio Council meetings and many of the hamventions and hamfests. OYV, DNC, MZY and UNE and K8s BNR and EML were his pallbearers. Warren ARA's 1958 officers are K8BXT, pres.; TWO, vice-pres.; and KN8GAS, secy.-treas. K8BXT received W-Del certificate No. 75. K8AZW attended the Boy Scout Jamboree and then spent the summer touring Europe and Britain. K8BMM has a new DX-100. HCX is going s.s.b. OKC made WAS. PPH built a new home. KJE has a 75A-4, WRP has a new NC-300 and has joined the Air Force. TWO is mobile on 10 meters. PTQ is studying electrical engineering at Youngstown U. UYP is in the Navy. RQL has a new BW-5100 and 75A-4. KN8s GAS, HBJ and HLY are new hams in Warren. KN8GAS is on 40 meters with a DX-35 and an SX-99. PBE has a new 10-meter beam. EPQ has a new 6-meter beam and is on 6 and 2 meters. RQL is on 2 meters. OTI is attending Carnegie Tech. ICT put up a 10-meter beam and repaired his 6 meter beam. K8EJN dropped the "N" and KN8HTM is a new ham in Massillon. Worked All Mansfield (Ohio) on 50 Mc. is a new certificate and K8COI received No. 12. KN8HTI has a new SX-99. DNC recently was married. ILC has 20 countries mobile. Dayton ARA's R-F Carrier reports 1958 officers are OVG, pres.; GEN, vice-pres.; RLY, secy.; INQ, treas.; and ACE and ZOF directors. KNIDOC, a former member is now in Connecticut. The club's code and theory class has 35 attending. K8HXT has his General Class ticket. KN8EKQ has a WAS certificate. Toledo's Shack Gossip has named two brothers, RQI and JLQ, as its "Hams of the Month," and tells us the Toledo Mobile RA elected as its 1958 officers OPG, pres.; MNR, vice-pres.; HYE, secy.-treas.; and MBE, corr. secy. Thirty took part in the c.d. transmitter hunt, with TQY and TGC winning. VKR, on 6 meters, worked a station in England working on 10 meters. K8CJS has an NC-183D. LFN has a new Hy-Gain three-element Tri-bander. Canton ARC's 1958 officers are KN8EHL, pres.; OYV, vice-pres.; AL, secy.-treas.; and LKM, MZY, TTJ and K8BNR, board of directors. Canton's new hams are KN8s GVV, HED, HZN, IBD, IDH and IPZ. WTO is working DX on 10 and 20 meters with 25 watts and a vertical ground plane. Springfield ARC's Q-5 announces that HQX's father passed on and the writer expresses his sympathy. HZJ tells me that eighty dollars were collected for the Heart Fund in remembrance of Charley Hines, PNN, and the Ohio Phone. Ohio Emergency and Doghouse Nets are picking up new net outlets. The Greater Cincinnati ARA has its code and theory class running in fine shape, with IVE and WJV as instructors. Please forgive me for not having wished all of you a Very Merry Christmas and a Happy New Year three months ago, for if I had it would have been in the December issue of QST. Although a little late, I hope that Santa brought you happiness and the things you wanted and needed. Traffic: (Nov.) W8UPP 731, QLJ 132, DAE 116, HXB 108, OPU 78, SZU 68, CSK 60, IBX 37, ARO 34, QIE 30, HZJ 23, AL 20, VVX 20, DSQ 18, LMB 15, PBX 14, SVL 14, LLY 12, RO 12, GQD 11, FFK 10, LGR 10, CHW 10, WYU 8, MXX 6, LZE 4, STR 4, COL 3, WTO 3, CTZ 2, OUU 2. (Oct.) W8VYU 13, ZAU 6. (Sept.) W8LZE 9.

### HUDSON DIVISION

**EASTERN NEW YORK**—SCM, George W. Tracy, W2FFU—SEC: KGC, RM; PHX. PAMS; LIG and NOC. Section nets: NYS on 3615 kc. at 1900, NYSPTEN on 3925 kc. at 1800, IPN on 3980 kc. at 1530, MHT (Novice) on 3716 kc. Sat. at 1300, ENY Emergency Net on 145.35 Mc. Fri. at 2100 hours. The entire section welcomes our new section emergency net listed above. This net, organized through the efforts of our SEC, cordially invites all stations on 2 meters to join its activities each Friday night. Congratulations and successful net activities. K2ZAU, in Pelham, says his Valiant and 15-meter beam collected 21 new countries in two weeks with one to go for WAC. We also congratulate PHX, the new RM. New appointments: GSB

(Continued on page 120)



# Printed Circuit OSCILLATORS

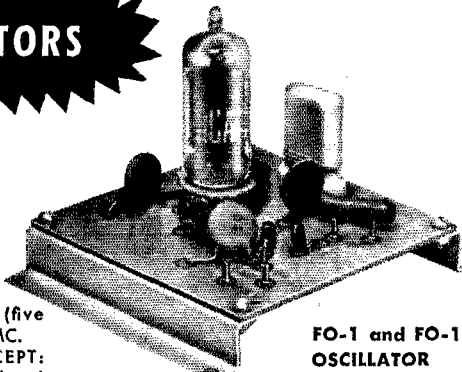
The operating tolerance of a crystal is greatly affected by the associated operating circuit. Because of our precision printed circuits and quality components, the use of the FO-1 oscillator in conjunction with the FX-1 crystal will guarantee close tolerance operation—up to .001% if desired.

## FO-1

Fundamental Operation, 200 KC to 15,000 KC. Available in kit form, or wired and tested. Tolerances of .01% and .005% with appropriate FX-1 crystal. Tolerances of .0025% and .001% available only in wired and tested form, together with appropriate FX-1 crystal.

## FO-1B

Overtone operation (five bands) 15 MC to 60 MC. Same as FO-1, EXCEPT: please specify which band coil you desire in these five ranges: 15-20 MC, 20-30 MC, 30-40 MC, 40-50 MC, 50-60 MC.



## FO-1 and FO-1B OSCILLATOR

Kit (less Tube and Crystal) .....\$3.95  
Wired and Tested with tube (less Crystal) .....\$6.95

## FO-1L OSCILLATOR

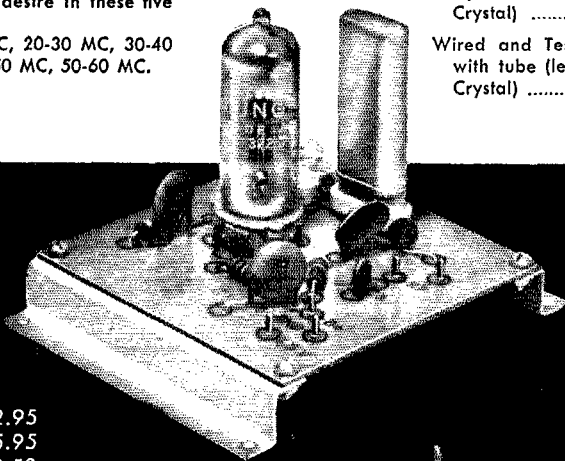
Printed circuit oscillator for band-edge calibrator and frequency standard use.

(Additional requirements:

Power 6.3 volts AC @ 150 ma  
150 volts DC @ 8 ma)

Kit Complete with

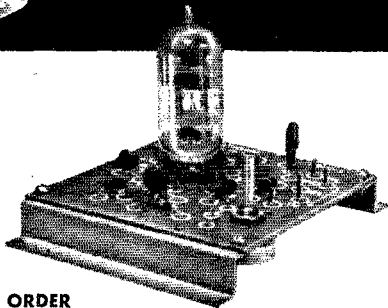
Tube and Crystal .....\$12.95  
Wired and Tested .....\$15.95  
100 KC Crystal Only .....\$ 5.50



## FMV-1 10 KC MULTIVIBRATOR

Used in conjunction with the FO-1L 100 KC Oscillator to form a complete secondary frequency standard. When the FO-1L 100 KC Oscillator is accurately tuned to zero beat with WWV transmissions, precise frequency measurements to 30 MC can be made. (Additional requirements: Tube—12AT7; Power—6.3 volts AC @ 300 ma; 150 volts DC @ 15 ma).

Kit, less tube.....\$5.95  
Wired and Tested, with tube.....\$8.95



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For fastest possible service, International Crystals and/or Units are sold direct, open account F. O. B. Oklahoma City when credit approved. On C. O. D. orders of \$25.00 or over, 1/3 down payment with order is required.

Add sufficient postage and insurance (for applicable Parcel Post Zone) to check or money order for each printed circuit unit ordered.

Shipping Weight Each Unit 1-Lb.

Zone	Postage
1x2 (to 150 miles)	.27
3 (150-300 miles)	.29
4 (300-600 miles)	.31
5 (600-1000 miles)	.36
6 (1000-1400 miles)	.40
7 (1400-1800 miles)	.46
8 (Over 1800 miles)	.51

Insurance—Add 10c for \$10.00; 15c for \$25.00 Value.

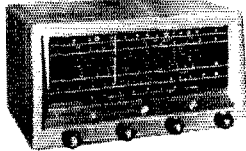
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HALLICRAFTER  
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RECEIVER**

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**HALLICRAFTER S-38E .....Net 54.95**

**NATIONAL  
NC-188  
RECEIVER**

**NET  
ONLY 159.95**



Fine quality, general coverage 4-band receiver (540 kc to 40 mc.) with calibrated electrical bandspread for 10, 11, 15, 20, 40 and 80 meter bands. 12" slide-rule dial has edge and backlighting. Has gang tuned RF amplifier stage and separate, temperature compensated high frequency oscillator. Receives AM, CW and SSB. BFO for CW and SSB. Has two IF amplifier stages and two audio stages with tone control, separate antenna trimmer, RF and AF gain control, automatic noise limiter, and "S" meter. 16-13/16" W., 10" H., 10 7/8" D. Shpg. wt., 35 lbs.

**National NC-188 .....Net 159.95**  
**National NTS-1. Matching Speaker for NC-188.....Net 17.50**

**HAMMARLUND  
RECEIVER  
HQ-110**

**NET ONLY  
229.00**

**Less clock-timer**



A 12 tube superhet receiver with dual conversion. Full dial coverage of 6, 10, 15, 20, 40, 80, and 160 meter bands, every 50 kc on 6 meter band. AVC operates on RF and IF. Q multiplier continuously variable from 100 cps to 3Kcs. Separate stabilized BFO and linear detector for SSB and CW reception. Antenna compensator for loading effects of various antennas or balanced transmission line. Calibrated "S" meter. New series type noise limiter. Built-in 100 kc crystal calibrator. For 105-125 volts, 50-60 cps. 16 1/4" L x 9-7/16" H x 9 1/4" D. Shpg. wt., 33 lbs.

**HQ-110—Receiver—Less clock-timer .....Net 229.00**  
**HQ-110C—Receiver—with clock-timer .....Net 239.00**  
**PL-38888—GI—Matching speaker in cabinet.....Net 14.95**

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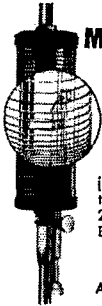
as OPS, SZ and K2LYD as ORSs. K2VTW as OO. LWI handled traffic from the Hobby Show at Wappingers Falls via 2 meters to a relay station. Bob, an OES, runs p.p. 6146s on 50 Mc. NYSPTEN certificates were awarded to CYW and K2VTW; ditto for K2UYK on NYS. K2PIC claimed over 200,000 points in the SS but said he was bested by IOP. A new Ranger and an all-band vertical are the latest additions to the shack of KQI. Pictures of his world trip were shown to the Schenectady Club by APF. Uncle Dave, included among the projects at K2PRB is a printed circuit 6-meter rig. IVLH, of ARRL, spoke on the amateur and IGY at the Nov. meeting of the RPI Club. New officers of the Troy High School Club include K2LET, pres.; K2YZI, vice-pres. and secy.; K2ROA, faculty advisor. Equipment consists of a DX-35, an AT-1, an AR-2 and an AC-1 on all bands. We expect to hear many new stations in Troy since both the Troy High School and RPI Clubs are sponsoring classes for Novices and General Class licensees. Traffic: (Nov.) W2EFU 182, PHX 150, ATA 127, K2TYD 103, VTW 71, YJL 48, UYK 30, W2SZ 22, ZAU 15, K2RKY 14, LKI 10, CKG 8, W2KGC 5, K2EKS 2.

### NEW YORK CITY AND LONG ISLAND—SCM.

Harry J. Dannals, W2TUK—SEC: ADO, PAM: OBW. RM: WFL. Section nets: NLL, 3630 kc. nightly at 1930 EST and Sat. at 1915 EST; NYC-LIPN, 3908 kc. Mon. through Sat. from 1730 to 1830 EST; NYC-LI AREC, 3908 kc. Sun. at 1400 EST. BPL cards go to W2KEB, K2PHF and W2VDT, the latter on organizations plus deliveries. Attendance on the NYC-LIPN continues to be good, averaging 20 stations per session. Sweepstakes activity in the section was very high with a photo-finish predicted for IVS and IWC for top honors. VSM is now the RACES RO for Queens. K2MIYW has installed a 10-meter beam. Delegates from N.Y.U., Columbia, Brooklyn College, Yale and Cornell met a AEE for the college net convention. Ex-K1HVQ, now K2HYV, is active on the traffic nets with a 32V-2 and NC-120. K2s RKL and BSA are working on d.s.b. rigs. K2DDK worked Europe on 80 meters to complete the 80 through 10 cycle with that continent. MDM is on 144 Mc. K2QFV worked G3BTA cross-band 6 to 10 meters. All stations working 50 Mc. are urged to report their efforts to the SCM for relay to League Hq. K2ECY is building a home-brew s.s.b. rig. LDQ has been handling traffic on the Interstate S.S.B. Net on 3985 kc. at 2100 EST. The Tu-Boro RC, BAIV, is active on 40 meters with a 40-watt rig and an old Comet Pro receiver. The Conrad monitor is an even older Atwater Kent, but everything works! FB1-MES made WAS with his Valiant and HQ-129-X. K2CDS is using a completely transistorized 6-meter converter and a transistor modulator for his rig. A 20-A drives a 500-watt linear at K2QBW. The arrival of the first jr. operator at K2DDC curtailed some of the regular station activity. The Eastern Suffolk RC, K2YVA, is on the air with 400 watts on 80, 40 and 20 meters. The club is sponsoring a Novice class Wed. at 1930 EST. New officers of the East Meadow RC, K2HEAL, are K2ILZ, pres.; KN2ZST, vice-pres.; H. Lichtenstein, secy.; K2BZY, treas.; K2ZXB, trustee. K2PWH is constructing a complete receiver for 50 Mc. K2s KMW and RCD are now General Class. The rig at WN2PRU is a DX-35. K2LUR worked W6-Land with her 8-watt mobile rig on 10 meters. Officers of the Bethpage ARC are K5AWX/2, pres.; K2PQL, vice-pres.; K2VCU, secy.; KN2YBY, treas.; and K2HTZ, act. mgr. The Levittown ARC is using 29,025 kc. as a club mobile frequency. Other groups meeting on special frequencies are asked to report time and frequency to the SCM. Officers of the newly-formed Telechrome ARC are NUF, pres.; K2KJH, vice-pres.; K2PQY, secy.-treas.; CLG, act. mgr.; and J. Repass, pub. mgr. K2QOP is on 220 Mc. with a 6360 rig and 417-A converter. K2GCE is active on 15, 20 and 40 meters with a DX-35. SDU has a 20-watt 50-Mc. rig on the air. K2HTX is on 20 meters with a DX-100. K5AWX/2 and KN2YBY are new calls heard on 144 Mc. Among those contacted during the SS were ex-K2CF signing W5KC, ex-K2JEB signing W4FFF, ex-DLO signing K4XG, ex-RDK signing W8JUS and ex-QMO signing W8ETU. Those contributing club papers were the Bethpage ARC, Levittown ARC, Amateur U.H.F./ Club of Jamaica, East Meadow ARC, Telechrome ARC and New York RC. Other clubs publishing club papers or newsletters are asked to include the SCM on the mailing list. Many thanks to all clubs sending meeting notices. If I haven't attended a meeting of your club, may I have that pleasure during '58? Traffic: (Nov.) W2KEB 3610, K2PHF 704, W2VDT 302, OME 158, K2ECY 90, W2GP 76, AEE 60, LPJ 40, K2BH 39, SSE 28, W2PF 20, K2MEM 19, W2IVS 18, LGK 18, K2MIYW 18, SEK 18, W2DSC 16, EC 15, K2QBW 13, HVY 11, RKL 11, DFM 10, W2JBQ 9, K2LUM 8,

(Continued on page 122)

### NEW! SILVER-PLATED ROLLER WITH POSITIVE ACTION, STAY-PUT CONTACT



#### No. "333" MASTER MIGHTY-MIDGET

...engineered to provide the highest "Q" consistent with good design. Compact, extremely rugged, yet lightweight, its operation assures precision tuning with the new adjustable silver-plated roller that stays put! Perfect for 40-20-15-11-10 meters. "Get 5 Bands Plus on 1 Coil."

**\$9.95**

Amateur net

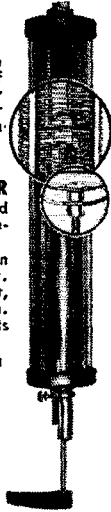
HY "Q" construction with wider spacing of turns for high frequency bands. Use as center or base loaded antenna with 60" whip.

No. 750

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- Covers 10 thru 75 and all intermediate frequencies.
- Silverplated single turn contact, positive spring.
- Eccentric cam contact, easy selection of turn.
- Automatic lock prevents damage to coil.

Size - 2 1/4" Dia x 13 1/4" Long



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- Ruggedized construction
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- Precision made
- 2 1/2" Diameter

### Master Ultra-High "Q" COILS

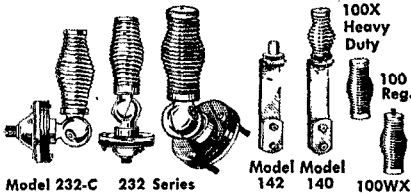
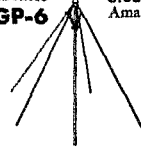
For 80-40-20 & 15 Meters

After many years of experimentation, here is the coil with the highest "Q" ever obtained. Tested and found to have a "Q" of well over 515. **\$5.25 ea.** Use with 36" base section, 60" whip.

#### GROUND PLANE

(Drooping Type) FOR 6 METERS No. MGP-6

Aluminum alloy tubing, coax cable connector. For medium or low powered trans. Amateur Net **\$14.95**



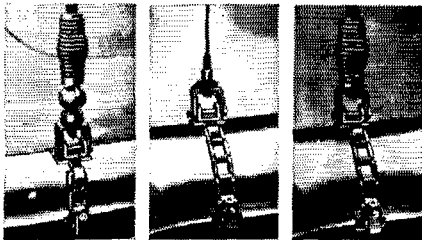
Model 232-C 232 Series

Model Model 142 140

100X Heavy Duty 100 Reg. 100WX

#### BUMPER MOUNTS

WITH NEW X-HEAVY DUTY CHAINS

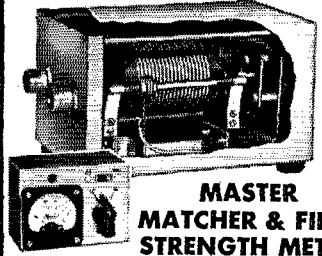
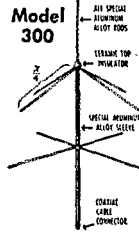


No. 444 \$17.80 No. 445 \$7.95 No. 446 \$13.45 Adjustable to any bumper. No holes to drill, easy to attach. High-polished Chrome Plated 3/8"-24 thread, to fit all antennas. Precision engineered.

#### GROUND PLANE ANTENNA

Outperforms any type mobile vertical dipole, "Drooping" type. Gives a low angle of radiation for general coverage. Ideal for CD, defense nets, Amateur, Broad Band. Matches 52 ohm coax cable. Adjustable radials. For medium or low-powered trans.

Net **\$12.95**



#### MASTER MATCHER & FIELD STRENGTH METER

Automatically tunes the entire band from the drivers seat! 6 or 12 volt models **\$24.95**



#### NEW NOISE-FREE E-Z-OFF ANTENNA CONNECTOR

Connect or remove your loading coils, whips or mounts in a jiffy. No wrenches, pliers or screwdrivers needed. High-grade stainless steel throughout.

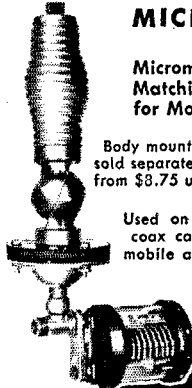
- Precision made
- Maximum efficiency
- Positive lock--will not corrode

AMATEUR NET

**\$2.95**

#### MICRO-Z-MATCH No. 825

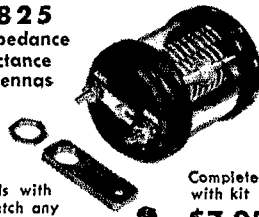
Micrometer Impedance Matching Inductance for Mobile Antennas



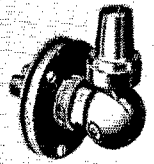
Body mounts sold separately from \$8.75 up.

Used on all bands with coax cable to match any mobile antenna or Master

Matcher. Roller coil construction with rear cap rotating the inductance in case. 4 microhenries max. ind. Infinite adjustment, positive setting.

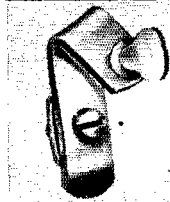


Complete with kit **\$7.95**



#### No. 321 BODY MOUNT

Swivel base body mount, less spring. Specially constructed diagonal ball joint for maximum strength. Amateur Net **\$7.95**



#### No. 10H TENAHOLD

Protects antenna, prevents whipping. Easily attaches to car.

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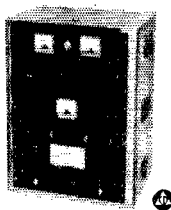
1306 BOND STREET • LOS ANGELES 15, CALIF.

MORE **Workable Watts** PER DOLLAR

with these WRL ELECTRONICS TRANSMITTERS

## Globe King 500C

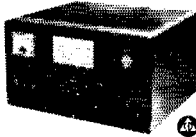
Bandswitching 10-160 Xmtrr. for 540 W. on fone & CW; 540 W. on SSB (P.E.P.) with any 10W external exciter. Relay-controlled; includes built-in antenna relay, built-in VFO, and separate power supply for modulator section allowing better overall voltage regulation. Commercial type compression circuit keeps modulation at high level. Features grid-block keying. Pi-net matches most antennas, 52-600 ohms. Provisions for crystal operation.



Net: \$795.00

## Globe Champion 300A

Single-switch bandswitching Xmtrr., 10-160M, for 350 W. CW, 275 W. fone, 300 W. SSB (PEP), with 10W external exciter. Extensively TVI-suppressed, filtered & by-passed. High level Class "B" modulation without usual clipping distortion with commercial type compression circuit. Pi-net output 48-700 ohms, built-in VFO, push-to-talk, antenna changeover relay and time-sequence keying.



Wired & Tested: \$495  
Kit Form: \$399

## Globe Scout 680A

Compact, self-contained, band-switching Xmtrr. for 65 W. CW, 50 W. fone, plate modulated, on 6-80M. Built-in power supply. High level modulation. TVI-suppressed cabinet. Pi-net output on 10-80M; link coupled on 6M, matching into low impedance beams. Globe Scout 66 is identical, except bandswitching 10-160M, wired only, \$99.95.



Wired & Tested: \$119.95  
In Kit Form: \$99.95

FODA Certified on factory wired and tested models for crystal controlled operation.

Globe Chief 90A: \$74.50 (Kit: \$59.95)

Linear Amplifier LA-1: \$124.50 (Kit: \$99.50)

Universal Modulator UM-1: \$49.95 (Kit: \$32.50)

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122

TSE 8, AAW 6, W2TUK 6, IAG 5, OBW 5, K2DDK 2, (Oct.) K2ECY 88, W2LDQ 44, LGK 14.

**NORTHERN NEW JERSEY**—SCM, Lloyd H. Manamon, W2VQR—SEC; IIN, PAM; VDE, RMs; BRC, NKD and CGG, K2VAB is working good DX on 40, 20, 15 and 10 meters. K2SBT is doing a good job on 20 meters with his 200 watts. K2TYC was a recent speaker at the IRAC. KN2DXF is a new member of the Bloomfield RACES group. New officers of the Paterson Eastside High School Radio Club are K2THP, pres.; K2YFE, vice-pres.; KN2ZOZ, secy. KØDYR is looking for a contact in the Teaneck Area on 15 meters. WN2TKZ, 12 years old, has worked 5 continents, 25 countries and 42 states since coming on the air four months ago. KFR is on the air with a 20A. The Forty New Jersey Net held a meeting at the home of EWZ recently. WN2GRD has a new Adventurer on the air. Mark passed his General Class exam, N1Y visited 41A and TFX while on vacation. K2KYR is interested in promoting a 6-meter cross-country relay net for handling long-haul traffic on 6 meters. He would like to hear from adjacent state's 6-meter nets with the view to arranging schedules for interstate traffic work. Presently the Connecticut 6-Meter Net works regular skeeds with New Jersey. Let's give K2KYR a hand in this work and do all we can to promote expansion of our 6-meter traffic nets. Write him at 11 Grace St., Fords, N. J. The FNJ now offers a net certificate to member stations. Another newly-organized traffic net is the Net of Central New Jersey (NCNJ), on 3748 kc., Mon. through Fri. at 1830. The net, which includes Novices, needs new members to continue its work in an expanding field of traffic-handling. The net manager is K2ZHK, 900 Orange Ave., Cranford. Drop him a line or check into the net any evening. SCG is doing a swell job as NCS at RACES State Control every Sun. morning. K2OAM is NCS of TCPN two nights a week. WOJ will be back on soon with a new DX-100. ZVW is doing most of his operating at 3NF. EBG has just received his WAC and RCC awards. K2PSX is on 80 and 40 meters. K2PIM has received his WAS certificate. BRC is bothered by high noise level at his new QTH. NJN held a very successful meeting in New Brunswick on Nov. 30. EDW was elected to take over as net manager starting the first of the year. The NJN report for November shows 25 sessions, attendance 220 and traffic 220. Look for KN2CEP on 7175 kc, as the following four New Jersey counties are needed for WANJ: Hunterdon, Morris, Sussex and Warren. K2TNJ is doing an excellent job as liaison between NJN and other nets. K2IPR is experimenting with antennas on 144 Mc. K2KFE has taken on an XYL. TTM is building an electronic keyer. *Side Band Splatterings*, the bi-monthly publication of the Raritan Bay Radio Amateur Club, now has six departments all filled with news about club members and very good technical articles. K2BAY is back in the section after a long stay on the West Coast, where he was NTFG. Our sincere thanks to BRC, who retires as net manager for NJN. Jack did an exceptional job in promoting net activity during the past year. Traffic: (Nov.) K2TNJ 654, MIM 435, OAM 260, W2EWZ 156, K2BIQ 112, W2BRC 82, MLW 74, RXL 74, OXL 36, EBG 36, K2QYI 24, KN2ZHK 35, W2SG 20, K2BWQ 18, WN2TOD 17, K2MFX 16, KVR 11, ULF 7, W2WOJ 7, CFB 6, W2CVW 4, KN2ZOY 4, K2BAY 3, W2GVU 2, K2UQY 2, W2ZEP 2, WN2BWM 1, K2MIF 1, W2NIY 1. (Oct.) K2KYR 10, (Sept.) K2KYR 9.

## MIDWEST DIVISION

**IOWA**—SCM, Russell B. Marquis, WØBDR—The Chief of Police at Cedar Rapids sent a letter of appreciation to everyone connected with the emergency drill and "Help the Police on Halloween" effort of the CVARC. KØDBG has left for a position with Gosnet in California. Following are renewals: LJW and KØAAH as ORSS, NGS as OPS and HWU as EC. New appointments: KØIGU and J1Y as ECs and AHZ as OC. The Story County AREC is going strong with 29 members. MG has been conducting theory classes for unlicensed members of the Waterloo Club. BLH is working hard on a Valiant Kit and expects to be on the air soon. UJC has a new Navigator. CGF and WJ have joined Silent Keys. KØKEC is a new ham in Fairfield. KNØKOP won \$18.00 from the Sylvania plant in Burlington for an employee suggestion. KØCYF is acting as liaison from TLN to TEN. Congratulations to NWX and GQ on their reelection as Midwest Division Dire for and Vice-Director, respectively. NGS got a nice write-up in the *Des Moines Tribune* on his ham activities. BDR worked several Iowa stations while vacationing in Alabama. Traffic: (Nov.) WØSCA 1911, LGG 1217, LCN 861, BDR 783, CZ 556, PZO 522, BJP

(Continued on page 123)

Belden 8275 CELLULINE 300 OHM UHF TRANSMISSION LINE PAT. NO. 2782251

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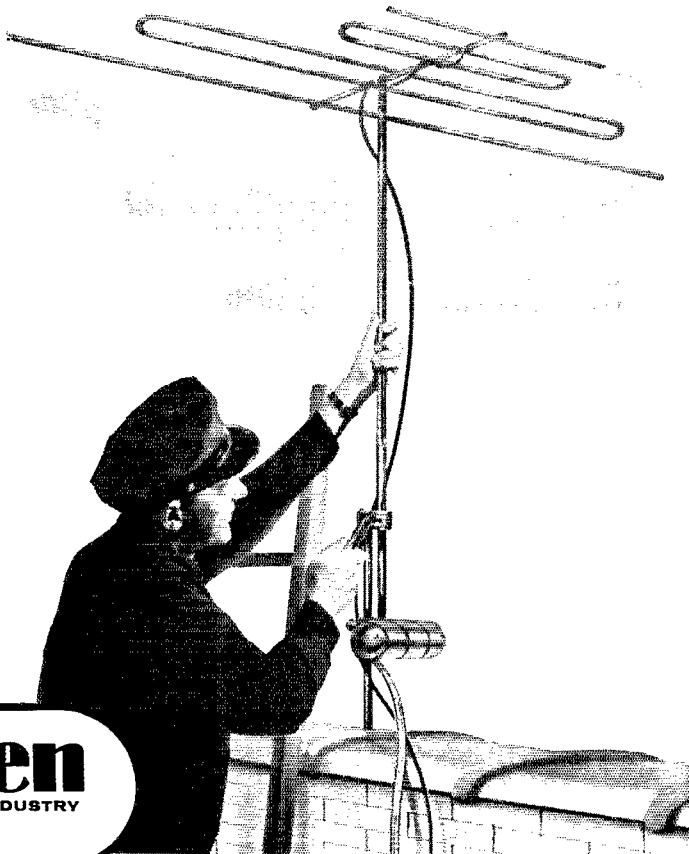
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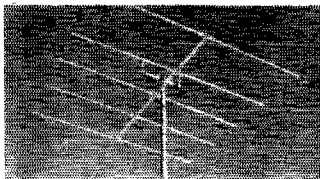
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FOR 1 1/4, 2 & 6M

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6 METER  
5 ELEMENT  
**\$1295**

## 6 METER, 8 ELEMENT BEAM: \$24.95

The hy-gain 6-meter beams are adjustable for max. gain over the entire band, from our instructions. No further tuning necessary. Calibration Chart supplied with each instruction manual. Factory preassembled, these beams feature heavy wall 3/8" aluminum elements of 6061T6 alloy and 1 1/4" diameter aluminum booms. May be stacked for additional gain. Stacking Bars available at \$3.95 extra.



New, precalibrated (GAM-MAXIAL) Gamma Match assembly

with coaxially formed reactance cancelling capacitor built in, makes possible for the first time a perfect 1:1 SWR. Coax connector for 52 ohm feed incl. Developed exclusively by hy-gain for use in the hy-gain single-band beams.



2 METER  
5 ELEMENT  
**\$695**

## 1 1/4 METER, 10 ELEMENT BEAM: \$9.95

## 2 METER, 10 ELEMENT BEAM: \$10.95

The hy-gain 1 1/4 & 2 Meter Beams are factory pre-assembled; elements snap into position for immediate use. Features 3/8" aluminum elements of 6061T6 alloy & 1" diameter aluminum booms. Easy to put up and into operation, these beams may be stacked for additional gain. Stacking bars available at \$3.95 extra.



The 1 1/4 & 2 meter beams incorporate the Folded Ratio Dipole

with nominal impedance of 450 ohms. A 1:1 SWR with 450 ohm open wire transmission lines for max. efficiency at VHF frequencies may be realized.

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"HAM HEADQUARTERS IN CHICAGO"

516, GXQ 490, K8CLS 390, W8QVA 145, K8EJZ 97, CYF 63, W8LJW 59, UTD 57, K8AHZ 35, W8BLH 30, IUY 29, SLC 25, K8APS 24, W8NGS 23, NYX 20, K8EXN 19, W8VWF 18, K8WAD 16, W8PTL 10, UHO 10, SWD 8, K8CYD/8 7, W8EEG 6, REM 6, K8BRE 5, IGU 5, W8COD 4, GOQ 2, K8BPE 1, W8FDM 1, FMZ 1, K8GHZ 1, (Oct.) W8BJP 371, K8AAH 7, JIY 6, W8COD 4, K8BPE 1.

**KANSAS**—SCM, Earl N. Johnston, W8ICV—SEC; PAH, PAM; LEW, V.H.F. PAM; ZIB, RM; QGG. The Central Kansas Radio Club at its November meeting elected HAJ, pres.; INW, vice-pres.; PKD, secy.-treas.; MYG, activities director; and MQM, director. Incidentally, HAJ is organizer and NCS of the MARS V.H.F. Net #6A instead of FTX, as stated in Dec. QST. Barney also is editor of CKRC INK and EC for Zone 14. A new radio club known as the Walnut Valley Radio Club is being formed in Winfield, according to K8ICC. ICC operates the KNG station which is equipped to work 30 and 40 meters with a Viking II and an HQ-100 receiver and has been reporting into QRS lately. The ACARA at Wichita published an FB club directory and sold 200 copies at 35¢ each. The cost was small and is a good way for a club to make a little money for the treasury. The KVRC of Topeka held its Annual Banquet Jan. 3. ZIB, our U.H.F. Net gave the latest on v.h.f. at the ACARA meeting Dec. 8. K8AYS of McPherson, was the first station to get a WARC certificate issued by the WARC of Wichita, MXG, of Topeka, followed closely as the No. 2 station for the award by contracting and confirming 50 counties in Kansas. BLI and NLY make BPL Traffic; (Nov.) W8PLI 846, POL 491, ENS 384, NLY 379, K8BXP 261, W8QGG 173, OHJ 159, ORB 105, ABJ 89, K8ICC 76, HSE 48, K80KDY 40, VOL 40, W8ICV 32, K8BIX 29, HVG 27, W8IFR 22, FDJ 20, QQQ 17, ASY 14, K8DBK 12, W8UTO 10, ILL 8, LEW 8, DEL 5, SYZ 5, LQX 4, UTO 4, (Oct.) W8DEL 3, (Sept.) W8FNS 243, DEL 4.

**MISSOURI**—SCM, James W. Hoover, W8GEP—SEC; BUL, PAM; BVL, RMs; OUD and QXO, Nets: The Missouri Emergency Net meets on 3900 kc. at 1800 CST Mon., Wed. and Fri.; the Missouri Net (MON) at 0700 and 1900 CST Mon. through Sat. on 3580 kc.; the Show Me Net (SMN) on 3580 kc. at 1800 CST Sun. Several DX QSOs were reported during 6-meter band openings during November. CKQ worked EI2W and K86NS, K8CRM worked EI2W, WKG worked SA8BTT. K8LQ has completed rebuilding a 6-, 10- and 15-meter transmitter into a console. ECE announced the arrival of a new jr. operator on Nov. 27. ETW is on active duty in the Army and will be in Washington, D. C., after the middle of December. JHY has been promoted to Radioman Third Class. MNW has a new 20-A s.s.b. exciter. VTF is back on the traffic nets. A new club, the Tri-Lakes Amateur Radio Club, has been formed in Branson. The recently-organized DX Club of Greater St. Louis has about thirty members. New officers of the Bandhoppers Radio Club are GEP, pres.; NUE, vice-pres.; JHH, secy.-treas. K8IHY has finished building a monitor. K8EJZ has been working in Columbia and has visited a number of the gang there. Traffic: (Nov.) W8CPI 1420, GAR 760, OUD 174, BVL 139, KIK 91, OAM 62, EBE 55, VTF 55, HLT 54, OVY 49, K8IHY 45, W8RTW 44, EEE 36, IIR 22, WFF 22, GBJ 16, KN8LHR 14, K8DEQ 12, W8ECE 12, K8HBC 11, HHA 11, W8VJD 10, YVM 9, GEP 8, WYJ 8, KN8JPJ 7, K8DEX 4, (Oct.) W8YVM 75, VTF 20, ECE 16, (Sept.) W8ECE 4.

**NEBRASKA**—SCM, Charles E. McNeel, W8EXP—DDT sent in a nice report on the Nebraska C.W. Net with 23 stations reporting and covering the State very nicely. Thirty sessions reported, QNI 315 and QTC 191. The Nebraska 75-Meter Emergency Phone Net, MAO as NCS, QNI 539, QTC 73, has 36 active stations reporting. The Nebraska Slow-Speed Net, 3750 kc. 1700 daily, reports QNI 234, QTC 84 and 11 stations active on Dec. 1. On Nov. 1 and 6 reporting was 100 per cent. The Nebraska 75-Meter Morning Net, 3983 kc., 0730 CST reports QNI 383, QTC 84. New members are EGQ, KDW, JPS and K8JOZ, K8DGV, NCS, and VZJ. The Western Nebraska Net reports QNI 485, QTC 68 and 30 members on roll call, with K8LXS and K8LTR new members. RAls and NCSs for the several fine Nebraska nets are doing a very fine job and I wish to congratulate each member and NCS for the good work and extend thanks for the reports sent in each month. The Wheat Belt Radio Club meeting held at the home of UKN was enjoyed by all present. YVY, of the Goodwill Manufacturing Company, gave a talk on condensers. YVY is back on the air with a new HT-32 after many years of inactivity. Traffic: K8DGV 249, W8DDT 198, MAO 154, ZVG 116, FTQ 107, KDW 49, (Continued on page 126)



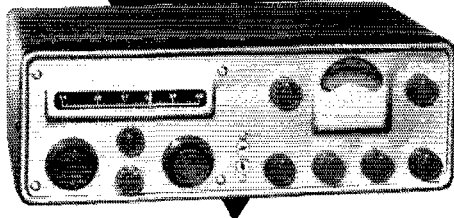
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- **Preformed cables** available.
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- **Functional in design**—symmetrical in looks.
- **Designed** with the newer automobile in mind (a little wider, but not so deep or high).
- **Dimensions**—11½" wide, 4½" high, 7¼" deep.

**MB-565 TRANSMITTER**



**10 tubes**—covers 80-40-20-15 and 10 meter bands.

**VFO or crystal** controlled.

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**High level** plate modulation is an integral part of the transmitter. This allows you to use the power supply or dynamotor of your choice.

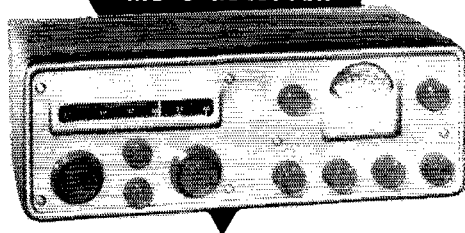
**Designed** to operate into 50 to 75 ohm antenna or antenna tuner.

**Antenna** change-over relay is built in.

**Illuminated meter** measures all necessary currents and voltages.

**AMATEUR NET PRICE \$249.50**

**MB-6 RECEIVER**



**13 tubes**—covers 80-40-20-15 and 10 meter bands.

**Sensitivity** is 1 microvolt or better on all bands.

**Signal** to noise plus signal is better than 20 db.

**Crystal** controlled second mixer.

**Bandpass**—4 kc at 6 db down.

**Integral**—100 kc crystal calibrator.

**Illuminated "S"** meter, converts to field strength meter for transmitter tune-up.

**RF** and audio gain controls.

**Noise limiter.**

**Noise** balanced squelch circuit eliminates interstation noise but opens on extremely weak signals.

**Temperature** stabilized for single side band reception.

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## NEW ENGLAND DIVISION

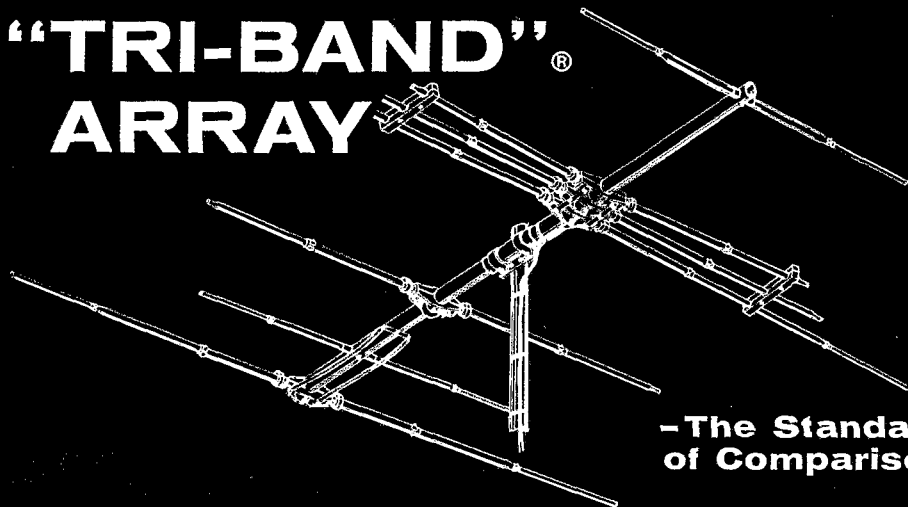
**CONNECTICUT**—SCM, Victor L. Crawford, WITYQ  
—SEC: EOR, RM: KYQ, PAMs: YBH and FHP,  
Traffic nets: MCN, Mon.-Fri. 0645 on 3640 kc.; CPN,  
Mon.-Sat. 1800, Sun. 1000 on 3880 kc.; CN, Mon.-Sat.  
1845 and 2130 on 3640 kc. Conn. V.H.F. Net, Mon.,  
Wed. and Fri. 2030 on 145.674 Mc.; CTN, Sun. 0900 on  
3640 kc. AW, TYQ, WZJ/1 and YBH made BPL in  
November. CUT has a new 108-Mc. converter for  
satellite tracking. FKW advises that MCN handled 74  
messages in 21 sessions. High QNI goes to RFJ and  
IBE, 19; DIY, 18; EFW, 12. RAN made 916 contacts  
in 71 sections during the SS. MWB now has an NC-173  
receiver. KNIDXX is a new Novice in Torrington.  
KYQ reports that CN handled 382 messages in 26  
sessions on the first session and 53 messages on the  
second session. Average attendance was 12.4 stations  
per session. QNI honors go to GVK and KAM. DHP  
reports a Master Mobile all-band mobile antenna  
stolen from ØICF's car in Storrs. FEA enjoyed the SS  
with 850 QSOs in 70 sections. YBH reports the CPN  
met 30 times handling a total of 261 messages. Average  
daily attendance was 27 stations. High QNI honors go  
to KIAQB, DHP and VQH, 30; TVU and YBH, 29;  
KIBEN 26; HID and VY, 25. ECH finally got a  
Nevada QSL for WAS. WHL advises the Mon. night  
6-meter net handled 35 messages in November. Average  
attendance was 17 stations per meeting. KIBEN, of  
Falls Village, is a regular on CPN. Net certificates were  
issued to KIBFJ and NQL. KNICJJ, of Southington,  
is active on the v.h.f. net. MDB reports a busy month  
with net activities. MQT has a new Ranger and is  
trying some DX. FHP reports the v.h.f. net handled  
48 messages in 11 sessions. Average attendance was 10  
stations per session. We need more stations from the  
eastern and southern part of the State. ØUG is sending  
Official Bulletins on RTTY. New appointments: ECH  
and ØUG as OPS, MDB as OPS. Appointments re-  
newed: FHP, NLM and PRT as EC, FVF as OPS,  
NLM as ORS. ØO reports were received from DHP,  
ECH, EFW and AMY. An SEC report was received  
from EOR. An ØES report was submitted by FVV.  
A new radio club for Tolland County, Electronics,  
Unlimited, Inc., has been formed with EOR as president.  
FTX forwards the top scores registered in the Con-  
necticut QZO Party of October 5-6 as follows: FEA  
3822, YNP 2948, GVK 1836, TYQ 1734, BDI 1305, FVF  
1134, ASO 1053, KNIBWC 1035, TCW 936, FHP 900.  
Official winners are FEA and KNIBWC. It should be  
of interest that KNIBWC scored all of his points on  
144 Mc., thus making the top tally for Novice and v.h.f.  
Traffic: (Nov.) WITYQ 696, AW 411, YBH 408, EFW  
296, KYQ 288, KIBEN 227, WIFYF 207, WZJ/1 157,  
HID 154, GVK 112, NJM 82, DHP 74, CUH 66, LV 54,  
VY 48, NQL 43, FHP 42, BDI 38, ULY 37, RFJ 33,  
YU 33, MWB 27, AMY 23, MDB 22, KAM 15, WPR 9,  
ZHM 8, ZUC 8, KIBFJ 7, WIEJH 6, GEA 6, ECH 4.  
(Sept.) WIVITY 42, WIEKJ 38, FHP 25.

**MAINE**—SCM, John Fearon, WILKP—PAM: VYA,  
RAI: EFR. New appointments: FV as OPS, FV and  
QUA as ORS, FCS as OO, FCS as OPS. Renewals:  
AQL as ORS, UTH/1 as at Bowdoin college. PS and  
MPP have a new QTH in Lovell. ZMO is in Iceland  
working 10 meters with the call TF2WVY. AHAJ plans  
to go back to sea duty in February. KNIAHM is on  
80 and 15 meters using a DX-35. QUA has a com-  
pletely transistorized rig on 80 meters and worked W2,  
W3 and VE1 stations. An SGN certificate was awarded  
to KIBAZ. CEV is NCS and manager of AIARS Net  
No. 2. KIBXI is the proud father of a new baby boy.  
KIDVW, the brother of FCS is a new ham using an  
Elmac 67. EWM wishes to thank ØUD and ZNL for  
their assistance in keeping communications open be-  
tween Guilford and Buxton during the recent search  
for the lost hunter at Guilford. 2PRW and 2ZRH,  
brothers, are now year-round residents of Scarboro.  
VWU joined the AREC. FPN and KIAKO are welcome  
additions to the PTN for coverage in Northern and  
Eastern Maine. TWJ did a super job during the  
September F.A.L.T. with an average error of 1.7 parts  
per million. The NCS of SGN are doing an FB job.

(Continued on page 128)



Now! From *Telrex* - the ALL new  
**"TRI-BAND"<sup>®</sup>**  
**ARRAY**



**-The Standard  
of Comparison**

**3 Elements 7 DB on 10 Meters, 2 Elements 5.5 DB on 15 Meters,  
2 Elements 5.5 DB on 20 Meters Fed With 52 OHM Coax**

Full size, NO COMPROMISE, clean-cut hi-performance, uni-directional radiation pattern on 10, 15 and 20 meters with one-transmission line.

Forty-six pounds of educated aluminum. Cali-

brated for easy assembly to our specifications at your site for outstanding 3-band performance without fuss, bother or formulas! Exclusive Telrex full-size fanned "Tri-Band" 10, 15 and 20 meter dipole, no coils or condensers to break down.

**FEATURING:**

- 2" OD x 14' boom, one-transmission line, no interlacing
- F/B ratio 19 db on 15 and 20; 22 db on 10
- V/S/W/R 1.3/1 or better on each band
- Universal heavy-duty gusset plate mounting... no flimsy U-bolt affair

75 mph hurricane force construction, best of materials, hi-strength seamless aluminum taper swaged elements with S/S hardware.

Shipping weight approx.: .....56 lbs.  
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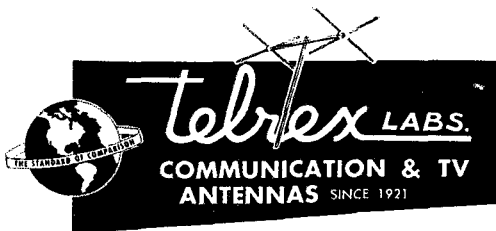
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**POWER SPECS:** B plus 125-150 volts, consumption at 125 volts, 6.2 mils; 450 amps at 6.3 volts; uses 6AH6 tube.

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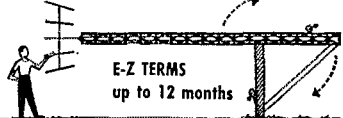
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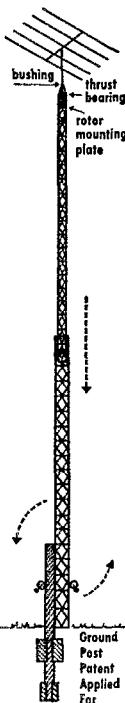
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ZLT has a new DX-100. KVA is a new ham in Avon. CMO is active on 10 meters from Chisholm. IZK was missed from SGN while in the hospital. AGD and KEZ continue to put out PB signals with home-made gear. GPY is a new ham in Birdeford and has joined PTM. RUO and his jr. operator both got a deer during a hunting trip to the Allagash Region. JMN has applied for OES appointment. JIS is sending out inquiries seeking the oldest active ham. DVJ works phone patch between KC4USK and Bethel. Traffic: WILKP 245, CEV 138, UDD 86, K1AKO 44, WIHYD 34, PNU 33, EFR 31, OTQ 25, UZR 23, JIS 18, GPY 13, EPN 12, EWM 11, LXA 11, PCS 10, FV 10, RJE 9, GRG 6, SNE 6, BX 5, FD 4, QUA 4, UOT 3, AHM 2, K1BAY 2, BAZ 2, WIWZ 2.

**EASTERN MASSACHUSETTS—SCM,** Frank L. Baker, Jr., W1ALP—New appointments: NX as EC for Bourne. K1BUF as OBS, JLN as OO, K1ACJ as OPS. Appointments endorsed: IO Danvers, OTK Somerville, BFV Wrentham as ECs; BDU and EMG as ORSs. DDF gave a talk on his quad antenna at the South Shore Club. IZY is home again and on 2 meters. Heard on 75 meters: SVL, NYE, JBI, K1AWP. Heard on 10 meters: HZR, BJX, KYB and K1CLA. KNICWS is new in Scituate on 80-meter c.w. Heard on 2 meters: KNICWE, DXF, BOV and ZOC. FI, K1AMP and KNICZQ have new Gonset 3s. New set is in Quincy. New active stations on 6 meters are: BL, BS, CGS, DEF, EIS, FNI, GBW, GZP, HLL, HIX, IWK, JTS, JWH, KRZ, LUN, LS, MCG, MEJ, AIBL, OAA, YEJ, YEX, YRD, WEJ, IVD, Kis ACB, BKP, BRX, BVY, CCE, CCU, CHS, CKB, CKU, CKV, CLL, CUU, CUW, CXN and DBH. The Area 1 Radio Comm. held two meetings with KTG, TWG, CO, LLY, DFB, ALP, QQL and TQP at one and TQP, DWY, ZYX, BL, ALP and JZQ at the other meeting. TQP is chairman and KTG, secy. ZYX is Area 1 RO and VYT is Communication Officer. NPR is the new EC for Barnstable. RQZ sent in EC and OBS certificates for endorsement. FWS and his XYL went to Miami, Fla. AVY76 writes that he will be back in the spring. KHY visited him. K1CLO is working DX with his Globe Champion on 15 and 20 meters. The Federation of East Mass. Amateur Radio Assn. held a meeting and is working hard on the license plate bill. KN1ATV is on 15 meters. LEO is working DX on 20-meter c.w. The GBARS held a meeting. EPR is secy. The Framingham Club held an auction with KCC and HJP as auctioneers. MEG has the call K1CXN for use at his cottage in Hopkinton, and is Alternate NCS in a MARS c.w. net. EAE, DTB, AUQ, DIY, ATX, K1BUF and IBE have been issued net certificates in the Eastern Mass. Net. They held a dinner get-together in Boston with UE, BY, BPW, TY, EAE, K1BUF, K1BRH, ATX and one guest present. ALP had the flu. EMG made BPL again. DIY, now on 15 meters, needs Nevada for WAS. K1HVQ is now K2HVY in Syosset, L. I. ETH was in the SS and got his 46th state. K1DRT has surplus receivers. SMO's p.p. 813 works fine. BPW has 116 countries and has VA-JF and WGSAs awards. BGW worked JT1AA, making it WAZ. KN1BAU is on 40 meters with a new antenna. WU has a new quad antenna. WN1BVD is working toward his General Class license. AYG likes s.s.b. on 10 meters. He and BW have new 40-ft. towers. IGH has a new HT-32 s.s.b. HIL is working DX on 10 meters. K1ACJ is on 15, 40 and 75 meters. HHC is on 75 meters. JFL has a DX-100 on all bands. NJL has his General Class license and is on phone and c.w. The Town of Barnstable Radio Club now is affiliated with ARRL. Ross Anderson is secy.-treas. The Yankee Radio Club held an auction with Louie Rizoli as auctioneer. K7BOB/I Kingston, will be leaving for England for three years. His dad is GLF. EMG is very active in various nets. The Braintree Radio Club held a Ladies' Night. HUP will be on the air soon. KN1DIW is on 21, 7 and 3.7 Mc. The T9 Radio Club met at ISX's QTH. The Winthrop Net still holds drills and had a netfest at BB's QTH. BOX, in Okinawa, recently talked with his folks by phone patch from KR6QW. HFJ is working at Lafayette Radio. WK has a new beam up at his QTH. FVD went to Phoenix, Ariz. Traffic; (Nov.) WIEMG 513, DIY 128, FJJ 124, UKO 108, CZW 77, EAE 76, ETH 40, ATX 21, ZEN 19, BY 16, SMO 14, JLN 11, TY 11, BPW 10, AUQ 8, K1BAU 8, W1BVG 8, WU 8, AYG 6, NJL 5, ALP 2, HIL 2, K1ACJ 1, (Oct.) WIATX 27, AKN 4, HHC 2, BPW 1, (Aug.) W1BWP 3. (Sept.) W1BWP 1.

**WESTERN MASSACHUSETTS—SCM,** Osborne R. McKeeraghan, W1HRV—SEC; RRR, RM; BYR, PAM; MNG. The West Mass. C.W. Net meets Mon. through Sat. at 1900 EST on 3560 kc. The West Mass. Phone Net meets Mon., Wed. and Fri. at 1800 EST on 3870 kc. RFU has been appointed Asst. PAM for v.h.f. activities

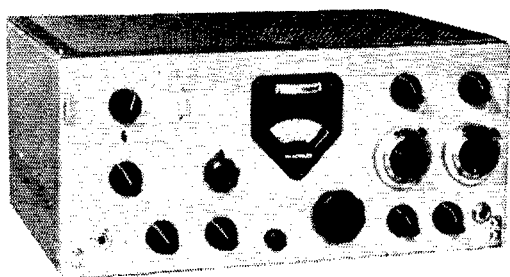
(Continued on page 130)

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Complete  
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Supplies 10-45 watts audio output depending on tube types and class of operation. May be used as Class A or B modulator to modulate RF inputs 8-100 watts, or as driver for higher power modulator, or as PA amplifier. Output matching impedance from 500-20,000 ohms. Carbon or crystal mike may be used; provisions for addition of external meter for monitoring modulator cathode currents; for remote control of modulator. Dual purpose 6U8 speech tube. 6F6, 6K6, 6V6, 6L6 or 5881 may be used as modulators. Perforated steel top cover available as accessory, \$3.00 extra. Wired model, complete with 6U8, 5U4GB and two 6L6 tubes. Size with cover: 6x7x11".

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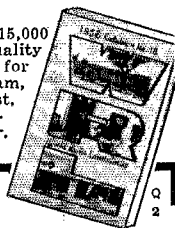
- ★ SCOUT 680A
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and is cooperating with PAM MING in furthering Western Massachusetts phone activity. DGL has been appointed OPS and 4UWA/1, who is located in Leonister, has been appointed ORS. RFU reports making the first Massachusetts to Florida contact on 2 meters via meteor scatter. RM BVR has produced some more fine bulletins for the West Mass. C.W. Net and 1RN. UEQ went to town this month with a traffic total of 1039. He reports a new 40-ft. tower supporting a 3-band Panda beam and a 2-meter beam. GQP has been working out well with his new Panda beam. 4UWA/1, in Leonister, reports into the WM C.W. Net and reports working some good DX. AGM has been working the phone nets and is building up his traffic total. AJX has received a Worked All Vermont certificate. TVJ has a new 75A-1 and has been reinstated as an OO. V.h.f. men in the Hampden County Area hope to take the measure of the Hartford County group in the annual January V.H.F. Contest. HDM has a new HQ-150. K1BRZ and MTV recently passed the General Class exams and dropped the "N" from their calls. New calls in Agawam are HMN, K1BGR and KN1CRJ. New Novices in the Berkshire Area are KN1s DWU in Pittsfield and DJN in North Adams. Activity toward getting ham license plates in Massachusetts is picking up with several Western Massachusetts groups working toward having bills filed in the state legislature. We heard that L1W mobile worked ZS1LS. BRV got quite a thrill from contacting a G2 with his 15-watt mobile rig on 29 Mc. Traffic: (Nov.) W1UEQ 1039, BVR 105, DGL 73, TAY 43, AJX 29, AGM 25, K6J 3, W4UWA/1 1. (Oct.) W1FZY 24.

**NEW HAMPSHIRE**—SCM. John A. Knapp, W1A1J —N1N (traffic net) meets Mon. through Fri. at 1900 on 3685 kc. GSPN is on 3842 kc. Mon. through Fri. at 1900, with an informal session at 0900 Sun. RACES C.D. Hq. station, BNU is on 3993 kc. Mon through Fri. at 0900, with radio-logical survey and weather report broadcasts in coded form. Any hams receiving this broadcast are invited to forward information to e.d. directors. PNR has 124 DXCC confirmed with a total of 131. DYE has acquired W4JF. LXB has moved to Panama City, Fla. EVN and DYE are DXing on 20 meters with new folded dipoles. EVN's son is on Guam so Howard listens mostly for DX in that area. ARR's new N1N bulletin was received and congrats to Bob for a very FB job. Our PAM, CDX, reports that as of Dec. 1, GSPN has 127 certificate holders. K1DHJ, formerly K2IAZ, is at U.N.H. HKA is doing FB in the DX department with an AT-1 and a zepp antenna. GSPN certificates go to K1's BCS, AKO, BHD and BIQ and W1's AGM, GDE, MEG, JFJ, FUA, DYE, FXT, EYL, UEQ, LQQ and ONT. MTX has a new Cushcraft ground-plane antenna for 10, 15 and 20 meters. Traffic: (Nov.) W1HOU 153, K1BCS 136, W1CRW 62, YMJ 54, ENM 41, GJM 21, GMH 20, ALJ 19, MTX 18, CDX 15, MOI 14, HQ 13, KVG 8, HKA 5, EVN 4, IZ 3. (Oct.) K1AHE 2, W1EVN 2.

**RHODE ISLAND**—SCM. Mrs. June R. Burkett, W1VXC—SEC. BAZ, PAMS; KCS and YNE, RMs; HBN and BTY. Endorsements: CCN as Class 1 OO; YNE as Class III and IV OO; CMH and CPV as ORSS; KCS and UHE as OBSs; YNE as OPS; CPC, LUO, TGD and YKQ as ECs. BBN is a new OBS. Reports from PAM YNE and the R. I. State Phone Net mgr., YRC, show that this net (Tues., Thurs., Sat. and Sun. at 1830 on 3915 kc.) is off to a good start. PAM KCS reports that the new R. I. Six-Meter Net (Wed. and Fri. at 2030 at 50.7 Mc.) has had good attendance. Many sections of the state were represented at the excellent spaghetti dinner given by the BVARC in Woonsocket on Nov. 16. LVA was auctioneer at the NAARO auction held in East Greenwich Nov. 22. Two recent programs at EPARA meeting have been a microwave demonstration by TL and KGC and a technical talk about single sideband by GR. A few hours before making a record non-stop flight from Westover AFB to Buenos Aires, a jet tanker successfully tested its radio equipment over this area by contacting several of the Polecats on 2 meters. AEO was communications specialist of the KC-135 crew and his father, KN1BWQ, was one of the Polecats making the test. ZPG still is busy handling phone patch traffic on 15- and 20-meter sideband for the boys at KC4-Land. BBN has earned his DXCC (114). MUL has successfully "launched" a DX-35 on 6 meters. Traffic: W1YNE 36, YRC 21, K1ABR 17, W1BBN 15, TGD 12.

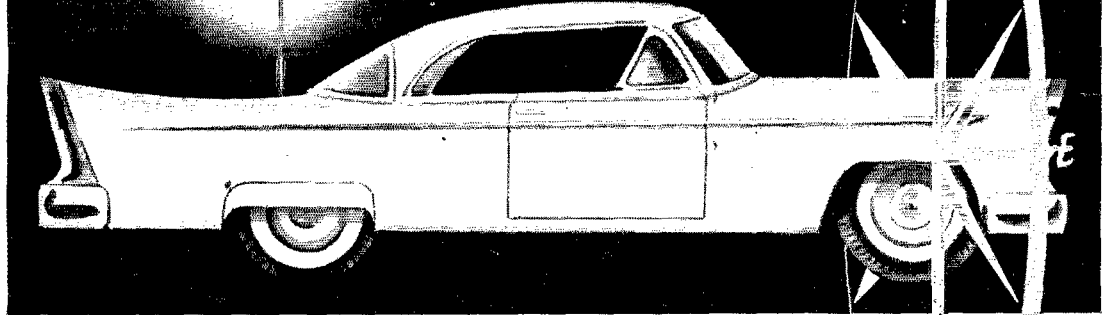
**VERMONT**—SCM. Mrs. Ann L. Chandler, W1OAK —SEC. SIO, RM: BNV. PAM: KKM. Traffic nets: VTN, Mon.-Sat., 6:30 P.M. on 3520 kc.; VTPN, Sun. at 9:00 A.M. on 3860 kc.; GMIN, Mon.-Sat. at 5:00 P.M.

(Continued on page 132)

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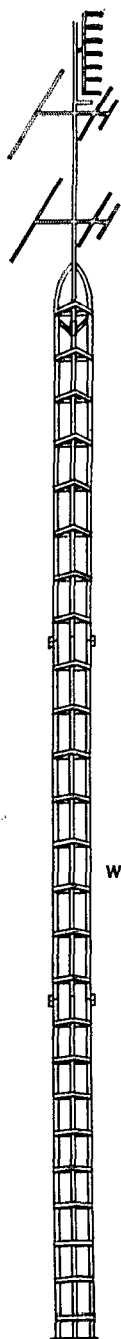
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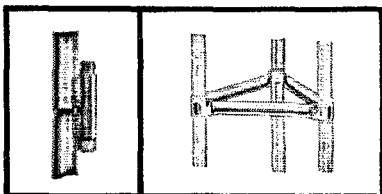


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on 3885 kc. Good luck to our newly-elected GMN manager, BXT! Asst. net managers are JXO and ZYZ. Thanks to VMC, who retires. VTN handled 71 messages in 20 sessions. On Dec. 1 a RACES meeting was held for District Radio Officers at the State House in Montpelier. Those attending were KIDWB, FN, NLO, OOR, TXY and WYUQ. C.S. officials UCU and FTF participated in the discussion. The Twin State Radio Club holds code practice for beginners at FN's home every Tues. at 7:30 p.m. for interested persons in the White River Area. The Wind Hams Radio Club (Bellows Falls) is now ARRL affiliated. The BARC charter has been accepted by the Secretary of State at Montpelier toward the incorporation of the club. Excellent communication coverage was experienced in the Burlington Area in the search for a lost hunter. Participants included ARP, BEU, CPC, CDM, DQR, EIB, EOY, EQJ, ETV, FND, KDY, LMI, OJU, QON, TBG, TFB, TZL, WOD, WOH, WOL. KKM is off the air temporarily because of a house fire. ETC is one member of the Otter Valley Bowmen to make good during the archery season. KRY bagged an 8-point buck and CBW and son were lucky at gunning! New hams are KNIDWG, KN1BVH, KIDWB, CSD, KIDKO and KIBFD. HFN is heard on 50 and 144 Mc., using a Johnson 6N2 with a DX-100 using a 5-element Yagi. Bill is with the Vermont Air Guard. The following have dropped the "N": KN1s BER, BDA, BCZ, BCU and BIK. ARP has dropped the "N" and is active on 10 through 80 meters using a Viking II and SX-99. A new General Class licensee in Wilder is KIDYM using a surplus BC-696 with an RME receiver. LMI has moved. SFE has moved to Maine. ZEW is back in the Capital city. BARC members are listening for HOAJ on 20 meters. APZ has a new Viking I and is using a Windom antenna, with SP-200, Super Pro and Hallicrafters S-85 receivers. ZPB operated at home during the Thanksgiving vacation. FAK sends in nice OES report. Traffic: WIBXT 138, AVP 70, OAK 66, KJG 20, WIELJ 19, KIBGC 10.

## NORTHWESTERN DIVISION

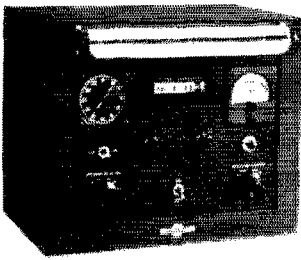
**IDAHO**—SCM, Rev. Francis A. Peterson, W7RKL—Please note new QTH for your SCM, page 6. RKI has moved to St. Anthony. ZRC is back home from the hospital. We all wish him a speedy recovery. ASA is piling up terrific traffic totals—and traffic tickets. IWU has a 522 receiver ready for 108-Mc. satellites. KNTAWB is building a grounded grid final for his Knight kit. BAW has a new HT-32. The Pocatello Club is incorporating. The Twin Falls Club is attempting to edit and produce the *Hambone*. See NTQ for subscription information. DWE is getting all his relatives on the air. AOR got a new 10-meter beam. ACD left for Arizona before the snows hit. Please report any news from your area by the first of each month. Very little arrived this time. Talk up the ARRL on the air. Every ham should be a member.

**MONTANA**—SCM, Vernon L. Phillips, W7NPV/WX1—SEC: KUH, PAM: FOI, RM: KGI. The Montana Phone Net meets Mon.-Wed.-Fri. at 1830 MST on 3910 kc. The Northwest Sideband Net meets Tue.-Thurs.-Sat. at 2130 MST on 3910 kc. The Montana High School Net meets Tue.-Thurs. at 1800 MST on 3885 kc. SFK, YQZ WSW and ABV performed notable public service by using radio to summon aid in two separate automobile accidents. New calls: W7NHFV in Miles City, W7N1UN in Laurel, KN7BEK in Great Falls and K7BPF in Roundup. New harmonics: DWH and DWJ a girl and PXR a boy. OZH is moving from Billings to Omaha, where he will supervise operation and maintenance of electrical installations for the Corps of Engineers. Winter vacations: AYG, BNU and CPY in Arizona and UPR in California. EPZ has Hawaii confirmed on 6 meters. DWMI completed WAS. KVVU travelled to Rhodes, Greece, where he will operate as SVØVE. New Officers of the ECRC are VLZ, pres.; OOG, vice-pres.; YLC, secy.-treas.; BUJ, CRD. DSS, GCS and GPT, directors. Traffic: W7SFK 46, NPV 13, TNJ 11, CQC 9, OIQ 9, OOG 8, LBK 7, WMT 6, YPN 6, K7AXD 5, W7EVR 5, DWJ 4, OIP 4, TSG 4, UWY 4, YQZ 4, JFR 3, YUB 3, BJT 2, NOZ 2, TGM 2, HLI 1, YUP 1.

**OREGON**—SCM, Hubert R. McNally, W7JDX—VPH has been appointed V.H.F.-PAM for Southern Oregon. WTW is having antenna trouble and is missing on 75 meters. QWE now has a WAC certificate and is madly working for same on WAS, YL and XYL! APF is back in full swing again with a DX-100 which will be the driver for the larger rig. New OPSs are FTA, ZQM, DEM and KEN. Ex-OAU now is manager

(Continued on page 134)

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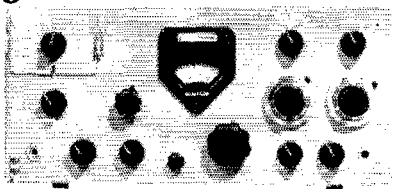
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For Smooth Coordination of Complete SSB Station

The SC-101 provides the necessary equipment to connect the Collins 75A4 and KWS1 with beam direction indicator and control, phone patch circuit, standing wave ratio meter and remote selection of any one of six antennas. *There are three units included in the system:*

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## Collins KWM-1



### first SSB transceiver for complete Mobile or Fixed use

The revolutionary KWM-1, the first mobile transceiver to offer SSB. And this 14-30 mc 175 watt\* package is equally adaptable to fixed use with simple removal from a convenient mounting tray under the dashboard.

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NET PRICES	*P.E.P.
KWM-1 Transceiver	\$770.00
516E-1 12 vdc Power Supply	248.00
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**HALLICRAFTER HT-32 TRANSMITTER**  
Hallicrafters new HT-32 is a complete table top, high efficiency amateur band transmitter providing S.S.B. AM or CW output on 80, 40, 20, 15, 11 and 10 meter bands. This unit incorporates two new exclusive features in S.S.B. generation techniques. First is a high frequency crystal filter which cuts unwanted sideband 50 db. or more. Second is a newly developed bridged-tee modulator which is extremely stable. These and other features make the HT-32 the best S.S.B. transmitter buy on the market today.

**\$675.00**

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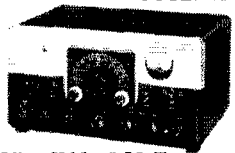
#### HT-33 LINEAR KILOWATT AMPLIFIER

Hallicrafters new ultra-compact HT-33 is the only kilowatt amplifier to employ extra-safe, extra long life ceramic power tubes. They're rugged, assure a consistently higher performance, as well as provide extra safety under overload conditions.

See the HT-33, look at its clean table-top lines, compactness, then put it to work. You'll know immediately why this new linear kilowatt amplifier is in a class of its own.

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SSB or DSB suppressed carrier or with carrier, PM and CW.

6146 power amplifier delivers 65 PEP watts output, giving sufficient power to drive nearly all types of linear amplifiers INCLUDING grounded grid finals.

Calibrate control allows variable control of signal for zero beating VFO to receiver frequency or TOF (talk on frequency).

Voltage Regulation of 6146 Screen and 9MC OSC.

Temperature compensating condensers in critical 9MC circuit for improved stability.

## FRONT PANEL OPERATING CONTROLS

Emission switch with 5 positions for selecting CW  
PM — AM or DSB — Sideband 1 — Sideband 2

Indicator Switch

Position 1. Tuning eye indicates R.F. output.  
Position 2. Tuning eye indicates when flattopping occurs.

Valuable aid for tuning up on AM and as a Distortion indicator for SSB.

"Phasemaster II-A" complete **\$329.50**

"Bandhopper" VFO complete **\$139.50**

P-400 Grounded Grid Linear Amplifier **\$269.50**

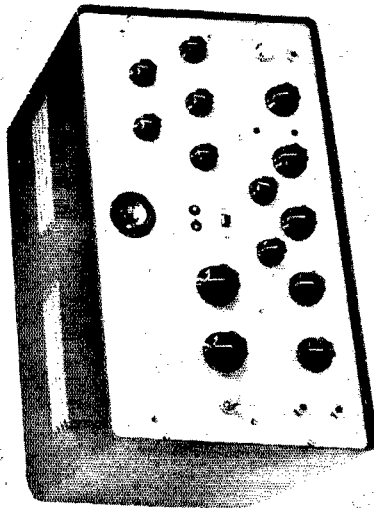
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ALL BAND OPERATION

of the Morrow Radio Co. at Salem and will try to get back his old call, K7ACB has a new DX-100. CMP now is mobile on 75 meters. PCC and 8KKF have moved to Grants Pass. The Oregon Hams Mobile Society had a nice outing to the Morrow Radio Co. About 42 made the trip. The OARS is moving soon to a new club location. The net on 29.2 Mc. had around 600 check-ins for the month. SSS now is back on the air at Salem after a long silent period with a tired transmitter. UQI is busy helping to form a new club in Clarkamas County. The OSN Net on 3585 kc. had another good month with nice activity. KL and LVN both are very busy these days in Eugene. The new Jackson County C.D. Net is on 147.06 Mc. with 12 members fixed and mobile. V.h.f. activity is on the increase in both ends of the State but your SCM still is seeking OES applicants! WNV and PQJ both had nice OO reports. YQJ, of the OARS Net, is in a hospital in Portland after a serious auto accident and will be laid up for awhile. CUW, of Albany, is handling nice traffic every month. FMX, of Salem, is home again after serious operations and will be on the air. Traffic: (Nov.) WYAPF 526, CUW 138, OMO 54, LT 52, JDX 47, ZPH 29, AJN 28, GUR 22, YUY 16, SPB 13, DEM 11, UQI 6, RXO 3, WPW 2. (Oct.) W7QWE 12, SPB 10.

**WASHINGTON**—SCM, Victor S. Gish, W7FLX—FZQ got his ORS appointment and is busy on all nets including MATN. APS piles up a good score with deliveries of traffic from RN7. AIB was on for only eight hours during the SS Contest but worked 31 sections. LVB has his WSN Album completed and it is now in circulation to WSN members. DZX reports the Apple City Radio Club's new officers are ZGH, pres.; YOP, vice-pres.; ETO, secy.-treas. AMC renewed his OPS appointment. ETO works 10-meter phone when time permits. HDT has built a new operating position and has a Gonset Communicator III. He also reports that UJA is back on the air with an AF-67 which he plans to use as an exciter for the big rig. ER is very QRL QCWA business. The QCWA had a banquet and visited the Boeing plant Dec. 1. CWN still is DXing and working MARS and c.d. nets. AZ is back on the air. AGJ received an OES appointment. The Valley ARC (Puyallup) held its annual Christmas Party Dec. 7. LCS returned from a trip to New York, Washington and Chicago and was shown N. Y. C. by 2RFR. FWD had a stroke on Nov. 10 which left his left side paralyzed but is keeping all except the Official Bulletin skeds with the help of FWR and an extension mike for the phone skeds. BA reports JNC and JXR, staunch high-level a.m. enthusiasts, have both been heard on s.s.b. The next convert probably will be PHO. BA also says, "Just because c.w. has its key clickers and a.m. its over-modulators this doesn't mean that s.s.b. doesn't also have its "flat-toppers." Recent visitors at the SCM's shack were 6ORS and AIB. FZB is back in business at the old QTH after a fire. VAZ is trying out a pair of 35TGs on his 10B exciter. WVU is starting to organize an emergency communication system for Grant County. UZB reports the Evergreen Fifty and Up Society is progressing very favorably. BDK still is working on his 1296-Mc. gear. PGY has his tower completely installed and ready for the doublet and 10-meter beam. Don't forget to vote for a new SCM. Traffic: W7BA 2339, PGY 953, VAZ 650, FZQ 214, APS 157, UWT 152, AIB 84, LVB 23, DZX 32, AMC 30, BXH 23, WVU 14, ETO 10, HDT 9, ER 4. (Oct.) W7BXH 22, GVV 8.

## PACIFIC DIVISION

**HAWAII**—SCM, Samuel H. Lewbel, KH6AED—Word from the Kona Coast via KH6CAJ is that BPF is now on s.s.b. He's the first on the big island. He is the president of the Kona Amateur Radio Club. Note above that CAJ got his General Class license. Bruce Hosmer, AIW, is now on the air from Chile with the call CE7AY. He and the XYL are there for the rest of the IGY. IJ has requested appointment as ORS. CMM now has his 35-w.p.m. Code Proficiency ticket from ARRL. Guess he was celebrating when he bought himself a new HRO. EU, Deputy Radio Officer for Kauai County, and BMD, BVM, BIU and BIB handled the emergency traffic during the hurricane threat. In all, 64 stations checked in with Net Control AED. ABY has been touring in Kentucky and sent in an application for AREC membership. KR6HN is now on with a kw. linear and the beam atop a new 80-ft. tower. Traffic: (Nov.) KR6HN 87; (Oct.) KH6CMM 22.

**NEVADA**—SCM, Albert R. Chin, W7JLV—SEC:

(Continued on page 136)



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**HEY! LOOK!**

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BIG FREE 1958  
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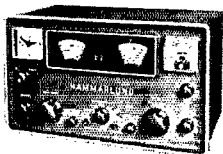
2. When the deal is made, you ship your equipment to us by prepaid express or, if express is not available, by prepaid truck. We check it at once and, in most cases, your new gear is on its way to you within 24 hours after we receive your trade-in.

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clock timer  
\$10 extra.



**HAMMARLUND HQ-100**

General purpose communications receiver continuously tunable from 540 KCS to 30 MCS. Outstanding sensitivity and selectivity. Q-multiplier. Excellent stability. Electrical bandspread. Noise limiter. "S" meter. Auto-response.

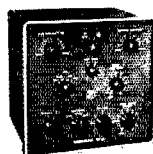
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Strictly for the amateur. Tunes 6, 10, 15, 20, 40, 80 and 160 meter bands. Q-multiplier. Crystal calibrator. Highly efficient noise limiter. Separate linear detector for SSB and CW. Electrical bandspread. Separate BFO oscillator. Crystal-controlled dual conversion. 12-tube superheterodyne circuit. Auto-response audio system.



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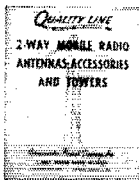


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JU. New officers of the Southern Nevada Amateur Radio Club are ZZE, pres.; ZWZ, vice-pres.; TKV, vice-pres.; GUB, vice-pres.; JU, corr. secy.; DCO, rec. secy.; BJY, treas.; FJN editor. JU is active on 2 meters with a weekly sked to California. PWE also is active on 2 meters. OBW is putting a pair of 4-400s on 2 meters. MAH has been heard in Europe on 6-meter s.s.b. IBUD was a guest of the SNARC and was conducted through Hoover Dam by JU and JUO. ZLQ has moved to LA. Newcomers to Las Vegas are K8GFF and 8C'RF. BJY reports YKQ with 50 and VIU with 75 Nevada endorsements. Rod and Ray moved up from the Novice Class with JDI and ANK. KN7AHA now is on 40 meters. UPS has a new YNO for 20 meters and is building a kw. linear. YNO now is radioman on the destroyer USS *Beatty*. PEW will get on soon. DLF wants to know how VIU works all his DX. VIU got his first Russian card. BYR has a new Viking Ranger to drive his kw. Those assisting ZT during the Nevada Day Parade were PBG, TQE, UVZ, AZF, INFA/7, SRN and ZHW. SDF had a slight accident on the way to Carson. Traffic: W7VIU 465.

**SANTA CLARA VALLEY**—SCM, G. Donald Eberlein, W6YHM—SEC: NVO. RMs: ZRJ and QMO. PAM: OFJ. New appointments: QMO as RM, K6LSG as ORS. Endorsements: K6HGV as OBS, WIS as EC. The Northern California Net, which meets on 3635 kc. daily at 1900 PST, under the leadership of QMO has recovered from a bad slump. Any amateur in Northern California who wishes to enjoy a few hours a week by working in a well-run smooth-operating C.W. Net should join. Any operator in the net will send at a speed you like to copy. Just state your desire. K6GDI reports contact with E12W in Ireland on 6 meters, K6MMT and W6AFC report working ZE2JE on the same band. K6FD claims over 100 countries worked on a vertical antenna running 110 watts input to the final. *Paragraphs* reports AOV, as a Silent Key. Stan is well remembered by those attending club meetings as he always had charge of refreshments. TKX received newspaper mention for his report of working UA1KAE, a Russian station with a group at the South Pole. K6BYG is on the air using a new Valiant. ZRJ is active on 10-meter phone with a new DX-109. K6DYX reports that K6KPT won the hidden transmitter hunt put on by the MBRC. K6GZ's traffic count is down on account of the direct contact of MARS Pacific Coast to Washington, D. C., direct for traffic. K6BBD reports the San Jose State College Amateur Radio Club is very active with a large membership. The club furnished communication for the Cross Country race. Traffic: (Nov.) W6BPT 362, PLG 257, K6DYX 252, GZ 175, W6QMO 138, YRJ 127, ZXS 106, YHAM 96, K6DHO 77, W6HC 68, ZBY 66, ZLO 51, OII 25, K6HGV 9, W6MMG 4. (Oct.) W6AIT 47, YRJ 17.

**EAST BAY**—SCM, B. W. Southwell, W60JW—Asst. SCM: Harry T. Cameron, 6RVC. SEC: CAN. PAM: LL. RMs: EFD, JOH and IPW. ECs: LGW, ZZF, K6ERR, GZ, EDN and GXU. As this is my first column I wish to extend my thanks to those who nominated me for this office. LGW reports the c.d. net is doing fine with 19 check-ins on Mon. on 145.29 Mc. at 7 p.m. and 50.68 Mc. at 7:30 p.m. K6PRZ now has his General Class license and a new tower. CDI, PIR, K6RMC, OBB and IVX are trying to form a 6-meter YL net. EPT is thinking of getting an "Isotta" for mobile work. New Novices are KN6DAY and EMR. ZZF has an FB emergency group in Vallejo. The North Bay Amateur Radio Club (Vallejo) meets the 1st Fri. of each month at the Red Cross Building. The East Bay Radio Club heard an FB talk on 6-meter propagation and reception and saw the new AJF converter. RTTYers ASJ, VPC and K6KFF are putting out Official Bulletins on 3620, 7140, 14330 and 147290 kc. The Northern California Net held its sixth NCN dinner at Uncle Tom's Cabin in San Bruno with Director HC and SCMs OJW, OPL and YHM present. QMO is the new manager of the net. The NCDX Club had as guest speaker at its October meeting, Deane Laws, VR3B, of Fanning Island. NCDX officers are CTL, pres.; TXL, vice-pres.; GPB, secy.-treas.; DBP and K6AQP, directors. OJW has a new 21-Mc. Hy-gain beam. ZY sports a new Gonsset Tri-band tower and 75A-4 for inhaler. Hams at the V.O.A. station in Dixon are IV, OJW, DJD, ZY, LNN, TXL and K6QBJ. A panel power wagon is coming up for c.d. use in the Dixon Area and will be completely equipped from 2-160 meters with emergency power. SEC CAN reports that EC appointees are needed for San Leandro, Hayward and the southern areas of Alameda County. Anyone interested drop a line to J. Wayne Clark,

(Continued on page 138)

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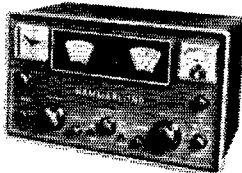
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Excellent performance, at lowest price! Covers .54 to 30 MC, with calibrated bandspread of Ham bands. Has Q multiplier, Auto-response, etc. It's yours for only

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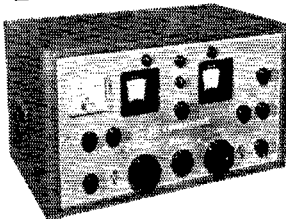


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From New England: Merritt Parkway, to West Side New York via Henry Hudson and West Side Highways. (See "From North")

From Long Island: Via Brooklyn-Battery Tunnel, right on West St. 9 blocks to Vesey St., right 2 blocks to Greenwich St., left 1/2 block.

Via Tri-Boro, Queensboro, or Midtown Tunnel: East River (F.D.R.) Drive downtown, and around thru underpass tunnel to Brooklyn Tunnel entrance, but continue straight up West St. 9 blocks to Vesey St., right 2 blocks to Greenwich St., left 1/2 block.

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BMT 4th Ave. line to City Hall Station, walk two blocks west on Barclay St.

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3015	3955	4950	5925	6400	7023	7400	7570	7690	7910	8140	8350	8690
3020	3980	4980	5955	6430	7053	7430	7600	7720	7940	8170	8380	8720
3025	3990	4995	5970	6440	7063	7440	7610	7730	7950	8180	8390	8730
3030	3995	5000	5975	6445	7068	7445	7615	7735	7955	8185	8395	8735
3035	4005	5010	5985	6455	7078	7455	7625	7745	7965	8195	8405	8745
3040	4015	5020	5995	6465	7088	7465	7635	7755	7975	8205	8415	8755
3045	4020	5025	5995	6470	7093	7470	7640	7760	7980	8210	8420	8760
3050	4025	5030	6000	6475	7098	7475	7645	7765	7985	8215	8425	8765
3055	4100	6005	5955	6475	7104	7476	7646	7766	7986	8216	8426	8766
3060	4135	6235	5973	6475	7106	7476	7646	7766	7986	8216	8426	8766
3065	4165	6245	5975	6500	7107	7477	7647	7767	7987	8217	8427	8767
3070	4175	6255	5985	6500	7108	7478	7648	7768	7988	8218	8428	8768
3075	4190	6285	6000	6525	7109	7479	7649	7769	7989	8219	8429	8769
3080	4215	6295	6005	6550	7110	7480	7650	7770	7990	8220	8430	8770
3110	4220	6435	6025	6550	7111	7481	7651	7771	7991	8221	8431	8771
3130	4255	6437	6040	6573	7112	7482	7652	7772	7992	8222	8432	8772
3135	4280	6485	6056	6600	7113	7483	7653	7773	7993	8223	8433	8773
3140	4295	6500	6070	6625	7114	7484	7654	7774	7994	8224	8434	8774
3145	4300	6545	6073	6625	7115	7485	7655	7775	7995	8225	8435	8775
3150	4330	6587	6075	6625	7116	7486	7656	7776	7996	8226	8436	8776
3155	4400	6587	6100	6650	7117	7487	7657	7777	7997	8227	8437	8777
3160	4395	6587	6106	6650	7118	7488	7658	7778	7998	8228	8438	8778
3165	4397	6588	6125	6650	7119	7489	7659	7779	7999	8229	8439	8779
3170	4445	6675	6140	6675	7120	7490	7660	7780	8000	8230	8440	8780
3175	4490	6687	6142	6700	7121	7491	7661	7781	8001	8231	8441	8781
3202	4495	6700	6150	6700	7122	7492	7662	7782	8002	8232	8442	8782
3205	4535	6707	6173	6725	7123	7493	7663	7783	8003	8233	8443	8783
3210	4540	6725	6175	6740	7124	7494	7664	7784	8004	8234	8444	8784
3220	4620	6750	6190	6800	7125	7495	7665	7785	8005	8235	8445	8785
3225	4610	6740	6200	6773	7126	7496	7666	7786	8006	8236	8446	8786
3230	4620	6750	6200	6800	7127	7497	7667	7787	8007	8237	8447	8787
3235	4635	6760	6225	6840	7128	7498	7668	7788	8008	8238	8448	8788
3240	4680	6773	6235	6806	7129	7499	7669	7789	8009	8239	8449	8789
3245	4655	6775	6250	6820	7130	7500	7670	7790	8010	8240	8450	8790
3310	4710	6780	6250	6825	7131	7501	7671	7791	8011	8241	8451	8791
3340	4735	6787	6273	6840	7132	7502	7672	7792	8012	8242	8452	8792
3410	4800	6800	6275	6850	7133	7503	7673	7793	8013	8243	8453	8793
3420	4785	6806	6275	6847	7134	7504	7674	7794	8014	8244	8454	8794
3445	4815	6820	6300	6875	7135	7505	7675	7795	8015	8245	8455	8795
3450	4830	6825	6300	6875	7136	7506	7676	7796	8016	8246	8456	8796
3465	4840	6840	6315	6906	7137	7507	7677	7797	8017	8247	8457	8797
3485	4845	6850	6325	6925	7138	7508	7678	7798	8018	8248	8458	8798
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Note—Only 10 KC difference between the above

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70 Hoffman Ave., Napa. Emergency groups in Solano, Napa and Contra Costa Counties are shaping up. CAN reports 65 AREC members in the section, with 26 mobile units and 4 emergency units. That winds it up this month, gang. Let's have those reports on the first of the month. Remember, this is your column.

**SAN FRANCISCO—SCM, Fred H. Laubscher, W6OPL—Asst. SCM: Edwin L. Olmstead, K6LFC, SEC: GXH, ECs: San Francisco, K6ANP; Marin County, ZUB; Sonoma County, LOU; Fortuna, K6EKC; Eureka, SLX.** A description of the new AREC program for this section was mailed to all members and the response has been nothing less than astounding! County working frequencies have been established and are being used throughout the section. The frequencies being used: San Francisco—3865 Kc. and 29.0 Mc. Marin County—3885 Kc. Humboldt-Sonoma Counties—3825 Kc. Del Norte County is using 3820 Kc. If you haven't already done so, be active on your community frequency. Intersection AREC business is conducted each Sun. morning at 10:30 A.M. on 3900 Kc. SECs and ECs from other sections are cordially invited to join the Sun. morning discussions. K6GYA is chief par excellent of the SFRC. Heartiest congrats from the entire section to IIC on his reelection as Pacific Division Director. OST is hanging out diapers again for the new VL. Rose Buckley is now editing the SFRC News. The HAMS showed up with overalls and paint brushes and now have a "hye engine" red generator trailer. The YIRC/SF had a house-cooling for BDE, whose QTH was completely destroyed by fire. Loss included the DX-100, W6HJF/KR6RX still is using his 4-1000A on s.s.b. and expects a 30-day leave back home in the Bay Area in Mareh. The Cathay RC, under the direction of its active group of officers, had its umpteenth annual Chinese Christmas Dinner. KFS walked off with a Texas 807 (Eimac 4-125A) for being the firstest with the mostest in the 29ers mobile hunt. The Marin ARC started its code and theory classes with coverage on the air both audio and amateur TV! Audio is on 1905 kc. and video is on 440 Mc., just within the tuning range of most commercial TV u.h.f. converters. Instructors include W6s IFO, RQT, GXH, OPL and K6s BTI and LCF. K6SJM, better known to his TV viewers as Sandy Spillman, is handling publicity for the classes. A group from the Marin Club put up an A frame for WJF and FEA and had to go back the next week and straighten it up again. Back to the drawing boards, men! East Bay mobilers are becoming regular and welcome visitors at the Marin Sunday morning Kaffee Klatches. Mr. Vern Thomas pours. K6JTA enjoys his new DX location. W6SP, busy as RACES coordinator, still found time to get a new Pacemaker on the air. IZR reports activity is picking up at Inverness. GWT soon will be keeping schedules with his blood brother, VXC, who is touring K6-Land. Apparently Ray's plans for the blimpmobile have been sidetracked for a fling at s.s.b. No reports from the Sonoma group was received this month. GQY is back at the old traffic stand. K6AXW is slowing down in his attempt to reach 135 feet with his beer-can vertical. Bob advises his consumption has fallen off to less than 2 feet per day. Please keep the reports coming in. Traffic: (Nov.) K6AIR 217, W6GGC 32, H1P 22, OPL 9, K6LCF 4, W6GXH 2, SG 1, (Oct.) W6BIP 26.

**SACRAMENTO VALLEY—SCM, LeVaughn Shipley, K6CFF—CMA attended the NCM (Northern California Net) traffic dinner in San Bruno Dec. 1. Anyone interested in traffic-handling should contact the SCM or Jeri Bey, QMO, manager of NCM. School spoiled the fine traffic record of K6SXA this month. However, Jim did find time to work 25 new countries and make 745 contacts in 73 zones during the Sweepstakes. Recently QUE, who is working with a local group under a Navy contract, was the guest speaker at the Sacramento Amateur Radio Club. Pete gave a most interesting discussion on the American Earth Satellite Program. He explained tracking techniques but did not mention how to get the rocket off the ground. Hi! Congratulations to the Camellia Capital Chirps, Aerojet, McClellan and the Sacramento Clubs. These four clubs joined in a combined effort to sponsor the finest Christmas Party Sacramento has ever seen. The annual event which was sponsored solely by the Sacramento Club for years, henceforth will be known simply as "Radio Amateurs' Annual Christmas Party." Your SCM recently heard MWR reading Official Bulletins on 1920 Kc. PDY is conducting weekly code and theory classes which are sponsored by the Nazarene Church of Chico. GCM had to buy a plot of ground in Yuba City on which to install his new 1100-ft. all-band antenna. AF, in Oroville, is**

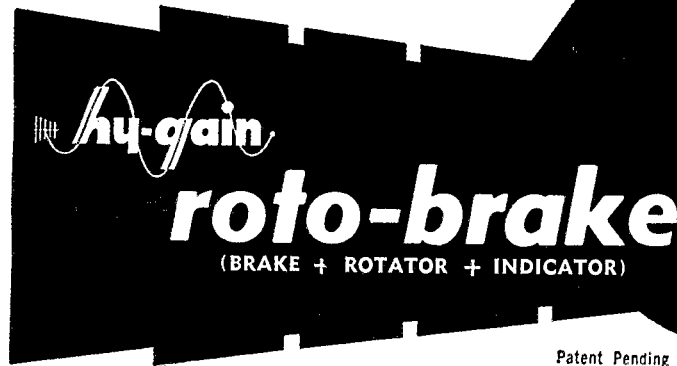
(Continued on page 140)

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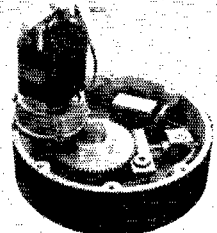
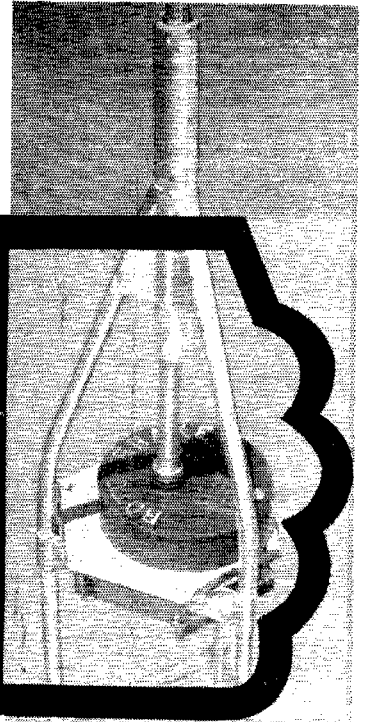
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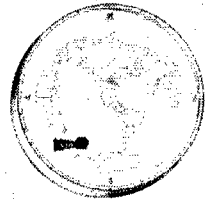
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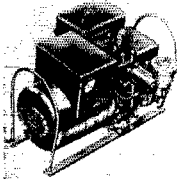
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doing a lot of DXing with his GPR-90 receiver. HBM, Paradise, is very active on 2 meters with his new Gonset. Chico welcomes CRY, who recently moved from Covino. Traffic: W6CMA 238.

**SAN JOAQUIN VALLEY—SCM.** Ralph Saroyan, W6JPU—BJJ worked ZE2E on 6 meters. K6GDI is now WAC on 6 meters. K6GDI also worked E12W on 6 meters. PXP is working out FB on 20 and 40 meters with an ART-13 mobile. IRV has a B&W 5100 on 40 and 75 meters. QON has a BC-610. Ex-7EBL is now K6ZFW, in Reedley, operating on 75 meters. K6EJT now has up two 50-ft. poles for his trap antenna because of the kind assistance of PXP, ONK, JFS, DUD, K6LRQ, DVL, K6MPV, LOC and K6GTI. The Annual Motorcycle Enduro Run was held in the Sierras and communications was supplied by the members of the Fresno Radio Club, who were K6BGK, BAN, K6QJM, ZFN, QOS, K6JGH, K6OZY, DUD, K6TTU, K6KLE and K6PPB. Both 6 and 75 meters were used. UBK is working out better than ever with his rhombic. The Merced Radio Club, K6VTT, is back on the air. K6DUU is the president of the Merced Radio Club. New officers of the Fresno Radio Club are PSQ, pres.; K6CZO, vice-pres.; UBK, treas.; and K6OEM, secy. The newly-organized Delta Amateur Radio Club meets on the 2nd Thurs. of each month with K6AXV, pres.; RRN, vice-pres.; K6GDB, secy.-treas. The net frequency is 50.4 Mc. at 8 P.M. Mon. KUT and his XYL were recent visitors in Fresno. FYAI, formerly of Turlock, demonstrated the new 4CX1000 tube to the Turlock Amateur Radio Club. BAN is using a new 3-phase power supply in his mobile rig. Anyone interested in traffic, check into the new NCN net being reorganized. Contact VHM. Traffic: W6ADB 122, K6EJT 46, RLX 13, W6EBL 10.

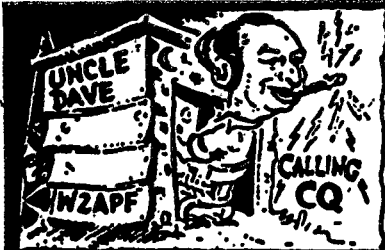
### ROANOKE DIVISION

**NORTH CAROLINA—SCM.** B. Riley Fowler, W4RRH—SEC: ZG. PAM: DRC. V.H.F. PAM: 4ACY. It is with regret that we note the passing of Col. W. H. Jacobs, W4CVQ. Jake passed away Nov. 15, 1957 in the doctor's office, Raleigh, N. C. Jake was a past-director of ARRL and at the time of his death was State Radio Officer, N. C. Council of Civil Defense. His leadership and counsel will be missed in the State. He was one of the organizers of the Tar Heel Net, and devoted much of his time to amateur radio, especially v.h.f. K4AI is the new NCS of the TEN and will serve three months. Also K4AI has a new quibical quad beam working. AEH and District 13 took part in the S.E.T.; also BAW, in District 29. Many others probably participated but the EC forgot to report. DSO in District 5 also was active. K4DNV and K4JSC both made Brass Pounders last month. Sorry we missed Ed Handy while in this section. The Morganton Amateur Radio Club has moved into permanent quarters. The Recreation Department gave us a room. Code Classes are being conducted three nights per week. Much interest is being shown. Transmitter and receivers are being set up and when the Club call comes through be on the lookout for the Morganton Amateur Radio Club.

**SOUTH CAROLINA—SCM.** Bryson L. McGraw, W4HAIG—Congrats to K4PJE our new EC for Andrews (city). K4ETB is doing a nice job as Wed. night NCS on the S.C. Phone Net. DQX is getting good DX on 20 meters with 450 milliwatts by way of a transistor rig. VJI is on with a full gallon on s.s.b. via 75-meter phone. Thanks to our SEC, SOF, who acted as NCS during the tornado alert on Nov. 18-19, and the following stations: K4J JFN, IBX, IIE, GMY, PCH, QFV, DTQ, W4s PED, ZKE and VLE. K4ASA is getting good DX on 15 meters via his much-modified Surplus Super Pro. Congrats to DAW, a new ORS. Look for our 6-meter net on 50.2 Mc. nightly Mon. through Fri. at 1900 EST. K4HDX is NCS with about 30 stations checking in. K4BEY now is in Columbia. Congrats to K4HQK, who was featured in a swell newspaper column. K4GAT is now an ORS. K4FAI asks all in the Sumter Area to join their 10-meter net on 29.226 Mc. Thurs. at 1900 EST. The Shaw-Sumter Club now has a new club attendance chart on its wall. K4DWJ is getting a lot of signal from his new AF67. K4RLX and the new Scout with two elements on 10 meters, works the good ones. K4EJR did FB in the Sweepstakes with 629 contacts and 103.00 points. Since my term as SCM is nearing a close I do wish to thank FFH (PAM), SOF (SEC), AKC (RM) and every amateur in the State for their wholehearted cooperation during the last two years of progress. Thanks a million, fellows. Support SCARAB by sending your dollar to AKC; we need the fine bulletin being edited by the Rock Hill Club.

**VIRGINIA—SCM.** John Carl Morgan, W4KX—SEC:

(Continued on page 142)



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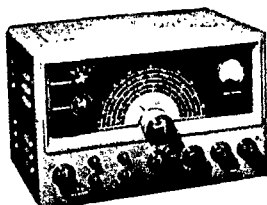
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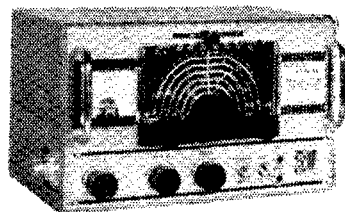
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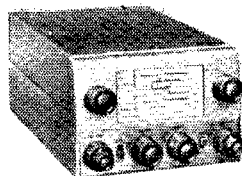
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PAK. SEJ is the new 4RN mgr. K4ASU has stepped up to the managership of VFN, with K4JDJ as assistant. PFC, at Quantico Marine Base, wants skulls with phone traffic handlers. K4DPX got S9 reports from an XYL receiving him on an electric range! YVG reports the Tidewater Mobile and Peninsula Clubs are about to start construction of 2-meter "Club-Saver" portables. OOL now has a VFO but is not satisfied with reports on the new "high power" (25 watt) rig. K4KWW has a new rhombic, 285 feet per leg. K4QIX and K4QET are among the new Generals. K4MKO and his NYL. K4PAN, have a new Valiant. K4EZZL has a new 300-watt PA and hopes to be all-band soon. OES K4EYE was set to monitor Vanguard. K4JJK made 80-meter WAS. Welcome to K4SVT, new in Harrisonburg; KN4RZX in Chatham; and KN8 SNU and SNW, in Bedford. We are sorry to lose K4JTS, who has moved to California. TFX and APM took time out for the SS from G.W.U., where they're forming an ARC. VQZ helps keep 1MX warm at M.I.T., but AAD is too busy with books at NC State to play with ATC. U. Va. also is grinding K4EAQ's proboscis. K4MBI, has been doing most of his operating on the Yorktown Club station. YIA. The Fairfax HS ARC now is affiliated with the League. The Danville Club secretary, K4HQD, is beefing up code and theory classes and has acquired an instructor-graph. The number of stations reporting to the SCM on November activity was an all-time high. Thanks and keep 'em coming. Incidentally, be sure your mailing address is on each report; especially if you ask for information, etc., requiring reply by mail and more especially if your license is relatively new. We are unable to reply to several queries because of lack of QTHs. Traffic: W4PFC 3280, IA 541. SHJ 521, Q1Y 503, K4AET 285, W4APM 142, K4JKK 90, PTG 88, ELG 87, W4THM 70, K4KNP 62, JLO 56, MEV 56, W4BZE 48, OGX 46, K4ASU 37, W4BYZ 31, K4DPX 27, W4CFV 25, ZM 24, KX 23, P.T.X. 22, LK 20, LW 18, YVG 18, PVA 17, K4CAX 14, W4OOL 8, K4QIX 7, PAN 6, W4YE 6, K4EAS 4, EZZL 3, ORQ 2, W4YZC 2, K4BYS 1, KWW 1. (Oct.) W4THM 156, APM 15.

**WEST VIRGINIA**—SCM, Albert H. Hix, W8PQQ—Asst. SCM: Festus R. Greathouse, 8PZT. SEC: KXD. PAM: FGL, V.H.F. PAM: K8AON. RMs: GBF, HZA, PBO and VYR. VYR has been appointed as Route Manager. VMK has a KWS-1. AVW and NLT are on s.s.b. K8BRM is a new OBS. Officers of the Black Diamond Club are GGO, pres.; QVP, vice-pres.; K8GEQ, treas.; SHA, secy.; RGE, GCZ and NYH, trustees; SSA, editor. Contact SSA for meeting details. JM is very active on all bands. PJI renewed ORS appointment. KN8HAL is now a General Class license holder. K8CCN will have a second station on in Columbus, Ohio, with the call K8LEX. K8CSG, CLX JM and SSA were quite active in the last SS Contest. K8CAY QSOed ZF2JE, ZF2JV and VQ2PL on 6 meters. He also is on s.s.b. on 6 meters. New officers of the Tri-State Club are LLJ, pres.; SDU, vice-pres.; BSH, secy.; IEQ, treas.; FNI, prop. mgr.; SDU, trustee. SSA is getting his father interested in becoming a ham. ZQJ has a new s.s.b. rig. K8DDB is very active on several bands. The W. Va. Net needs representation from the Eastern Panhandle. Can anyone give a helping hand? FNI is very active in traffic work even though school takes a lot of his time. VMM operates 10, 15 and 75 meters mostly. HNK plans on having a new 75-meter antenna as soon as the two poles are set. NIY is on 40-meter RTTY. AGA is going s.s.b. EUJ has a 2x6 meter converter. TGF revamped a BC-375 to a 300-watt linear. GIU has a 10-meter ground-plane and is now WAC and WAS. A new ham, UHB, is on with an Adventurer rig. GUL, chief engineer of WCLG in Morgantown, soon will be active. Traffic: W8FNI 237, HZA 84, VYR 48, K8HID 29, W8BWK 25, K8CSG 20, W8DFC 11, SSA 6, SNP 3, NHK 1.

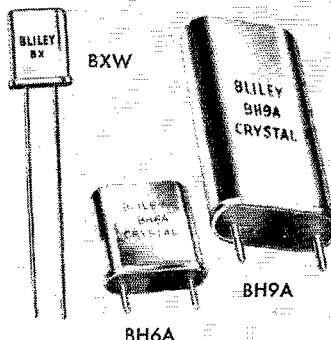
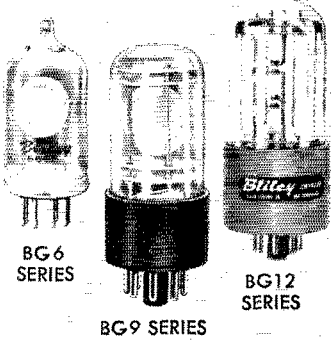
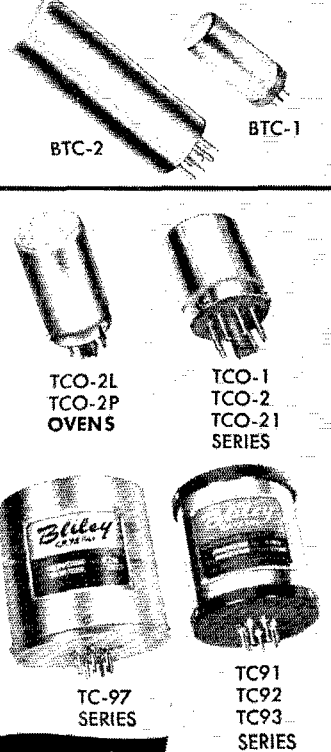
## ROCKY MOUNTAIN DIVISION

**COLORADO**—SCM, B. Eugene Spoonmore, W6DML—SEC: NIT, OBS, K8BTU, OOS; OTR and RRV. OES: K8CLL. New officers of the Larimer County Amateur Radio Club are K8KZY, pres.; UPS, vice-pres.; JST, secy.; treas. Western Slope Club officers are DGA, pres.; GDC, vice-pres.; GMB, secy.; treas.; CNM and VCB, directors; QEL, editor of the *R-P Carrier*. PKY has 47 stations on 6 meters. CNM finally got the 48th. Others having good luck on 6 meters are NRM and YFP. According to the round table TYB is secy. and BTY tenth district chairman of the YLRL for 1958. The correspondent of K8EVG states that each Mon. at 1000 MST on 7235 kc, there are check-ins from nine states on the LCL-YL Net. K8EPE is one of the new check-ins. K8BQC has a new vertical trap antenna 80 through 10 meters. SOB has a new KWM-1. GPX has a new

(Continued on page 144)



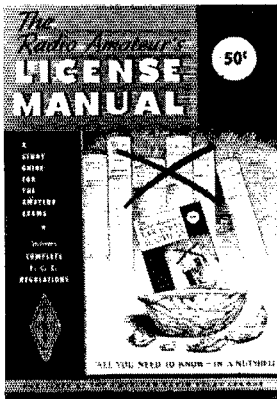
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		<b>BXW</b> (MIL HOLDER HC-18/U)	Subminiature hermetically sealed unit, wire leads. Also available plug-in as "BXP." Freq. Range: 10mc to 125mc. Dimensions: 33/64" long x 27/64" wide x 11/64" thick (excl. wire leads). Bulletin # 502.	CR-55/U, CR-56/U, CR-59/U, CR-60/U, CR-61/U
		<b>BH9A</b> (MIL HOLDER HC-13/U)	Hermetically sealed unit. Freq. Range: 4kc to 200kc. Dimensions: 1-17/32" long x 3/4" wide x 11/32" thick (excl. pins). Bulletin # 501.	CR-37/U, CR-38/U, CR-42/U, CR-50/U
		<b>BG9 SERIES</b> BG9D-S, 100kc Std. BG9A-S, 100kc Std.	Sealed-in-glass crystal unit provides exceptional stability with minimum ageing. Used as reference source in secondary frequency standards. Bulletins # 491 (1000kc) and # 492 (100kc).	<b>DIMENSIONS</b> 2-1/2" long x 1-9/32" dia. (excl. pins) Octal Base
 <p>BG 6 SERIES</p> <p>BG9 SERIES</p> <p>BG12 SERIES</p>		<b>BG6 SERIES</b>	All glass, vacuum mounted crystal unit for tight tolerance performance with minimum change due to ageing. Advance process techniques assure high reliability. Freq. Range: 3mc to 125mc. Bulletin # 496.	1-3/8" long x 3/4" dia. (excl. pins) Small Button Miniature Base
		<b>BG12 SERIES</b> BG12G-S, 100kc Std.	For primary frequency standards. Precision sealed-in-glass crystal unit combines high stability performance with minimum ageing. Temp. coefficient: Less than 0.2ppm per degree C. between +65°C. and +75°C. Bulletin # 498.	3-11/16" long x 1-23/32" dia. (excl. pins) Octal Base
		<b>BTC-1</b>	Subminiature hermetically sealed package combines crystal control and temperature stabilization in a single plug-in unit. Freq. Range: 5mc to 125mc. Stability: ± .0003%. Bulletin # 494.	1-5/8" long x 51/64" dia. (excl. pins) Std. Noval 9-Pin Base
	<b>BTC-2</b>	Hermetically sealed package combines all-glass vacuum mounted crystal with precise temperature control. Freq. Range: 4kc to 125mc. Stability: ± .00004% in range 800kc to 125mc. Bulletin # 497.	3-3/4" long x 1-1/4" dia. (excl. pins) Octal Base	
 <p>BTC-1</p> <p>BTC-2</p> <p>TCO-2L TCO-2P OVENS</p> <p>TCO-1 TCO-2 TCO-21 SERIES</p> <p>TCO-2L TCO-2P OVENS</p> <p>TC91 TC92 TC93 OVEN SERIES</p> <p>TC97 SERIES</p> <p>TC91 TC92 TC93 SERIES</p>		<b>BLILEY TYPE</b>	<b>DESCRIPTION</b>	
		<b>TCO-1 OVEN SERIES</b>	Plug-in ovens for temperature control of single crystal unit in Bliley BH6A or MIL HC-6/U holder. Stability: ± 3°C. at 75°C. or 85°C. Supplied for 6.3 volt, 12.6 volt or 26.5 volt operation. Dimensions: 1-9/16" long x 1-3/16" dia. (excl. pins). Octal Base. Bulletin # 499.	
		<b>TCO-2 OVEN SERIES</b>	Plug-in ovens for temperature control of two crystal units in Bliley BH6A or MIL HC-6/U holders. Stability: ± 3°C. at 75°C. or 85°C. Supplied for 6.3 volt, 12.6 volt, or 26.5 volt operation. Dimensions: 1-9/16" long x 1-3/16" dia. (excl. pins). Octal Base. Bulletin # 499.	
		<b>TCO-21 OVEN SERIES</b>	Plug-in ovens for temperature control of two crystal units in Bliley BH6A or MIL HC-6/U holders. Stability: ± 2°C. at 75°C. or 85°C. Supplied for 6.3 volt, 12.6 volt or 26.5 volt operation. Dimensions: 1-9/16" long x 1-3/16" dia. (excl. pins). Octal Base. Bulletin # 499.	
		<b>TCO-2L TCO-2P OVENS</b>	Plug-in ovens for temperature control of two crystal units in Bliley BH9A or MIL HC-13/U holders. Stability: ± 4°C. at 75°C. TCO-2L for 6.3 volt operation; TCO-2P for 12.6 volt operation. Dimensions: 2-3/16" long x 1-3/16" dia. (excl. pins). Octal Base. Bulletin # 499.	
		<b>TC91 TC92 TC93 OVEN SERIES</b>	Precision temperature control ovens for Bliley crystal units: FM6, BH81A, MC7, BH8, MC75, MS46A, AR23W, BG9A series and BG9D series. Stability: ± 1°C. Supplied for 6.3 volt, 18 volt or 115 volt operation. Dimensions: 4-7/16" long x 3-3/4" dia. (excl. pins). Giant 7-pin base. Bulletin # 500.	
	<b>TC97 OVEN SERIES</b>	High precision temperature control ovens for Bliley crystal units: BH8, MC75, MS46A, and BG12G-S. Stability: ± 0.25°C. Supplied for 6.3 volt operation. Dimensions: 4-23/32" long x 4-1/2" dia. (excl. pins). Giant 7-pin base. Bulletin # 500.		



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Johnson Valiant, RX has an SX-101 and an HT-32, ZFM has a new mobile rig. IFI recently became a grandfather. KNØBLN has successfully tutored five new Novices. They are KNØLYU, KNØLYZ, KNØLZA, KNØBLZ and KNØLYY. MMIT is using a new 10-meter beam purchased from UPS. KØBLF also has a new 10-meter beam. 9TMI and his XYL were recent visitors in Ft. Collins. KTX recently completed WAC. Traffic: (Nov.) KØBCQ 855, WØIA 843, KQD 656, KØDCW 114, DXF 109, DCC 40, WØENA 37, NIT 28, NVU 27, QOT 13, SGG 13, KØCEN 12. (Oct.) WØYQ 56.

UTAH—SCM., Thomas H. Miller, W7QWH—Asst. SCM: Col. John H. Sampson, jr., 70CX, SEC: FSC. Amateur radio was given some good publicity in the Salt Lake papers recently. HHW and NIB assisted in learning the details of a reported outbreak of influenza in Hanksville, which had been isolated by floods. Utah is forming a section net with BBN Ogden, FSC Kearns and CYH Price getting things organized. EOB worked JABJC, KL7AUV and KL7CDJ on 6 meters with a Communicator and a vertical ground-plane. QDJ has six countries on 6 meters. The UARC has a real active ragchewing group on 29.2 Mc. at 2100 Mon. VFY has a potent signal with his new 400-watt rig. ILF dropped the "N" from his call. OCX has OBS skeds—Mon. 1730 3636 kc., Wed. 1900 3838 kc., Fri. 1900 7111 kc. ZSW has OBS skeds—Mon. 2130 29.2 Mc., Tue. 1830 3930 kc., Thur. 1830 3930 kc. Traffic: W7OCX 7, QWH 3, SND 2.

NEW MEXICO—Acting SCM, Allan S. Hargett, K5DAA—SEC: K5DAA, PAM; DVA, OO; LEF, ORSs; DWB, WNU and K5IPK. Albuquerque Mobilers helped supply communications between doctors and hospitals Nov. 30 while the phone lines were out. Albuquerque also is going great guns on 2 meters. The Farmington Area now has a RACES Plan headed by CIN after a lot of hard work. FHL is back on the air after being silent for a long time. NQG is back on the air with a new Valiant. SUY is very busy training new hams. DWB, BKW and K5IPK of Los Alamos, are working very hard to reactivate the New Mexico C.W. Net. New ECs: BEW, Los Alamos; KØLFF, Clayton; NQG, Hobbs; K5GDU, Alamogordo. HYY now is attending college in Albuquerque. K5CXN has returned to Carlsbad after spending 9 months on active duty in the Army. Traffic: (Nov.) W5DWB 382, K5DAB 18, W5VC 10, K5DAA 4, W5CIN 3, K5LFF 2.

WYOMING—SCM, James A. Masterson, W7PSO—SEC: MNW, RM; BHH, The Pony Express Net meets Sun. at 0830 on 3920 kc., with AMU and MWS alternating as NCS. The YO Net meets Mon., Wed. and Fri. at 1830 on 3610 kc., with BHH, DXV and NMW alternating as NCS. Congratulations are in order for BHH, who is the first Wyoming amateur to receive his Extra Class license. In addition to being RM for Wyoming, Joe holds a 35-w.p.m. Code Proficiency certificate and an ORS appointment. UFB received a Public Service award for his participation in the North Central blizzard emergency during the winter of 1956. ILL has worked six countries on 6 meters. HYW has a new GPR-90 receiver. DXV is back at the Snug Harbor Ranch for the winter after wrangling dudes all summer. He is making conversions on a Command set for his grandson in Fort Collins. Traffic: W7BHH 8, ORM 3.

## SOUTHEASTERN DIVISION

ALABAMA—SCM, Joe A. Shannon, W4MI—Another XYL has joined us in amateur radio. Welcome to Ruth, the XYL of K4OCY, who now has the call K4SSP. Bouquets go to CTG and AZC for first and second scores to lead the section in the September V.H.F. Party. CTG made his on 6 and 2 with AZC working only 6 meters. K4AJG reports twelve watts on 2 meters with a ground-plane and plans for a beam. K4LOE, with the Navy for ten weeks in Florida, should have a good signal into Alabama with a new Viking 500. K4BTO broke out with a Globe Scout 680 for mobile, portable or fixed powered by a kw. generator. K4KJD is sporting a new DX-100! MI and RLG enjoyed a visit from ØBDR, the SCM of Iowa, and his XYL Tina. This is the forty-ninth consecutive and final monthly section activities report as your SCM. I would like to thank all those who have given of their time and effort during the past four years in the interest of amateur radio in the Alabama section. Those efforts have borne many fruits, particularly in the obvious improvement of our operating practices, and overall section organization. Whether your part was large or small, it contributed to the whole to make us more proficient. Traffic: (Nov.) W4RLG 211, K1X 123, K4AOZ 111, LOE 56, BTO 48, W4YRO 43, K4KJZ 40, W4MI 40, ZSQ 39, K4KJD 31, W4WHW 26, K4CXN 26, W4WOG 21.

(Continued on page 140)

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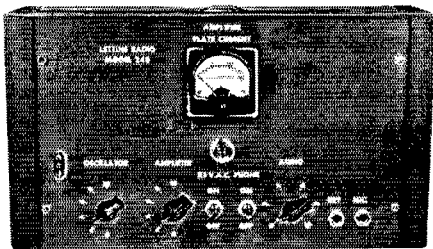
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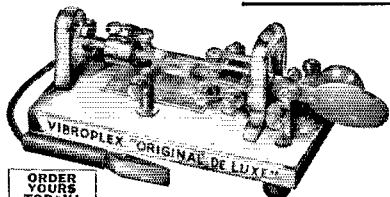
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K4HJM 15, JWB 15, GBO 12, W4DGH 9, K4KQN 9, ANB 7, W4CIU 7, CRY 6, ZSH 6, TKL 4, K4KZQ 2. (Oct.) W4HKK 139, K4AJG 80, K4OCV 49. (Sept.) W4HKK 122, K4KZQ 15.

**EASTERN FLORIDA—SCM.** John F. Porter, W4K6J—SEC: IYT, RM: LAP. PAMs: TAS and JQ. Section Nets: PPTN, 3945 kc. 0700 Mon. through Sat.; FMTN, 7230 kc. 12 noon Mon. through Sat.; TPTN, 3945 kc. 1730 daily; P.N, 3675 kc. 1900 Mon. through Sat.; FEPN, 3910 kc. 1900 Tues. only. The old Gator Net is back in action as a training net Mon. through Sat. on 7105 kc. All phone operators are invited to join and learn the art of handling traffic by c.w. Winter Haven: K4OIG is now on 6 meters with his new rig. K4KQX. K4ELB and EQN are planning to track the U. S. satellite with their new monitor gear as a club project. The club is studying the FCC regulations as part of its monthly program. West Palm Beach: DWK is conducting a beginner's code class. The club is starting a 6-meter kit project. K4DSN has been appointed net manager for the Florida Net. K4JJZ has been appointed OPS. Dade County: SJZ was appointed new EC for Dade. Thanks to K4AHW for an excellent job this past year. Dade now has 226 AREC members. KN4NNK is on 2 meters with a Gouset Communicator. K4KIC has a new Globe Scout and a new General Class ticket. RNV is back on the air with a Johnson Viking II. There are now 56 active on 2 meters in Dade and the list grows daily. The South Miami Radio Club has full length feature movies after its meetings, courtesy of K4FKU. Key West: ILL, NQW and ZUT are enjoying s.s.b. and trying to convert others. The visits paid to several of our radio clubs throughout the section by IBDI, Communications Manager of ARRL, were enjoyed by all. Traffic: K4DSN 830, BDC 628, W4LDM 290, K4FDH 270, W4PJU 180, K4KDN 143, BNE 158, W4LYT 127, EHW 121, WS 117, PZT 105, DVR 94, K4EXN 64, W4TAS 57, BNAI 56, K4AYX 49, AHW 36, AKQ 36, W4ZCD 36, K4AEE 32, W4KZT 31, FFF 30, K4PAE 30, W4DTV 29, K4IFZ 27, MTP 24, JVA 22, W4RWR 20, K4IWT 16, OSQ 14, W4FE 10, SJZ 10, FFZ 9, K4JCF 7, JIZ 7, ILB 6, W4BJI 2, K4RLI 2.

**WESTERN FLORIDA—SCM.** Edward J. Collins, W4MS/W4RE—SEC: HIZ, EC: APFY, RM Escombia: AXP, RM Okaloosa: BVE. Congratulations to RKH, the new SCM of Western Florida. KN4SOI has a DX-40 and an RME-45 going FB. RMO is now General Class. PLI has returned to the air after a long layoff. AXP is QRL LO and CD Contests. K4SHD passed the General Class license. KN4RIV has a Tech. Class license. GMS is looking for 6-meter converters. HQT added SM and LA to his DX on 6 meters. K4KIF is improving sensitivity to the 6-meter receiver and added SM, LA and KL7 to his DX. K4AGM now has three continents on 6-meters. K4ONB is after DX with the new Beam. K4IVD worked SM on 6-meter mobile and added SM, LA and KL7 to his DX on 6-meters. UUF added SM and LA. PAA is QRL DX and phone patches. K4ECP divides time between fixed and mobile on 6-meters. K4PIC wants more power. CNK helps the gang on 6 meters. SPP, UCY and SRK keep things hot on 10 meters. CCY put in an appearance on 10 meters. ABC has completed a wonderful job on the e.d. trailer for the Tallahassee group. CSS has been putting an FB signal into Pensy on 6 meters. OWW uses an indoor antenna on 8 meters. OOW sticks to low power on 10 meters. ODO has an FB s.s.b. signal on 10 meters. K4ROS enjoys the mobile rig. K4EHI is trying for higher antenna. KN4QHP is a welcome addition to the Pensy gang. JV puts out a terrific signal with a Sterba. HBK is QRL in college except week ends. MUX and VR keep 7 Mc. warm. QK is a reliable link in the Gulf Coast Hurricane Net. BFD promises activity. FHQ is the king-pin on 7 Mc. with a Viking KW. MS added SM and LA to the 6-meter DX. The Pensacola Amateur Radio Club has a 6-meter program in full swing. K4HYL gave a very valuable and interesting talk to that group on antennas. K4IYQ meets the 6-Meter Net on Mon. at 2000. K4PIQ has a complete set of test gear to keep his FB beam at top efficiency. K4ADY is about ready to head for DL4-Land with the Army. DAO/DEF gets in the 10-meter rag chews when work permits. HZ is QRL e.d. and CAA work. AXF arranges the budget so the OM can buy ham gear. CDE is the MARS representative in this area. Well, fellows, this is my last report as SCM after many years. You have chosen a fine ham to represent you.

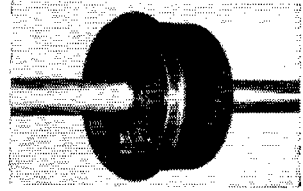
**GEORGIA—SCM.** William F. Kennedy, W1CFJ—SEC: K4AUM, PAMs: LXE and ACH, RM: PIM. GCEN meets on 3995 kc. at 1830 EST Tue. and Thurs., 0800 on Sun.; ATLCW on 7150 kc. at 2100 EST Sun.; GSN, Mon. through Sat. at 1900 EST on 3595 kc. with PIM as NC; the 75 Meter Mobile Phone Net each Sun.

(Continued on page 148)

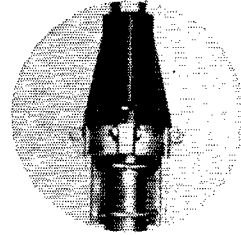
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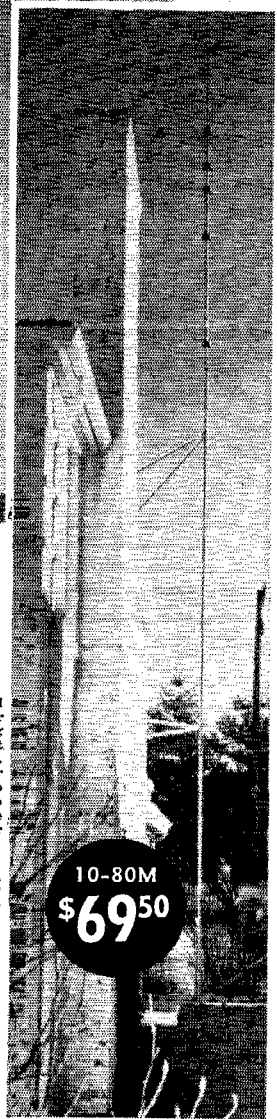
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**CANAL ZONE—SCM, P. A. White, KZ5VA—**The CZARA learned all about the Guaymi Indians of Panama at the Dec. meeting in Balboa. The speaker was Wes Townsend, a well-known local naturalist familiar with the wonders of the tropical jungle of Panama. RF who, as Army MARS Director, organized a very popular Sunday morning phone net on 7305 kc., has left the isthmus for the U. S. DP has taken over as new MARS Director. JH/AM, with an Elmac transmitter and Morrow converter, and JC/AM, with a home built transmitter, have been active on 10 meters in Gambia. The Canal Zone Emergency Net drill is held Mon. at 2100 on 29.9 Mc. UC has left Fort Nobby for the States. EH also of Fort Nobby, has left the Canal Zone to enter private practice in New Orleans. KZ5WA and his XYI, left for a two months' vacation to visit their daughter in North Little Rock, Ark. and their son in San Jose, Calif. Ex-JB was seen by WA on the Panama Railroad's noonday transcontinent express train one day recently. Joe, now employed in Alaska, came down to the old diggings on vacation. New amateurs in the Canal Zone are RL, EE and LPN. Traffic: KZ5VA 52, HA 30, QA 27, VR 24, RM 22, EL 12, CC 10.

### SOUTHWESTERN DIVISION

**LOS ANGELES—SCM, Albert F. Hill, jr., W6JQB—**SEC: LIP, RMs: BHG and GJP. PAMs: K6BWD and ORS. New appointees for the month are K6GCC as OPS and AM as FBS. BPL was earned this month by K6MCA, GYH, K6OZJ and ZJB. Congrats, fellows! HIF is keeping tri-weekly RTTY skeds with W7ALE and KR6AK on 7138 kc. K6JQB reports almost daily openings on 8 meters to the East Coast. VE- and KL7-Lands. K6GKX reports lots of activity on 220 Mc. in the Long Beach Area. K6OZJ added a 100-watt amplifier to his Communicator. The Glendora gang did a bang-up job during the "big wind," with K6TUH, K6LHA, K6OQC, K6QOD, K6PHS and K6PLV carrying the ball. K6QMK is working on 430-Mc. gear. NRE is putting out Satellite Bulletins from the Tracking Station in San Gabriel. CK is down with a broken back out Hemet way. We all wish Pappy a speedy recovery. VSH is on 2 meters with RTTY. K6EPLY is getting antennas lined up with the new reflected power meter. ORS reports a ZL, W1, W4, W6 round table on 75-meter s.s.b.! K6BWD now has 100 countries worked. There were lots of big SS scores from the section this year. K6UYK has been back at Ft. Lee for a spell. K6OYE is the new prexy of the San Marino High School Radio Club and worked UABCN with 13 watts! Support your section net, the Southern California Net, 3600 kc., 1930 PST daily. Traffic: (Nov.) K6MCA 392, OZJ 624, W6GYH 611, ZJB 500, K6OQD 319, W6RIG 167, K6JQB 133, W6EJY 101, K6GCC 77, W6USY 72, K6HYC 66, W6INH 64, VSH 44, QLAI 42, K6QMK 37, COP 34, W6YSK 24, K6GUZ 23, EPLY 19, W6NTN 18, K6ICS 16, W6SRE 16, K6PLW 12, W6CIS 10, K6BWD 6, W6MEP 6, K6BEQ 4, W6ORS 4, AM 2, BUK 2, (Oct.) W6HJY 108, K6GCC 96, K6OYE 21, KYJ 2

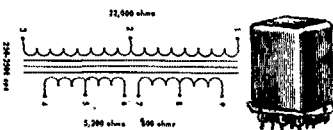
(Continued on page 150)

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Crystal-controlled, high frequency converter... seven "ham" band tuning ranges—80, 40, 20, 15, 10, 10. Same tuning rate and stability on all bands. Each band 600 kc wide. **High stability VFO**—new circuit does not need voltage regulator or filament ballast. **Triple conversion**—2900-3500, 1100 & 50 kc IF's. **Sideband Tuning**—2.5 kc sideband filter tunes with front panel control through both sidebands. **Sideband A.V.C.**—fast charge; slow discharge; full A.V.C. without pumping and clicking. Full tuning meter action on sideband. **Muting and speaker connections** arranged for best sideband and "patch" operation. Product detector provides distortion-free sideband reception. AM reception by exalted carrier method. Audio low pass filter is built in for best signal-to-noise ratio. Inverse feedback audio gives better low frequency response & minimum distortion. Built in the shape of a "scope" for portability and minimum desk space. Set it beside that old general purpose receiver. **12 tubes.** Built-in speaker for portable use (external speaker is recommended for fixed station operation). Size: 6 3/4" x 11" x 15". Weight: 18 lbs.  
Amateur Net..... \$259.00



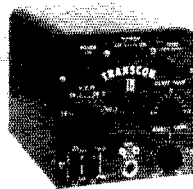
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3 for \$3.49! 10 for \$10.75!



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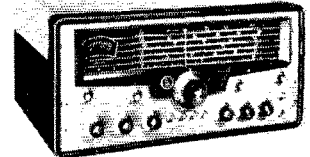


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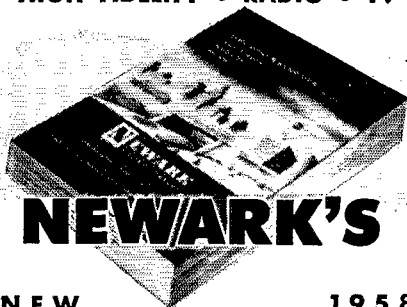
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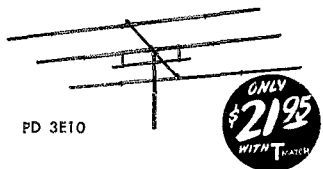
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**ARIZONA**—SCM, Cameron A. Allen, W7OIF—SEC: YWF, PAM AEN; DWT, PAM GCN; LUJ, Tucson reports there is a big gang on 2 meters now. CDJ has a new three-element 10-meter beam. NYT has a new 20-meter beam and a ZSE three-element quad on 10 meters. HSK is working nights for the Sheriff's Office and has resigned as president of OPRC. The OPRC had a fine talk on receivers by INAO/7. The Sat. code classes of the OPRC are drawing a large group with many YLs. In Phoenix CAF made 649 contacts in the SS Contest with 121,440 points. The AARC held its regular picnic at the Elk's Club Park in Mesa after which there was a transmitter hunt, which was won by UXZ, followed by LXX and YWF. The AARC provided communications for the sport car races near Luke Air Force Base, JYH and other members of the Emergency Corps are providing communications for the Maricopa County Sheriff Jeep Posse. Traffic: W7FKK 241, YWF 15, CAF 14, OIF 4.

**SAN DIEGO**—SCM, Don Stansifer, W6LRU—The Helix Club held a special dinner meeting in early January for the installation of 1958 officers. Those installed were OME; pres.; FPD, vice-pres.; ATZ, secy-treas. BAMI, in Santa Ana, will move to a new QTH in that area by April and is off the air until then. He has been active from the same house since 1925. KSI is now on 430 Mc, from Imperial Beach. SK worked IBB on 160 meters in late November. K6EQL is now an ORS in this section with a DX-100 and an NC-300. K6UJL reports working 39 WTs on 50 Mc. in November as well as W2, KL7, VE1, 2, 3 and KH6. The Imperial Beach Radio Club has voted to undertake a project of building 420-Mc. equipment for club members. K6UOD, in Yorba Linda, made BPL again this month. The Silvergate Club has three new members working for tickets. The San Diego DX Club held its Christmas meeting at the home of NXP, in El Cajon. KJR, the son of K6EC, enjoyed the holidays with his parents while home from college. K6KGS received an NC-109 receiver for Christmas. The Helix Club radio repair project for eedy persons brought a good response from the public, and more than 20 old receivers were repaired by the club and then distributed by a public service agency. K6CTQ and K6HTQ, both in the Navy, still are active in the Silvergate Club. The Monday night 3991-ke. RACES City Net now has over 15 active members. Traffic: (Nov.) K6UOD 554; W6SK 34; K6UJL 2. (Oct.) W6YDK 45.

**SANTA BARBARA**—SCM, Mrs. Dorothy E. Wilson, W6REF—Asst. SCM: William Farwell, 6QIW. SEC: K6CUR. YCF took part in the SS and claims 30 thousand points. KN6VDW dropped the "N" and is building a modulator and a VFO. WN6OUL completed the DX-40 in time for the SS. JHD and family visited K6BOU, JPP and other ham friends on a Thanksgiving trek in a mobile camper special. EGC bought a KWS-1. HJL is working 7 watts on 40-meter c.w. NKT's OO report for November includes 13 calls, only one Novice. Almost all were for chirpy signals. Chirps can be cured, fellows. Traffic: W6YCF 6, FYW 4, PWK 2.

## WEST GULF DIVISION

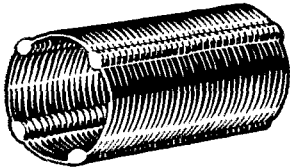
**NORTHERN TEXAS**—SCM, Ray A. Thacker, W5TFP—Asst. SCM: Bruce Craig, 5JQD. SEC: BNG. PAMs: K5AEX and IWQ. RM: ACK. K5ILX happily completed his 48th for that WAS! QCT is recuperating from a heart attack. His fellow club members in Wichita Falls set up his rig in order that he might "ham" a bit. KN5OEX is new to the air from Lubbock. AUJ is one away from DXCC. PXL and ERY are new s.s.h. kilowatts. K5HBP is QSY from Dallas to Buffalo, N. Y. HTH is a new OO in Amarillo. AVT reports code and theory classes in full swing at Monahans. P2S new EC for the Wichita Falls Area, has taken over in good order and has the nucleus of a fine organization underway. A very enjoyable visit was had with the good folk of Wichita Falls. While speaking of visiting, I made it all the way up to Amarillo at the invitation of the Panhandle ARC. A most pleasant surprise here—these men have the answer, fellows—every fourth meeting is a dinner meeting complete with XYLS. I certainly appreciated the invitation to visit with and speak to the good members of this fine club and must admit that seeing so many XYLS present was certainly a switch from the usual! I picked up a lot of good ideas as a result of being in Amarillo and look forward to the next time I can visit with the Amarillo Club. It's time to start making plans to attend the next West Gulf Division Convention in Oklahoma City. I have heard that the dates are July 24, 25 and 26. Traffic: W5ACK 214, BKH 154, DAG/5 145, K5EMR 143, W5BOO 93.

(Continued on page 152)

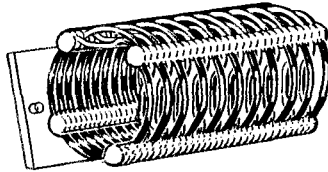


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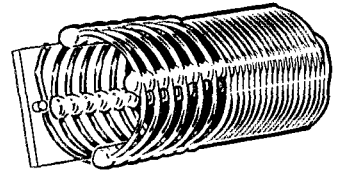
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406		6		18	0.39	
408		8		18	0.71	
410		10		18	1.1	
416		16		20	2.87	
432	32	24	11.3			
504	3/8	4	2	16	0.27	.40
506		6		18	0.61	
508		8		18	1.1	
510		10		18	1.6	
516		16		20	4.3	
532	32	24	17.3			
604	3/4	4	2	16	0.38	.45
606		6		18	0.86	
608		8		18	1.52	
610		10		18	2.38	
616		16		20	6.08	
632	32	24	24.2			
804	1	4	3	16	1.02	.60
806		6		18	2.33	
808		8		18	4.1	
810		10		18	6.47	
816		16		20	16.3	
832	32	24	66.3			
1004	1 1/4	4	10	14	5.8	1.45
1006		6		14	13.0	
1008		8		16	23.3	
1010		10		18	36.5	
1016		16		20	94.0	
1204	1 1/2	4	10	14	8.3	1.55
1206		6		14	18.6	
1208		8		16	33.6	
1210		10		18	52.0	
1216		16		20	134.5	
1404	1 3/4	4	10	14	11.2	1.65
1406		6		14	25.1	
1408		8		14	45.0	
1410		10		16	70.0	
1416		16		18	179.0	
1604	2	4	10	12	14.3	1.75
1606		6		14	33.1	
1608		8		14	57.5	
1610		10		16	89.5	
1616		16		18	232.0	
2004	2 1/2	4	10	12	22.3	1.90
2006		6		12	49.6	
2008		8		14	88.6	
2010		10		16	142.0	
2404	3	4	10	10	31.5	2.85
2406		6		12	71.0	
2408		8		14	127.0	
2410		10		14	198.0	

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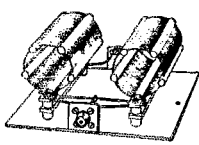
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1014A	1 1/4	18	2 3/8	3 3/8	18.3	1.25
1212A	1 1/2	16	2 3/4	3 3/8	18.3	1.50
1411A	1 3/4	14	2 3/4	3 3/8	18.0	1.70
1609A	2	14	3	3 3/8	18.1	1.85
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1212D6	1 1/2	14	3 1/8	4 3/8	18.6	1.75
1608D6	2	12	4 1/2	4 3/8	18.1	2.45
2008D5	2 1/2	12	3 3/4	4 3/8	18.2	2.80
2408D4	3	10	3 3/4	4 3/8	18.6	3.50

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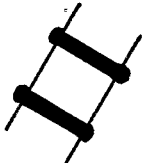
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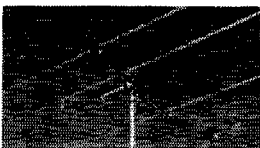
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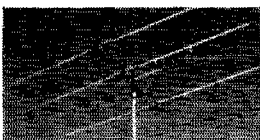
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18 lbs.  
Boom Length: 104"  
Longest Element: 17'10"

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30 lbs.  
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K5ETX 57, W5CF 49, GY 25, K5HTH 21, W5AHC 17, TFP 15, K5DNQ 13, IRE 3, W5GHU 2.

**OKLAHOMA**—SCM, Richard L. Hawkins, W5FEC—Asst. SCM: James R. Booker, 5ADC. SEC: LXH. PAMs: EJK and MFX. RM: JXM. I received reports from several new reporters this month. Thanks, folks. Although I may not be able to answer each one, I do use the news items contained therein, KS qualified as Class 1 OO with a very accurate average. New ORSs: KY, YLW, K5LAP. New OBSs: K5EGS, QES, K5KTW. PAM MFX qualified 27 for Section Net certificates. K5DVE, IWL and K5BNQ attended the 3rd Anniversary Party of the Texas YL Round-up Net in Dallas. TESO/5 and K6HXE/5, Ed and Mary, now are stationed at Tinker Field. K5CAY worked his 1st KA on 10 meters. AA is back in Oklahoma after many years' absence. The Caravan Club of Oklahoma was re-organized Nov. 3 in Oklahoma City. GIQ is now ET3EC and is looking for Oklahoma contacts on 14 Mc. KCG and NLZ have new SX-100 receivers. YU made WAC. The ACARC monthly bulletin *Collector and Emitter*, is best one I have seen in some time. OOI transferred to DL4-Land. K5IZP is a new YL ham in Elk City. HXU moved to Austin, Tex. MFX won a QST binder in the CD LO Party. Traffic: W5ESB 306, DRZ 264, K5EGS 206, LAP 130, W5EJK 129, QVY 118, JXM 96, K5DVE 75, CAY 70, KTW 59, W5MFX 59, KWK 33, KY 32, K5BAS 30, W5FEC 29, BBA 26, PNG 25, MRK 23, NGK 21, K5CBA 20, W5GOL 19, W5VLW 14, K5DJA 13, EZM 9, W5FKL 8, K5KFS 8, BNQ 6, W5BYC 5, IER 2.

**SOUTHERN TEXAS**—SCM, Roy K. Eggleston, W5QEM—SEC: QKF. RM: FCX. Congratulations to the Houston gang and the Houston Amateur Radio Club upon adoption of their emergency plan. The Corpus Christi Radio Club, under the direction of LOW, local EC, had a very successful Simulated Emergency Test. BOY soon will be on with a new HT-32. K5AMC has a new 10-meter three-element beam. LOW has a new tri-band beam. QKF is mobilizing around Waco while attending Grand Lodge. VWF has a new 75A-4. EGD has made WAC/YL, certificate No. 104. K5CTE has moved to Alonroe, La. K5BWA1 is working portable from Port Lavaca. ETA is a proud grandpa, his first. PBX has been visiting in Houston. K5LEP, K5GIG, BOK and UFA are new stations being heard on 6 meters around Houston. NN has a new KWS-1. ABB has a new SX-100. LRK is the new president of the Houston Amateur Radio Club. The YLs of the Houston Area have organized the GAYLARK club. (Gulf Area Young Ladies Amateur Radio Club). I am sorry that the column missed QST last month, but when the time came for me to write it, I was in the hospital. Hope it won't happen again. Traffic: (Nov.) K5LIP 438, W5FCX 205, EPL 172, EGD 139, ZIN 105, LVC 49, K5BYV 8, DER 4, W5DTJ 2, (Oct.) W5FCX 528, ZIN 225, EGD 77, EPL 66, JVC 53, K6ROR/6 46, K5BSZ 32, W5DTA 8, K5DER 5.

#### CANADIAN DIVISION

**MARITIME**—SCM, D. E. Weeks, VE1WB—Asst. SCM: Aaron Solomon, IQC. Newly-elected club officials are as follows: Sydney—WI, pres.; AAK, 1st vice-pres.; ST, 2nd vice-pres.; HT, secy.; LA, treas. Dartmouth—OC, pres.; FK, vice-pres.; ADA, secy.; TR, treas. Yarmouth—UN, pres.; John Oliver, vice-pres.; BN, secy.; LN, treas. New section appointments include WL as PAM (V.H.F.) and FS as Official Observer. HT reports working 14 states in 2 hours on 6 meters, also E1W. Other 6-meter stations known to be active include OD, BB, WI, W1QCC/VE1, AR, GY, IB, EF, WL, PQ and ZZ/m. LG, at 83, is the Maritime's oldest active amateur. PT is now using a Viking Valiant. New calls include ABK, TR and ZL. HJ is using a 534-ft. long-wire antenna on 160 meters. UX has a new HQ-120X. SJ has moved to New Waterford, C.B. Congratulations go to VK, JL and their NYLs on the arrival of new 10-, operators. ACJ is erecting new antennas for the 10- and 20-meter bands. Esther, AEQ, has received her phone endorsement. PB has moved to the VE2 district. PQ is the first VE to make two-way 6-meter contact with the Madeira Islands (CT3). Traffic: (Nov.) VE1FQ 268, AV 81, EK 63, UT 39, ADH 29, VN 28, ABJ 20, FH 20, DB 16 AAW 3, OM 1. (Oct.) VE1AAW 9.

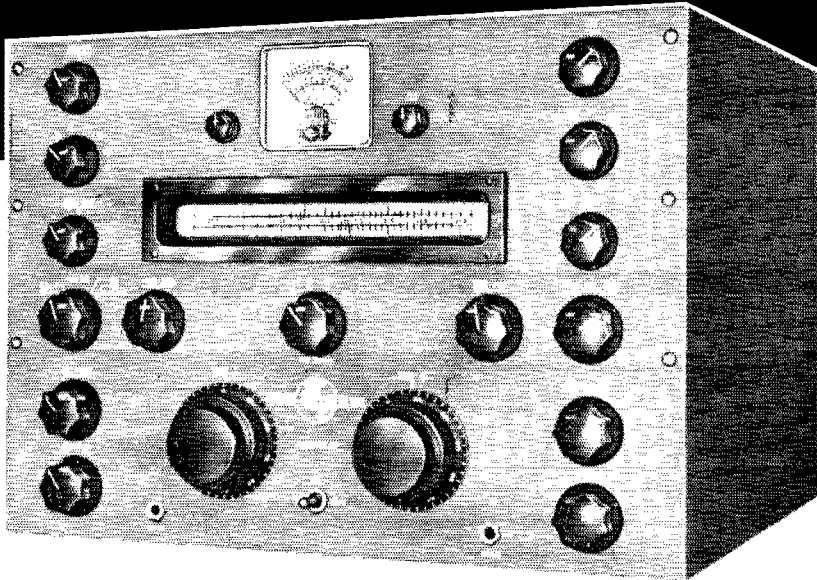
**ONTARIO**—SCM, Richard W. Roberts, VE3NG—The Norquehont ARA held an FB annual dinner before Christmas. The Scarborough ARC's hidden transmitter hunt was a success. BJR is heard on 15 meters. EDJ is trying for her "Worked Ontario Counties" certificate. We were sorry to hear of the passing of FZ, of Beausville. BTI

(Continued on page 154)

we proudly present the

# COSMOPHONE "35"

a new concept in S. S. B. communication



## BILATERAL TRANSCEIVER

Amateur Net Price **\$799<sup>50</sup>** f.o.b. N. Y.

### SPECIFICATIONS:

- **DUAL TUNING CONTROLS** permit either:
  1. Transmitter to track with either channel of receiver.
  2. Transmitter and receiver frequencies to be independently controlled. The Transmitters and receiver frequencies interchange at the flip of a switch.
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- Transmits or receives SSB suppressed carrier (upper or lower), single sideband with carrier or C. W.
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- Receiver Sensitivity: 1 Micro-volt @ 6 db S/N ratio.
- Single 6146 output.
- Built-in VOX and QT.
- Operates from any universal power supply.
- 40 db suppression.
- 3.1 kc mechanical filter for transmission and reception.
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- Meter Indication for R. F. output, final Grid or Plate current and receiver signal strength.
- Dimensions 17" wide x 12" high x 15" deep.

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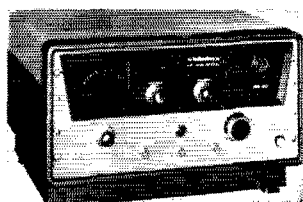
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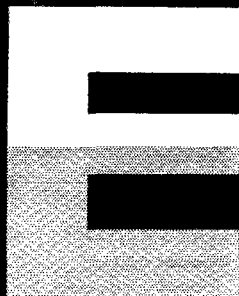


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north of a line drawn through Ocean Falls and Jasper, Alberta. *Eastern Section:* That portion of B.C. east of a line drawn through Blue River and Keremeos. *Southern Section:* The area enclosed by a line Point Roberts to Powell River to the head of Harrison Lake thence through Chilliwack Lake to the border. *Western Section:* That section of B.C. not included in the above areas. Further information may be obtained from the NCS or KX on the BCAREC Net on 3755 kc. Mon. through Sat. between 1800 and 1900. We are sorry to note the passing of AAZ, of Victoria, and YR, two well-known and well-liked amateurs in B.C. The DX Club will host the Pacific Northwest DX Convention in the fall of 1958 during the Centennial festivities. Traffic: (Nov.) KG1DT 786, (Oct.) KG1DT 512.

**MANITOBA**—SCM, James Elliott, VE4HF—Officers of the ARLM for '58 are I.J. pres.; MP, vice-pres.; IF, hon. pres.; SX, secy.; and RS, treas. Winners of the Manitoba Sweepstakes Contest were HL (c.w.), TA (phone and c.w.) and EN phone. A most interesting talk on the early days of radio was given by "Mr. Radio" Darby Coates, EI, at the last meeting of the ARLM. We are to have another of these talks in the near future. Active on 10 meters have been MP, SH, BP, GJ, PE with a new beam, EN, TJ, WS and TA. TA acquired a 75A-4 and worked 56 countries in ten weeks. QI has a new 10B on 20-meter s.s.b. TJ got his San Salvadore contact. TT and GE have been doing well on 20 meters. HR has had a spell in the hospital. Winter has slowed up mobile activity but I.F. HL, WS, CX, KG, GC and IF have been working 75 meters lately. Congrats to CX and his XYL on the arrival of a son. Activity on the 75-Meter Phone Net has increased. Keep up the good work, gang. Traffic: VE4GE 17, VE5YR 11, VE4JY 8, HL 6, RB 6, AN 4, QD 4, XP 4, PA 3, VX 2.

**SASKATCHEWAN**—SCM, Lionel O'Byrne, VE5LU—HR has a big rig and beam, and does FB DXing from his new QTH on 20 meters, with a 144-Mc rig ready soon and will send his Official Bulletins on that band. MZ has a new G4ZU beam; EM has a Viking Ranger. FY gave the SARC report on the last c.d. exercise. JW is busy instructing 16 prospective hams in code and theory. JK, Regina's only OES, has a 12-tube dual conversion super with an 829 rig on 144 Mc. and reports no major to 144 Mc. LM was a Regina visitor. LE still is chasing Sputnik. BL and UK have DX-100s on the assembly line. XX still is busy with CFSL. The appointment for SEC is open. Anyone interested should get in touch with the SCM. Traffic: VE5RE 24, DS 14, BF 4, BI 4, CM 4, DR 4, EQ 4, CB 3, HF 3, BZ 2, JK 2, LJ 2, NR 2, QL 2.

**Overload Relay**

(Continued from page 15)

a safe value under overload conditions. The lower the wattage of the lamp (higher resistance) the longer it will take for the filter capacitors to charge up when the supply is turned on and after an overload.

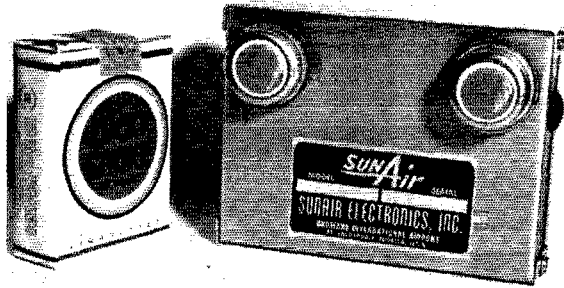
The coil of relay  $K_2$  should have the lowest voltage rating obtainable, and  $R_2$  should be selected to have enough voltage drop to cause  $K_2$  to operate when the primary current reaches a value considered to be excessive. At W1PLJ a 6.3-volt relay is used with a 1-ohm resistor in parallel. Theoretically, 6.3 amperes will trip the relay since this will produce 6.3 volts across a 1-ohm resistor. Since relays are conservatively rated,  $K_2$  probably trips on 4 to 5 amperes.

**D. C. Relays**

Many variations are possible in the circuit. The relays can be d.c. types if these are available in the junk box. The coil of relay  $K_1$  would then have to be across the output of the power supply with a resistance in series to drop the voltage to the correct value. If  $K_2$  is a d.c. relay its coil should be connected in series with the center

(Continued on page 158)

*\*Utility Type Transistorized*  
**POWER SUPPLY**



Size: 4 1/2" x 3 1/4" x 1"

Weight: 10 ounces

Input Voltage: 12-14

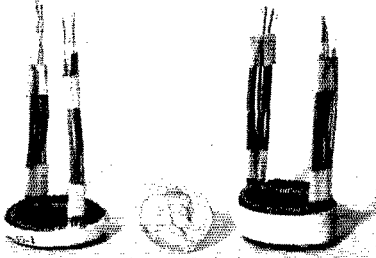
Output Voltage: selectable 200, 250, 300

**\$39.95**

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**TOROID TRANSFORMERS**

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**Standard Toroid**

- Input Voltage: 12-14 or 24-28
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NEW V-F-O-MATIC... plugs into 75A-2, -3, -4 Collins receivers; requires no rewiring or changes; does not affect calibration, sensitivity or adjustments. Collins precision VFO furnishes RF source for both receiving and transmitting. For all SSB phasing type exciters (10A, 10B, 20A, Phasemaster, Hallicrafter HT-32, etc.) using 9mc mixer frequencies. Automatically zeroes in Xmtr to exact freq. received. Operates both upper and lower SB on 75 and 20 meters. Stability:  $\pm 50$  cycles after 1 minute warm-up. Complete with power supply. (Model 80-10 ALL-BAND unit for use with KWS-1 also available.) Immediate delivery.

**SATISFACTION / Model 8020 \$149.50**  
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tap of the plate transformer so the relay will operate if one of the rectifier tubes should short out. The contacts of both relays would still be on the primary side of the transformer as shown.

## The World Above 50 Mc.

(Continued from page 78)

beam. It definitely is not recommended for use where anything better is available, but if you get caught short without a beam in areas where horizontal polarization is in general use, it is better than the vertical whip that is supplied with 2-meter Communicators.

W5TVW, who sent the idea in, used an Amphenol right-angle fitting on the top of the Communicator to mount the whip in a horizontal position, but found that coverage was improved by making the antenna into a dipole, as shown in the drawing. He filed out a notch in the top of the fitting, and soldered a 19-inch rod into it, for the other half of the dipole. The insides of the fitting should be removed before the soldering operation is attempted, especially if the fitting is the polyethylene-filled type.

### Clubs and Nets

The Pittsburgh 6-Meter Net entered its second year in November with about 90 members. Meetings are held each Monday at 1900 EST on 50.4 Mc. A certificate is available to anyone who works 6 or more members of the net. Applicants should send a list of the stations worked, giving date and time of contacts, to W3HFE. Information on the net is available from W3EBH, 1415 Jefferson Heights Road, Pittsburgh, Pa.

The Tennessee 6-Meter Emergency Net has been in operation regularly for about a year, and good progress has been made toward complete coverage of the state. A message has been relayed from Bristol (NE corner) to Memphis (SW corner) in less than an hour, with relays at Knoxville, Nashville and Covington. More stations are needed, particularly between Nashville and Memphis, for complete reliability. Net Control (W4ZZ, W4ZBQ or K4KYL) starts roll call at 2000 EST, beam NE. By about 2020 the central part of the state is called, covering the cities between Crossville and Nashville by about 2030 EST. At about this time (1930 CST) K4KYC, K4CPO or some other Nashville area station calls stations in the western part of the state, relaying calls and traffic to the Knoxville NCS. Frequency is 50.5 Mc., but other parts of the band are tuned at intervals announced by the NCS. Around 35 stations have participated to date. A net roster, with calls and locations, is available from W4ZZ.

Regular activity is maintained in Vermont through the efforts of the 6 By 6 Net. Sessions are held nightly on 50.36 Mc. at 6 P.M. EST, and Sunday at 9 A.M. About 12 stations now participate, and others (local or distant) are welcome, according to W1TDG, Net Manager.

The Over 50 Club of Northeastern Ohio offers a certificate to anyone who works ten or more of their members on 50 Mc. or higher bands. Membership includes K8s AAP AOL DKU, W8s CUM DBZ EIL FFA FVL IOT LPY OLH OXE RBD SKP SLE SVQ and UFY. Applicants for certificates should write W. D. Richardson, 80 West South St., Painesville, Ohio, including time and date of contacts with at least 10 members.

### OES Notes

W1QCC, VE1, Pictou, N. S. — 50-Mc. band open to Europe practically every day. S.s.b., being used regularly, gets through under marginal conditions when other forms of voice modulation are unusable. Shows marked advantage over a.m. during aurora periods.

W1HDQ, Canton, Conn. — After two sunspot cycles and countless hours of listening for African signals on 50 Mc. in vain, finally heard ZE2JE Nov. 27 — on mobile receiver, 40 miles of dense traffic from home location!

W2LWI, Wappingers Falls, N. Y. — Worked VQ2PL and ZE2JE Nov. 27.

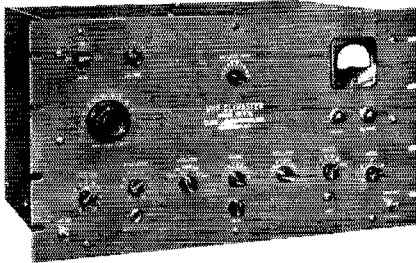
W3SFY, Washington, D. C. — Power of 522 exciter increased to 40 watts by installation of AX-9910 (6252) in final in place of 832A. No change in drive required.

(Continued on page 160)

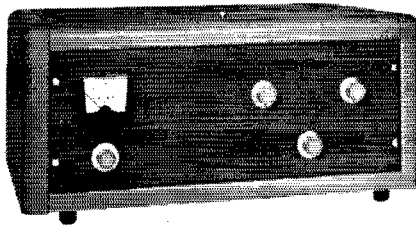


# ANNOUNCING CLEGG'S NEW VHF CLIMASTER LINE FOR '58

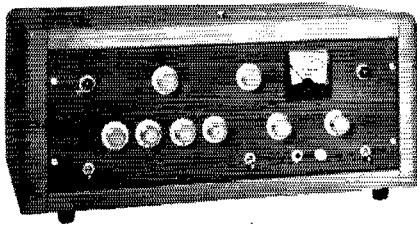
6 Meters — 2 Meters — 1 ¼ Meter



**MODEL 62T10**  
2-6-10 Meters - Self Contained



**MODEL 250-6C**  
250 Watts AM, 300 Watts CW  
6 Meter RF Unit



**MODEL 209**  
Crystiplexer

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Clegg Laboratories in 1956 introduced the first complete multi-band, VHF transmitter ever offered to the ham. This unit, the 62T10, has accounted for more outstanding VHF signals — provided more cumulative VHF contest points — worked more VHF states — drawn more praise from other operators — than any other unit commercially produced. There is still no other transmitter available today having either the same frequency coverage or power rating.

## New 300, 1000 Watt Transmitters

In addition to the 62T10, the 1958 VHF CLIMASTER Line is expanding to include both 300 watt and 1000 watt VHF transmitters for operation on the 6, 2, and 1¼ meter bands. The revolutionary new VHF-CRYSTIPLEXER was developed as the frequency, keying, modulation and operational control for these units.

Three independent RF amplifiers, a combined power supply-modulator and the CRYSTIPLEXER comprise a complete 3-band installation in any one of the power classifications. The RF amplifiers are available separately, permitting expansion of the station as operating preference and budget permit.

## Unparalleled Efficiency and Performance

The RF units feature efficiency and performance unequalled even in the most elaborate of previously available ham equipment. In keeping with the remarkable features of the CRYSTIPLEXER, all units feature band-pass operation, a feature extremely desirable in everyday operation and absolutely indispensable in "band-openings" and contests.

The modulation system features both low and high level speech clipping with carefully controlled filter characteristics, resulting in extremely effective modulation characteristics free from splatter.

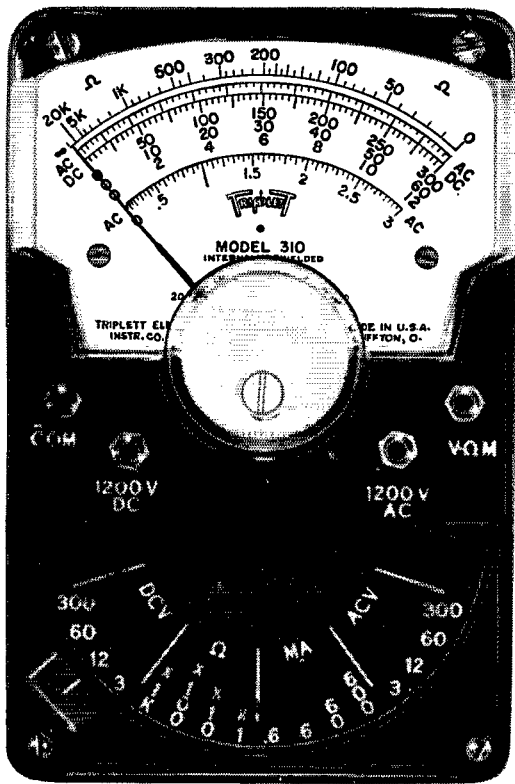
## Revolutionary VFO

The CRYSTIPLEXER, the most revolutionary development in transmitter design since the MOPA, furnishes all the features of a VFO combined with the desirable characteristics of crystal control.

Frequency control is by digital methods; accuracy and resetability of better than .5 KC is readily attainable. Stability is better than most crystal-controlled VHF transmitters. In addition, the CRYSTIPLEXER includes all control circuitry for perfect AM and break-in CW operation, including automatic antenna change-over provisions and monitoring side-tone output.

Get the full technical details.

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# ACTUAL SIZE

## MODEL 310 MIGHTY MITE

THE ONLY COMPLETE MINIATURE  
V-O-M WITH SELECTOR SWITCH

- 20,000 ohms per volt. D.C.; 5,000 A.C.
- EXCLUSIVE SELECTOR SWITCH speeds circuit and range settings. The first and only miniature VOM with this exclusive feature for quick, fool-proof selection of all ranges.
- SELF-SHIELDED Bar Ring Instrument Movement for checking in Strong Magnetic Fields.
- Fitting interchangeable test prod tip into top of tester makes it the common probe.
- BANANA-TYPE JACKS—positive connection and long life.

MODEL 310 ONLY \$34<sup>50</sup> DEALER NET

### CARRYING CASE

Handsome leather carrying case with belt loop.  
MODEL 369 CASE—U.S.A. Dealer Net..... \$3.20

# TRIPLETT

ELECTRICAL INSTRUMENT CO.  
Bluffton, Ohio

**K5HTH, Amarillo, Texas** — Worked VE1s, EI2W, KL7s AH CDG, KH6s IJ CNI and NS on 50 Mc. during November. Heard KH6UL automatic c.w. on 50.225 Mc.

**W6KXE, Riverside, Cal.** — Anyone have frequency range of surplus converter Type CFN-46ADT?

**W7EPZ, Billings, Mont.** — Worked KH6CNI on 50 Mc. Nov. 11. Heard VE1HT Nov. 17. Not able to hear other  $F_2$  skip. (Too close to East Coast for minimum skip, except during best openings — EPT.)

**W7LV, Reno, Nev.** — Operating on 50.37 Mc. daily, 0700 to 0900 PST, and tuning from high end down. Will help with WAS where possible.

**W8GJO, Massillon, Ohio** — Would like to see more c.w. on 50 Mc. Too many operators currently make no use of it whatever.

**W8TIN, Cin, Mich.** — Michigan 6-Meter Net operates on 50.25 Mc., 2200 Sundays.

**W9GAB, Beloit, Wis.** — New 64-element beam on 144 Mc.

**W0VVI, Rochester, Minn.** — S. E. Minnesota Emergency Net meets 2200 CST Sundays, 50.4 Mc.

## How's DX?

(Continued from page 84)

voyage from San Francisco to New York via the Canal  
W7PHO and HL9KR (ex-HL2AM) are informed that HL2 calls represent "experimental amateur radio stations," while HL9 tags denote "amateur radio stations." At this time the distinction shows to HL2s as school-club stations, HL9s as installations manned by U. S. military personnel, HL2s AA through AN, and HL9s KR KS and KT already have been ticketed; HL9KR is to return to Keesler AFB, Biloxi, Miss., shortly. It appears that the level of amateur activity in Korea soon will exceed that reached by the old J8 clan in the late '40s. One C9XF "in Alaska" has European DX devotees excited over Manchuria possibilities. AIPKAC tells W1EQU that Kuwait's new prefix will be 9K2 as assigned by the International Telecommunications Union. Bill expects to become 9K2AZ. Overseas associate members of MARTS (Malaya) are eligible for the MARTS DX Certificate, an award based on confirmed QSOs with ten VS1s, ten VS2s, two VS1/VS5s, and one ZC3 station. Check full details with MARTS Awards Manager, P. O. Box 777, Kuala Lumpur, Malaya, before rushing off your 23 qualifying confirmations. Ex-V89AG-ST2NG left VS9s AC AD and AJ to hold the ham fort in Aden while he gads about Africa. Newcomer V89AC already has accumulated a creditable DX tally on 20 c.w. Regarding Maldives and Nicobar potentialities, VS1JF tells W6DXC inquirers that bodies are willing but licensing authorities haven't yet quite caught the ham spirit. K2QXG notices that ZC4DA has the corner on Cyprus s.s.b. action, 20 meters. Opr. Woody of KA8EL desires schedules with the Albany-Schenectady area on 10 phone, says K2BZT. NNRC kilocycle-combers report reception of one EP2AQ, "Isfahan, Iran," on 28.410-ke phone. This would be a banned item for FCC-licensed amateurs, but possibly a good sign. Pressure of existing ham activity appears prerequisite for any country to bother about removing itself from the ITU/FCC Ban List.

Oceania — Ex-JZ9PC may come on the air from VR3-land if his time there is sufficient to allow him to get gear going," writes VK5AB to W1CIP. CR9AI tells W7PHO that CT1BQ is likely to sign a CR10 call soon on 10, 15 and 20 phone. In this month's QTH rundown you'll dig a particularly rare Novice entry, W8GAG. *It's* has QSOd the most Novice countries, anyway? About a dozen of the species are available. En route the United Kingdom this summer VR2BC will dock in San Francisco around May 19th, hoping to reach England by July 1st. Then it will be back to Fiji by mid-October unless a new assignment comes along for Greg. VR2BC now needs only Delaware for separate A3 WAS on both 10 and 15 meters. He's disturbed by certain vicious and illegal tactics gaining notoriety among W. K. 15-meter phone DX hogs. It's the dodge whereby one slides out of the FCC phone suballocation, zero-beats the station being copied by desired DX, and hollers "break-break-break, tune for me (up) the band" in disguised voice. The foolhardiness of this malignant m.o. should be obvious to the most retarded idiots. In the DX Department of Famous Firsts and Foremosts, VR2BC declares that VR2DC, just nine minutes west of the International Date Line, is the first ham the sun shines on each day, "the ham nearest tomorrow." Poor guy thus gets his QSLs later than all of us, too. Re NZART's WANZ certification, ZL3RT makes it clear that QSOs with only 35 of the New Zealand Society's 55 branches need be confirmed, not 54 as errone-

(Continued on page 162)

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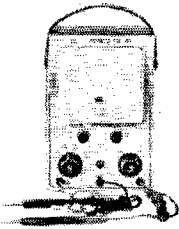
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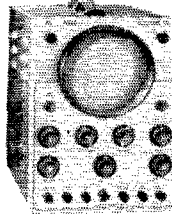
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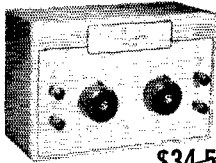
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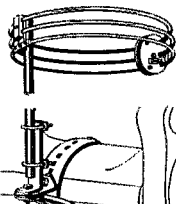
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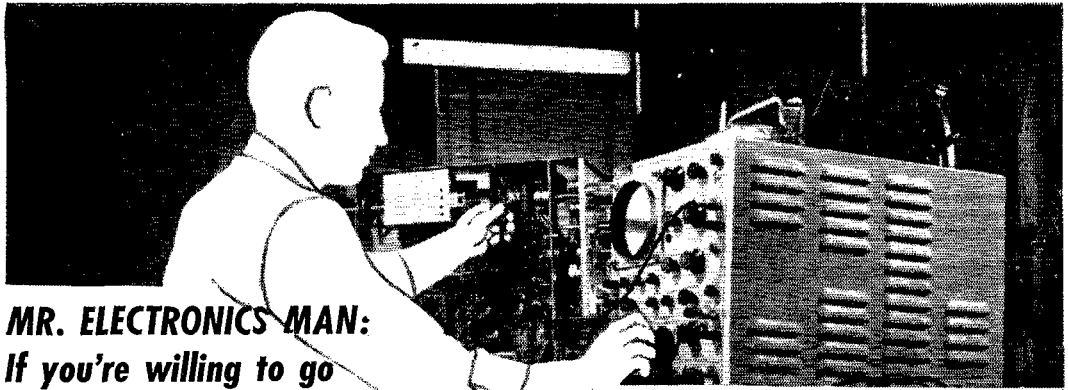
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ously specified in a recent Down Under publication. Still no cinch! . . . . . From KH6CMM: "My DXing has been severely cut down lately because of nightly s.s.b. schedules with KC4USK. I've been bringing YLs down to the shack for the boys to chat with and their nightly sessions usually last from six to seven hours. As a result I'm now awaiting my certificate as honorary member of the 'Antarctic Space Patrol.'" Mac reports that a visit by Hurricane Nina forced KH6s to batten down their beams in late '57. . . . . December's *National Geographic* carries a striking paper on Pitcairn with VR6AC and stati on prominently displayed. Floyd still restricts his on-the-air activity to commercial schedules for the most part.

**Europe**—Swiss gist from Ws 1BD1 1WPO and 3GHS: HB9CZ's November Uri canton incursion as HB1CZ/ur netted QSOs with all U. S. call areas save the seventh. Hans made 196 QSOs on 14 Mc., 98 on 21, and 17 on 28 Mc., all on five watts. . . . HB9CQ comments on HB9PL's layout at the 7500-foot level on Mt. Santis, Appenzell canton, where HB1PL/ar is active from a new TV transmitting site. . . . HB9EU returned to the DX watch after a few weeks of service in the Swiss military. . . . HB9RS just joined the Swiss phone chapter of DXCC. . . . HB9FU and XYL recently honeymooned on Rhodes, visiting SV0WE and operating 80-meter aeromobile along the route. . . . As previously announced, don't forget to catch the ZBI DX party slated for the 1st and 2nd of this month. Incidentally, Malta QSL chief ZB1E used to sign VP3E 'way back when. . . . A personal from Kagul's UO5AA via W1LVQ and K5AKR: "I'm 36 and have been working with short waves since 1936, particularly interested in DX QSOs. My station is a 200-watt transmitter, 7-tube superhet receiver and 2-element beam." Valentin's QSL policy is estimable. . . . W1LEO mentions YL activity from DL4ABS. Another feminine-DXCC candidate: UQ2AG. . . . F7DL sweated out an eight-month wait for his French license. . . . S.w.I. N. Rosen thinks it timely to reiterate that LA stations signing alphabetical appendages (e.g., LA5Q/T) are portables. All letters but G, M and P indicate location in Norway-proper; G designates Antarctica, M maritime-mobile, and P indicates Arctic (Svalbard) QTH. . . . W1CTW finds old 9S4AX on 21 Mc. trying to get used to his new DL8AX label. . . . TF2s WBG WBO and WCD left Iceland but TF2s WCC and WCK will be around for another few months. Ex-TF2WCD thanks W2CVE and K8AAB for stout QTC services rendered. . . . On the Continental WAS front, ARRL W0/K0 QSL chief W0DMA finds that M1H is seeking zeroes in Colo., Kans., the Dakotas and Nebr. on 21 Mc. around 1400-1800 GMT. . . . W5DAU says OY7ML has 47 states confirmed now and is chewing his nails for a W7KJQ Nevada clincher. OY7ML will haunt 3510 kc. in pursuit of lower-frequency DX this season. . . . W1CTW zipped three crystals to GC3HFE who has gamely been battling the pack with a single rock. . . . W1YYM considers it appropriate that (GW3ZV, outstanding DX contest competitor, lives at Rhombic Farm, Glamorganshire. . . . Ex-G3G/GN, erstwhile English (60-meter transoceanic specialist, now signs VE2AZI in Montreal. Frank visited W1s BB PPN and other 1.8-Mc. enthusiasts whom he had QSO'd from G3G/GN as recently as last season. . . . GB3SHE put an ear-catching British "special" prefix on 15 c.w. from the recent Sanford Hobbies Exhibition. . . . NCDXC recorded the awarding of a PZK (Poland) W21M certification (p. 88, Oct. '57 QST) to K6AQP—No. 13 world wide, No. 1 for the U. S. A.

**Hereabouts**—PY7AN/0 (c.w.) and PY7ACY/0 (phone) hopped over to Fernando de Noronha in mid-December to pass out contacts with a rare chunk of Brazil, mainly on 20 meters. Fernando is the PY version of Alcatraz, located some 300 miles off Brazil's eastern bulge, a seven-square-mile dot in the Atlantic. PY0CV on Trindade next? . . . HK7LX climbed to 86/60 on the DX ladder, awaits an overdue QSL from Arkansas, and still seeks Del., Me. and the Dakotas to complete WAS. . . . Cutie from W1CTW: "I'm one of the few on 15 c.w. using crystal control, but with forty rocks I can get close enough to anything from 21,000 to 21,100 kc. Then one crystal in this set conked out, leaving a 4-ke. gap. Right in the middle of this blind spot appears KG6FAE. Using crystals on either side I called for an hour with no luck, finally concluding that the guy wasn't even tuning his receiver. I was right! An ex-KA at the shop confirmed this by telling me that KG6FAE uses a fixed-frequency military receiver with five crystal-controlled positions." On some days it just doesn't pay to turn off the TV. . . . Notes via W4KFC's articulate mill: W3KA visited Bahamas contest king VP7NM recently. . . . W3GRF displays a full-size three-element 7-Mc. rotary atop a 100-foot Vesto stick, with four-element spinners for 14, 21 and 28 Mc. at the same level, and six separate kw. finals. Out for ground-wave DXCC? . . . W6RLP nominates VE8AT for the farthest-north-amateur-station derby. QTH: Ellesmere Island, 400 miles from the pole. . . . W0LUX and friends lay foundations for an early DX-pedictionary undertaking, destination uncertain. . . . Need Nevada?

(Continued on page 164)



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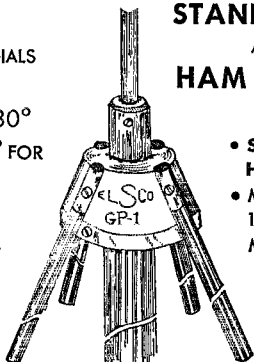
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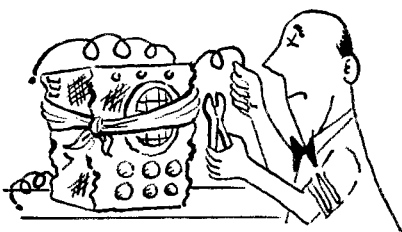
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Ambush W7BGU on 21,020- or 21,075-ke. c.w. W9NLI/VF1 spouted over 600 QSOs from Prince Edward Island late in '57, nabbing all continents but Asia. "Must say that the operating courtesy shown was very good, my QSY instructions were obeyed, and the fellows stayed away from tail-ending for the most part." OT DXer W1Ts was rebitten by the DX bug a few months back and now finds himself with a fresh string of 1500 DX contacts (109 Asians) and 138 countries. Don's rig is a Valiant; the receiver he used for the first 100 countries in this skin is of interest; the little 3-tube super described in October 1956 QST and *How to Become a Radio Amateur* (ARRL). Speaking of ex-Novices who made good DX-wise, W9NLY now rests at 242/238. Ted struck out on the DX trail in September, 1953. On the matter of contest procedures VE1PQ writes: "I wish that DX stations would end their transmissions with the calls of the stations they are working. It would smarten things up and avoid a great deal of speculation." W7DJU wonders if designating a special frequency on each band for testing purposes would help clear the air of such widespread racket—say, 14,050 ke. for 20 c.w. The dedicated DX hog would vote nay, of course—how can one tell if one is getting out unless one bothers somebody? S.w.I. T. Mount is told by KZ5MW that living in a 25-cycle-a.c. area is ruinous to a ham's morale. Fortunately, a switch to 60-cycle stuff is imminent. W9MKJ, brother of SV8WP (W3JTC) and with 100-plus confirmed on 4-Mc. phone in his own right, recollects many a night in D.C. when Larry and friends rode roughshod over his sack en route the W3JTC shack. "An early interest in amateur radio developed a keen interest in electronics, a big factor in my present position with a major research laboratory."

W6MUM recommends 15-meter phone to those who would keep their *Spanish* polished. An L7SP and KN4PI recently flipped the flock on 15. Self-styled sputniks orbiting in their own cranial vacuums, styeaps . . . Cuban commentary via CO2SW: CO2JK erects a triband quad and clings to 10 and 15, mostly phone; CO2CT completes a kw. final for use with a triband 3-element beam; CO2OM lays off while revamping his rotator; and CO2SW wheels a new DX-100 around, 10 through 160 meters, while augmenting a 231/231 record. Watch for this Big Four in the ARRL DX Test kicking off this month.

KG1BW was operated by W2ZRK aboard *MSS Arctic Sealer* while anchored at various Greenland stops from early August to November, 1957. Twenty countries and a flock of W/Ks were nailed. W3KKO's homebrew phasing s.s.b. rig is knockin' DX dead on 15 phone. H18BE caught up with his 100th country in only two months and fourteen days of effort. The last necessary DXCC QSL didn't come through for another eight months, however. Before closing down in Managua YN1PM safely confirmed 105 for his Century skin. Club and society abbreviations in the preceding DX pages represent editorial hobnobbing with the DeRidder (L.a.) DX Club, Hamfesters Radio Club, International Short Wave League, Japan DX Radio Club, Newark News Radio Club, Northern California DX Club, Ohio Valley Amateur Radio Association, West Gulf DX Club and Willamette Valley (Wash.) DX Club, Live-wire outfits, all!

Ten Years Ago in "How's DX?"—A current rash of mass-produced one-way DX "QSOs" is frowned upon in the February 1948 column entree. Fishin' is fine on all DX fronts. On 80 FAs BG IH, KS4AH, NY4CM and ZK1AM are reported; 40 contributors EA7A of Rio de Oro, GD3UB, KM6AA, KV4AA, UC2CD, Ws 5MJJS/KS47AOR/KS6 and ZD3B; 10 phone offers C1MCC, Js 2AFA 21MR 2JET 8AAA, KG6AW/VK9, MB9AM, SU1s HF WS, W6JIM/C1, ZC6s AO and JP; 10 c.w. turns up C7AT, MD5DA, UH8AF; and 20 phone features ET3AD, HZ1AB, Sardinia's I1AHK, KH6MQ/J9, MB9AG, MD5AM, OX3BD, ST2GE, XAMC and ZS3F.

Twenty-c.w. anglers cast for Cs 1DK 7HY 7TN 9JW, EK1AA, EP1AL, EQ2L, ET1R, FM8AD, FQ3AT, FT4s AB AN, G2FDF/YI, HE1s CE EO, H18MAF, I1AVL/16, 16s AB USA ZJ, KAs 1ABU 1AP 1HR 6FA, LU1ZA, MDs 1B 1D 1E 2C 5PC 5SB, OY3IGO, PKs 1MD 3CK 3JJ 3JK 4KS 7HA, RAEM/MIM, DXpeditionary VQ1HJP, VRs 5TP 6AA, VSs 4VR 7AP 7IT, W2WMI/C9, XAs FQ LF, YR5s AH J PK VP, YT7GB, YU7s AF KX LX, ZC6s AA and JK. In "Tidbits" we note that C1MCC paid \$2,400,000 for 500 QSLs (Chinese dollars, that is). Pictures of AR8AB and VQ3EDD top the art offering, while poor Jeeves is menaced by a man-eating QSL from Gambia.

## Strays

KN4PLS, in Key West, Fla., says that he may be that southernmost ham that we've been curious to locate. Any challengers?

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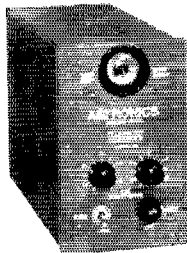
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 Message Delivery Cards  
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 See Page 147 in the November issue of QST  
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**ALLTRONICS-HOWARD CO.** Box 19, Boston 1, Mass.  
 Tel. Richmond 2-0048

## Correspondence

(Continued from page 74)

best DX band (propagation-wise only) for the next few years, but it will be of little use to the DX phone enthusiast as a quick check at most hours will show.

It is my opinion that the frequencies 21,100 kc. to 21,150 kc. will fulfill all Novice needs in this part of the spectrum. I realize that band sub-allocations are made by the FCC and not by the League. However, they are certainly made with League recommendations in mind. A sad mistake was made when the Novice was shifted out of the 11-meter band. The Novice must take his chances on working DX like everyone else; he had as good a chance there, with far less hard feelings on the part of the rest of the fraternity.

— William F. Rust, W0AWK

## TNX OM!

2012 South Court  
 Palo Alto, Calif.

Editor, QST:

All I want to say is that W1AW is very helpful, not only for the beginning hams, but for the hams that want to step up their receiving speed (like me). I sure appreciate W1AW and the other code practice stations and I'm sure a lot of other hams feel the same.

Oh yes — I want to thank all you guys that transmit right on W1AW's frequency; you sure do a good job of messing things up.

— Frank C. Webster, KNGCOD

## SIGHTLESS HELP

Haverford College  
 Haverford, Pa.

Editor, QST:

The third year of publication of *Science Recorded* has just begun with the October 1957 issue. Publication of this monthly scientific periodical recorded on magnetic tape for the blind is handled by the non-profit organization, Science for the Blind, a subsidiary of the Philadelphia Association for the Blind. . . .

Our aim has been to provide a variety of articles on all branches of science. We continue to receive letters thanking us for providing our blind readers with a source of current scientific information. In many cases it is almost the only source of such material available to them. It cannot be doubted that there is a definite need for our service. . . .

In June 1955 you were kind enough to grant us permission to use material from your publication. We have done so during the past two years and have in each case given proper credit to QST. We are looking forward to using material from your publication in future issues of *Science Recorded*.

T. A. Benham, W3DD, Editor  
*Science Recorded*



In July W4CIZ won a six-meter linear amplifier at a hamfest. Later in the summer he won a six-meter beam at another hamfest. However, by the time he won the antenna he had already traded the amplifier for something else, so he still isn't on six meters!



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 1958 B-A CATALOG**

Complete guide to Everything in Radio, TV and Electronics for Dealers, Servicemen, Schools, Amateurs, Broadcasters, Public Utilities, Engineers, Experimenters, Factories and Laboratories.

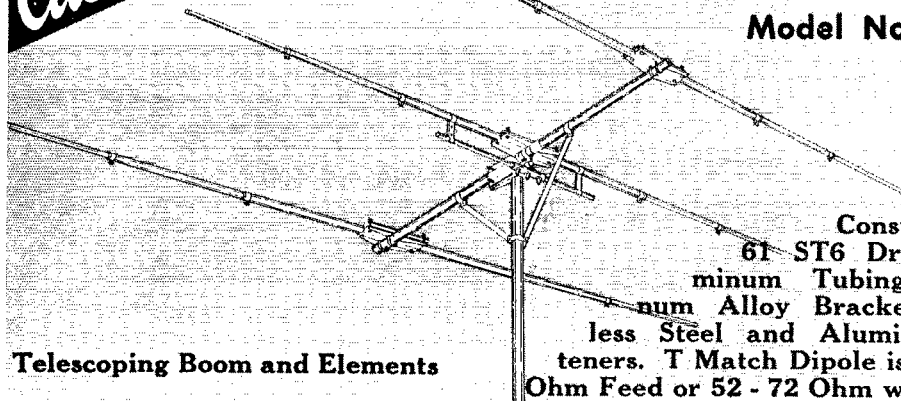
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Telescoping Boom and Elements

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Elements Telescoping	Longest Element	Boom Telescoping	Forward Gain	Front to Back Ratio	S/W/E at Frequency	Approx. Weight
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- Output Bandwidth: 300 kc at 1/2 power points.
- Tube Complement: 417A/5842, 6BQ7A/6BZ7, 6CB6, and 12AT7.
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Write for free TAPETONE instruction booklet on how to assemble equipment for tracking U. S. Satellite.

New Regulated Power Supply  
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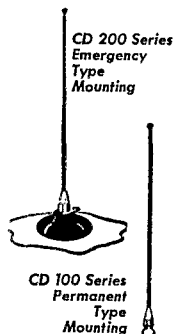
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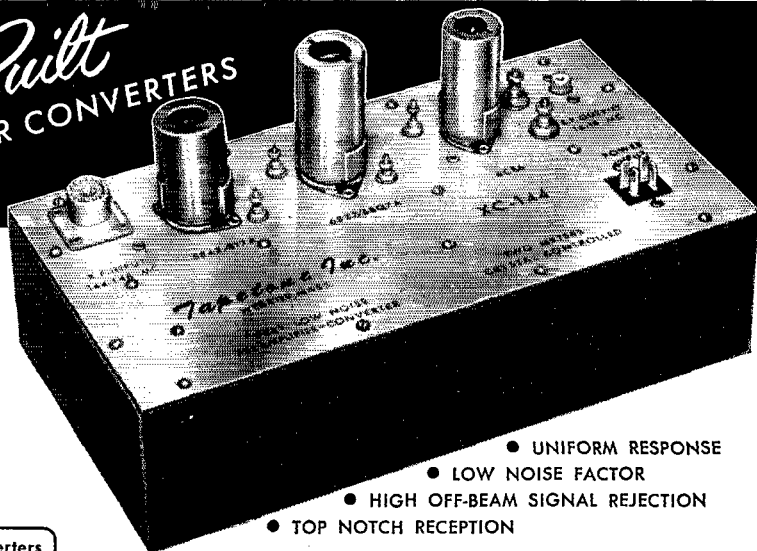
# Quality Built 2 & 6 METER CONVERTERS

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Two Meter grounded grid 417A Crystal Controlled Converter. 2.8 db Noise figure; 33 db Power gain, 60 db Image rejection, 80 db I.F. rejection and 80 db down on all other spurious responses. XC-144 output 14 to 18 mc. Other models — XC-144-C output 26 to 30 mc, and XC-144-N output 30 to 34 mc. Price \$84.95

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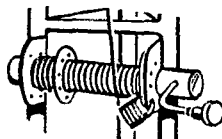
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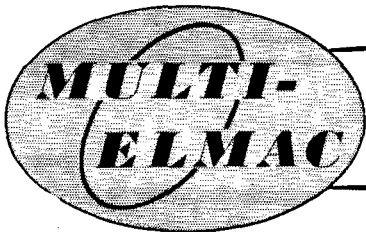
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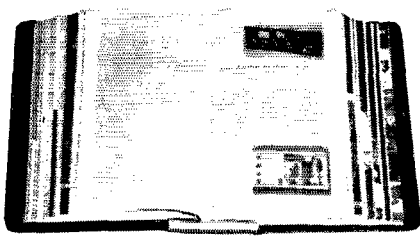
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FEATHERWEIGHT • MIDGET-SIZE • 1KW

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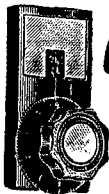
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See Page 175



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Write today for complete detailed information and address of your nearest dealer.

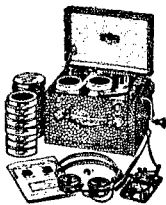


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3/4" Sp.—Ban. Plg.

For Amateur and Novice . . . . . Amateur Net **\$1.99 ea.**  
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\*Above Crystals are available in FT-243—(Master ML1) DC11-3/4-Spacing 1/8" Pin (Master ML2) DC 34/35—(Master ML3) FT171 Banana Pins (Master ML4). Special Mounts upon request.

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2 M	8056 to 8165 X18	FT-243	

## AMATEUR

BAND	XTAL FREQ. RANGE	TYPE	AMATEUR NET <b>\$1.99</b> Tol. 1% ea.
80 M	3500 to 4000	FT-243 & DC 34/35	
40 M	7000 to 7300	FT-243	
40 M Dblg.	3500 to 3650	FT-243 & DC 34/35	
20 M	7000 to 7150 X2	FT-243	
15 M	7033 to 7083 X3	FT-243	
10 M	7000 to 7425 X4	FT-243	
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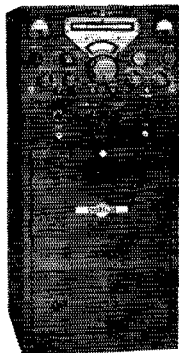
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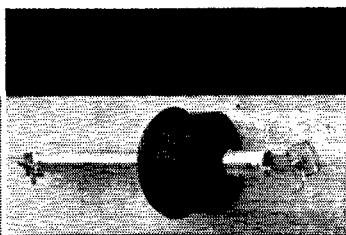
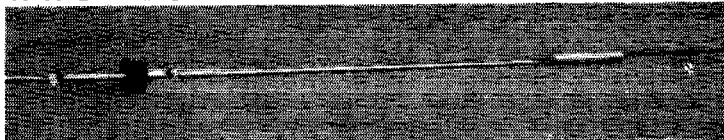


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ME TOO TOM-AND LAST NIGHT I SWITCHED TO 40, 80, AND 160. WORKED SOME REAL DX!



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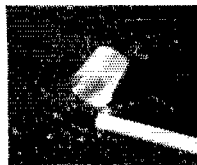
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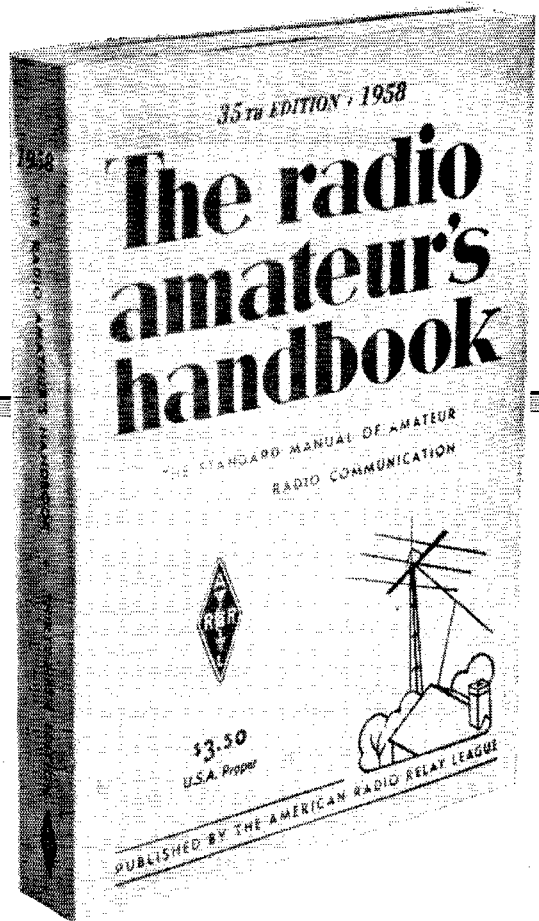
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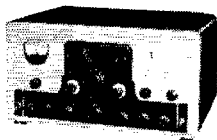
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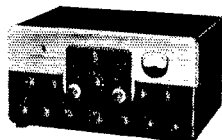
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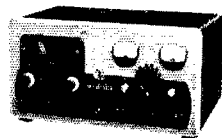
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WANTED: BC-221, BC-348, BC-312, BC-342, BC-610-E, ARN-7, BC-785, ARN-6, A-14, A-16, A-17, A-18, A-19, A-20, A-21, A-22, A-23, A-24, A-25, A-26, A-27, A-28, A-29, A-30, A-31, A-32, A-33, A-34, A-35, A-36, A-37, A-38, A-39, A-40, A-41, A-42, A-43, A-44, A-45, A-46, A-47, A-48, A-49, A-50, A-51, A-52, A-53, A-54, A-55, A-56, A-57, A-58, A-59, A-60, A-61, A-62, A-63, A-64, A-65, A-66, A-67, A-68, A-69, A-70, A-71, A-72, A-73, A-74, A-75, A-76, A-77, A-78, A-79, A-80, A-81, A-82, A-83, A-84, A-85, A-86, A-87, A-88, A-89, A-90, A-91, A-92, A-93, A-94, A-95, A-96, A-97, A-98, A-99, A-100, A-101, A-102, A-103, A-104, A-105, A-106, A-107, A-108, A-109, A-110, A-111, A-112, A-113, A-114, A-115, A-116, A-117, A-118, A-119, A-120, A-121, A-122, A-123, A-124, A-125, A-126, A-127, A-128, A-129, A-130, A-131, A-132, A-133, A-134, A-135, A-136, A-137, A-138, A-139, A-140, A-141, A-142, A-143, A-144, A-145, A-146, A-147, A-148, A-149, A-150, A-151, A-152, A-153, A-154, A-155, A-156, A-157, A-158, 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A-868, A-869, A-870, A-871, A-872, A-873, A-874, A-875, A-876, A-877, A-878, A-879, A-880, A-881, A-882, A-883, A-884, A-885, A-886, A-887, A-888, A-889, A-890, A-891, A-892, A-893, A-894, A-895, A-896, A-897, A-898, A-899, A-900, A-901, A-902, A-903, A-904, A-905, A-906, A-907, A-908, A-909, A-910, A-911, A-912, A-913, A-914, A-915, A-916, A-917, A-918, A-919, A-920, A-921, A-922, A-923, A-924, A-925, A-926, A-927, A-928, A-929, A-930, A-931, A-932, A-933, A-934, A-935, A-936, A-937, A-938, A-939, A-940, A-941, A-942, A-943, A-944, A-945, A-946, A-947, A-948, A-949, A-950, A-951, A-952, A-953, A-954, A-955, A-956, A-957, A-958, A-959, A-960, A-961, A-962, A-963, A-964, A-965, A-966, A-967, A-968, A-969, A-970, A-971, A-972, A-973, A-974, A-975, A-976, A-977, A-978, A-979, A-980

SELL: NC-300 XCU speaker, \$340; 20-A QT-1 458 VFO, \$275; Voltant, \$325; D-104 coax relay, \$25; low pass, \$10; pr. 805's, \$3; 829-B, \$6; 832, 3. W50BR, 1434 Winchester, Jackson, Miss.

MUST Sell: Urgently need the money: HQ-129X, like new, \$150; DX-20, new, wired and tested, \$40; complete station with modulator and many extras, best offer over \$200. P.O.B. W3CDE, Jerry, Masontown, Pa.

SELL pair BC-611F handle-talkies, w/batt., shipped prepaid, \$125; or will swap for: HQ129X or HQ100, or 8X99 w/spkr and \$25 or \$40B and \$60. Need: BC1000A schematic, Emrich, K1LDBV, ex-W2ZLR, Bayview Trailer Pk., Middletown, R. I.

BOUND Volumes of QST 1926-1956 inclusive for sale. Condition excellent. Best offer. Dr. L. J. Dunn, 80 Hanson Place, Brooklyn, N. Y.

I-400As wanted. Must be in first class cond. Also need air sockets, chimneys, vacuum variables and B&W Mod. 850 inductance. Write to W0WAM, F. Sailors, 7599 E. 99th St., Hickman Mills 34, Mo.

FOR Sale: National HRO5 complete with speaker, power supply and 4 sets handsred coils. In excellent condition: \$100 P.O.B. Art Rauch, W2P1D, 30 East Smith St., Central Islip, N. Y. CB 4-8544.

WIREP has NC300 \$100 off dealers net. With or without two and six meter converters. In FB cond. II. R. L. Gibbons, WIREP, 15 Everett St., Canton, Mass.

LEICA outfit complete, to trade for 75A4. Consists of Model IIIC camera, 135 mm telephoto, 90 mm longfocus, 35 mm wide angle, 50 mm Elmar lenses, Universal view finder, separate 135 mm and 35 mm finders, lens shades, self-timer, Cassettes, filters, tripod, close-up lens, individual leather cases for camera and some accessories and two hard leather fitted case for camera and all lenses, etc. Everything is genuine Leica, like new and spotless. Want Collins 75A4 in equal condition. I. S. Simpson, 76 Longfellow Drive, Longmeadow, Mass.

COLLINS 75A4 serial 2782 in original shipping container with 3 Kc filter, \$560; Elmac A54H, \$70; B&W 5100, \$300; Viking II, \$200; PE-103, \$20; 840B, \$50. All F.O.B. John Huey, W9ANU, 390 Hill, Elmhurst, Ill.

FOR Sale: a 8X-71 Hallcrafters receiver and matching speaker, perfect. Used about 100 hours. Local pick-up. \$125. Cost \$260. L. K. Swart, Fernwood Trail, Mountain Lakes, N. J. Tel. Rockaway, N. Y. 9-0892W.

MOTOROLA P69-18AR8 6 volt DC fixed freq. (1500 Kc) receiver, \$20; Philco SWD-1 short wave converter, 6VDC, \$5; Astatic 'Chauvel' Chief 'TV' booster, Mod. AT-1, \$15; Pilot FM tuner, Mod. T-601, \$15. All items new condition. John B. Bullock, W4GAP/2, 412A Whitman Dr., Haddonfield, N. J.

COMPLETE CW and one station with accessories and many spare parts, L. Saunders, W8MIF, 67 Webber St., Battle Creek, Mich.

R&W 518B like new, \$200; B&W TR switch, \$10; Panoramic adaptor 5-in. scope, \$100. Few WE tubes such as 40A4, 417A, 416B, 2C51, high fidelity TRF broadcast receiver by Langevine, rack mounted, \$175; Elencor 875 valve hiter exciter, an exceptional buy, \$125; SX62, 135; SX71, \$135. Contact Box 475, Church Street Station, N. Y., N. Y.

DX-100 A-1 operating cond., \$190; HQ-129X, 100 Kc. crystal and speaker, \$160, Together, \$325. W1ERX, 919 High Ridge Rd., Stamford, Conn. DA 2-0703.

NEED Money for school! Marmax KW-52 modulator and speech amplifier, \$10; BC-458A, \$8; Knight VOM, \$6; Knight 10 in. 1 lab kit, \$5; Columbia 3-speed turntable, \$5; 4 power transformers, \$5; clock timer in case, \$5.00; Knight transistor radio, \$2. W9QZR, 1422 Noyes, Evanston, Ill.

SALE: KW-pr. 8138 modulated by 8108; 8AN8, pr. 6V6s speech amplifier; power supply T15P20 w/UT-C; 108, 109 and 112; pr. 3B28s all in 48" cabinet on castors, 80, 40 and 20 coils. Collins 510B exciter. No shipping. Will deliver within 150 miles. Factory wired Teraaft OCS-144; TR-144 and PTR-2. W4ZNT, 562 South High Street, Harrisonburg, Va.

BEST Offer: PE-103 with base and cables, spare PE-103 brushes, RCA VoltOhmyst Jr., K. E. log duplex decrigr slide rule; ARB revr with AC supply; 6V-275V vibrator supply; 35,000 rpm hand drill. F.O.B. K4DMZ, 443 Farragut Circle, Virginia Beach, Va.

WANTED: Good used receiver. Contact Robert C. Pittman, Jr., 11361 S.W. 49th St., Miami 55, Fla.

32V3, \$600; AR3 revr, \$28; Instructograph with speaker enclose, \$35; Viking II with time seq. key, just wired, \$198; Heathkit oscill. 3", \$25; Heathkit sig. generator, \$15. All in good condition, W8LQG, 3244 Fishinger Road, Columbus 21, Ohio.

FOR Sale: Ampex 601 tape recorder, like new, \$450; also Ampex 620 amplifier, \$99.00; Electro-Voice "Patrician" speaker in mahogany finish, \$695; Going Stereo. Also looking for Collins 51-J or R-300. State cash price and condition. Write to Walter George Bergman, Wellesley Hills 82, Mass.

SELL Radio Specialties 3-el. Triband beam, \$40; Brush tape recorder, 2-speed, \$25. M. H. Klapp, 17 Kenosha St., Albany 9, N. Y.

FOR Sale: NC-183 and matching speaker, \$175; SX-71 and matching speaker, \$165; QF-1 with power supply, \$10. Barclay Lee, 412 Akron Ave., Stuart, Fla.

CLEVELAND Area only: Sell DX-100, Johnson Matchbox, BC779 (Super Pro) receiver, 40 ft. steel tower, 1500 volt @ 300 ml power supply, Heath grid dip meter, Heath antenna impedance meter, also pair new 815s. Plenty miscellaneous transmitting parts all in good condition. Daniel F. Funk, 6009 E. 139th, Garfield Heights, Ohio.

WANTED: Variable vacuum condenser 10-300  $\mu$ fd or 10-500  $\mu$ fd at 20,000 volts. Johnson KW rotary inductor. Describe condition and lowest price. W0PXE, 125 North Berry Road, Glendale 19, Mo.

FOR Sale: Elmac AF-67 transmitter, like new. No holes. Also two tape recorders, One hi-fi and two weeks old. Excellent. Make an offer. All inquiries answered, W4NJE, Box 48, Lewisburg, Tenn.

SELLING Out: Conset Super Six, \$35; RCA Handbooks, \$8; Heathkits: VFO, \$15; VTYM (AC), \$22.50; audio generator, \$22.50; sweep generator, \$25.50; KW power supply, \$35; final, \$20; modulator, \$35; tubes, transformers, condensers, 3 years of QST, etc. Request list, Patricia Wood, 1144 Channing, Palo Alto, Calif.

SURPLUS Government low pass filters. Will attenuate sharply frequencies above 2350 cycles. Wonderful sharpen receiver output and transmitter input. Cut Q&M on CW and phone. Hundreds electronic surplus items. Free catalog, Gov't. cost. \$16.50. Sale, \$1.95 prepaid. Surplus Center, Box 713, Lincoln, Nebraska.

PARABOLA 15 ft. diameter usable to 1000 Mc. used, in exe. cond. Original price \$3600 will sell for \$1000 or consider trade. Also Motorola 150 Mc. Triple Shift, make offer. W9KNK, 4729 Farwell, Chicago 30, Ill.

SELL: Best offer. To make room for new gear. 2-6-10 RME VHF-152; Model 82 Heath electronic switch; RCA 1 Kw. Mod. trans. Type 901769-501; pr. new GL8008 reets.; complete mod. on 19 x 11 chassis, 10" panel and 0-200 Ma. mtr. with A91 A Triad driver trans. and Phor. PL1M7B 300-500 w MultiMatch and pr. 211-VT4Cs. speech amp. on 7 x 19 x 11 2158 with pr. new 1625 and 0-150 Ma.; pr. 250T15, \$30; pr. new 810s, \$15. Watt; 4-250A or 4-400A, Collins F4551-15, 1.5 Kc., F455J-05 or -08, 5 or 8 Kc. mech. filters. F. E. Handy, W1BD1, Care ARRL Hq., West Hartford, Conn.

SELLING Out: DX-100 transmitter, \$185; SX-28 receiver, \$115. R. W. Watts, R.D. 1, Alapalchin, N. Y.

SELL: Hallcrafters 8X-99, good cond., \$99.00. Lad Jelen, K8DEF, Rte. 4, Medina, Ohio.

FOR Sale: Hallcrafters HT-20 transmitter; \$100 watts output; precision equipment, new condition. Created. Will ship; \$275. Reason for sell: Must vacate premises. Emil Grice, 54 Andrew St., Meriden, Conn.

WANTED: Leeds and Northrup Mod. K2 Potentiometer or equal in good condition. State price and condition, H. Millen, 31 Almont St., Boston 26, Mass.

WANTED: Rotary spark gap, such as Ch'rad, Grebe, Kiltzen, but any make considered, State condition, full description and price. Ed G. Raser, W2Z1, 315 Beechwood Ave., Trenton 8, New Jersey.

COMPLETE all-hand mobile station, AF-67, PMR-7, Band-spanner whip, mike, relays, and 12 v power supplies, \$260. Also 4-element 6-meter beam, \$15. W7WPO, Edwin Jones, Laveen, Arizona.

SELL: One homebrew (100 watt audio power output) modulator, \$40; one cabinet, rack type, standard width. Will handle three 8-1/2" high panels, \$15. Both for \$50. F.O.B. New Orleans or Lutcher, La. Ray Reynaud, P.O. Box 65, Lutcher, La.

JOHNSON, Heath and other kits assembled. Save time and trouble. Professional wiring by professional engineers. All units thoroughly tested and guaranteed. Buy the kit from us or send us your own. Reasonable rates, below factory cost. Prices quoted on any item. Before you buy any assembled rig, write: Vance Engineering, Box 300, East Pittsburgh, Pa.

CLEANING House! Telrad frequency standard, \$20; Sola 7202, \$27.50; pair F458 headphones, \$20; new ACC5 transmitter, 7-9.1, \$10; Phor. 3B27, \$10; two 820s, \$1 each; Triplet 32 1/2 tube tester, \$20; T82 Heath generator, \$20; two 6148, \$4.00 each, plus 10  $\mu$ d at 1000V, \$5.00. Will prepay shipping costs anywhere in U. S. upon receipt of money order. W8SPR, Fred Krauss, 906 Morris, Salem, Ohio.

BARGAIN: Sell or swap brand new Signal Corps transmitter-receiver, c.w. and phone. Oscillator uses 1-616, modulator 1-1215-G-F, 4-6L6GT; final 2-807; revr, 2-8K7GT; 1-68A7GT, 1-68F7, 1-6K6GT, 1-6J5GT. VFO uses 1-125N7GT Signal Corps #99-1). Swap for 75A2, SX100 or equal. C. H. Schueter, Columbia, Ill.

WANTED: T-91 relay rack, local only. Geo. Leininger, W8ZCF, 16412 Marquis Ave., Cleveland 11, Ohio.

SALE: used National SW-54, Hallcrafters 8-106, Viking 6N2, Millen 90831, K9DDV, Kenya, Kansas.

FOR Sale or trade: 3KVA transformer, primary 185-230, secondary 6700 ct. A beautiful unit, \$50 cash takes same. Ed Kucharski, 39 Aqueduct St., Ossining, N. Y.

MUST Sell: Johnson Adventurer and screen modulator, in gud cond., \$45. K1BOO, 243 Pearl St., Manchester, N. H.

FOR Sale: AF-67, PMR-6A, C-1050, Kalfred AU-2 with 5 ft. whip; Shure 102C. Will ship C.O.D., \$215. K5JLK, 705 Rlcou St., Shreveport, La.

WANTED: Hallcrafters Mod. S-27 or S-36. Tunes 27-144 Mc. State best price in your first letter. James A. Mose, Box 131, Sharpsburg, Md.

SELL: National NC-88, like new, Heath Q-Mult. Both for \$80. F.O.B. Port Collins, Colo. K9D1TV, Lewis Van Sant, RFD #2.

WANTED: Used RCA Home Study Television Repair Course, Ernest Schwartz, General Delivery, Chicago, Ill.

SX42 wanted. Will trade for parts, equipment. Vilensky, 512 South 5th St., Columbia, Missouri.

WANTED: 6M trans. TVI suppressed. Send brief resume to Ralph Bennett, 10420 Coburg Lands, St. Louis 15, Mo.

FOR Sale: DX-100 transmitter, in excellent condition. Used nine months, \$160 plus C.O.D. Postage. Paul Gerald, 2031 Montreal, St. Paul 16, Minn.

MINIFON Wanted. Postbox 27, Wall Street, N.Y.C. 5, N. Y.

SELL Surplus regenerative battery-operated receiver BC186. Covers 2.4-3.7 Mc. Separate battery case, Voltmeter for plate and filament batteries. Lightweight, \$15.00 F.O.B. Hartford, less batteries. W1LKE.

FOR Sale: Surplus power supply parts: 1 RCA hi voltage xfrm 1800V, 1500V and 1000V each side of center at 350 Ma.; 1 fil. xfrm for 800V rect.; 2 4-pin tube sockets, 1-4  $\mu$ d at 2000V W1DC; 3-25K 100W res.; time delay relay 110V AC. Price \$25.00 F.O.B. Worcester, Mass. W1YBN, Paluzano, 181 Walnut St., Watertown 72, Mass.

CANADIANS! Selling ham receivers BC348R, National F87XA; transmitters, homebrew 500W, fully metered Bendix TA12G, modulator, p/s, or other items. Write for details. B. Wenner, Sunfield, Alberta, Can.

UNABLE to answer all the letters pertaining to the Ranger ad for December so take this means to thank all who inquired. Thomas Daiton, K2QC/P, 18 Broad, Newark, N. J.

WANTED: Good buy on a current or recent model receiver. Hal Brown, W8PNI, 1330 Southern Hills Blvd., Hamilton, Ohio.

SELL: SX99 with Johnson Cal., #115; BC312M with xtal filter and external 110v power supply, \$60; Model A slicer, \$40. Boris Dzula, W2OJC, 54 Charles St., Clifton, N. J. Prescott 9-0639.

**BARGAINS:** Reconditioned, guaranteed, shipped on approval. Hallcrafters \$40A \$69.00; 840B \$79.00; 885 \$89.00; SX99 \$119.00; SX71 \$149.00; SX56 \$189.00; SX100 \$229.00; HT32 \$549.00. National NC89 \$99.00; NC98 \$119.00; NC183D \$295.00; NC300 \$319.00; Hammarlund HQ100; HQ110; HQ129X; HQ140X; HQ150; Elmac PMR7; PMR6; AF67; A54H; Gonset G66B; G77; Commander. Converters, Communicators; Johnson Rangers; Viking II's; Vallants; Harvey-Weils TB85UD; T90; RA9; Collins 75A-2; 75A-4; 2V3; Morrow RMR; Central; Heath; many others. Easy terms. Write for free price list. Henry Radio, Butler, Mo.

**SELLING Out:** Viking II factory wired with VFO, JT30 mike and low pass filter, \$200. Also have Match-box and NC-183 recv. All items in excellent condition, ready to operate with instruction books. No reasonable offer refused. Lee Grove, 1300 S. 20th St., Terre Haute, Ind.

**SELL:** DC-35 and Heath VFO, in excellent condition: \$65. K2UMH, Stannard, 53 Louise St., Delmar, N. Y.

**SELL:** 75A4, \$570; LW-90 two meter S8xmitter: two field phones, \$50; Mosley 15 and 20 meter beams, \$80. Make offers. W3VDE, 120 W. Yardley, Philadelphia, Pa.

**FOR Sale:** Heath VFO Model VE-1, in perfect condition, complete with separate power supply, prepared to you: \$20. C. H. Daykin, W2AEP, 19 Oxford Place, Geneva, N. Y.

**FOR Sale:** VFX80A, \$12.50, power transformers 1500-2500 CT 500 M., \$40; Millen grid dip meter, \$39; 3-4-250 A., exc. cond., \$15 ea.; 304TL, \$5.00; UX250, \$18; Elmac 450TH, \$25; Gonset G-66, exc. cond., with power supply 6-12-115V, \$150; 2 B&W butterfly condensers, split stator variable condensers 40-60 pF, 12 M. volts, \$8.00 ea. J. E. Shutt, W4JBN, Sturgis, Ky.

**QST 1926 to date, solid run, make offer.** Robert C'oughan, W2DTP, 29-29 213th St., Bayside, N. Y.

**COMPLETE** Mobile, Johnson Viking Mobile; James power supply; Gonset Tri-Band control; autotune; D. M. filter in excellent condition. First \$200 takes it. Dick Kill, K8GNU, L'Anse, Michigan.

**FOR Sale or swap:** HQ129X, HT18, Triband converter, noise silencer, many others. Need tape recorder, 8 mm. camera, John Bruscella, W2LEC, 14 Glorney St., Shrewsbury, N. J.

**BARGAIN:** Hammarlund Super-Pro complete with power supply and 16' speaker, 1.25 to 40 Mc. This excellent receiver only \$100. 800 watt ten-meter xmitter: over \$500 worth of FB parts. Sell for \$95. Si Marlan, W2ETM, 2200 Ocean Avenue, Brooklyn 29, N. Y.

**NOVICE Rig:** Globe Scout 65A, NC-98 with spkr, 5 Novice xtals, ant relay, \$200. Phil Oldham, K9AYE, Rose Tech, Terra Haute, Ind.

**SELL Or swap:** First-class amateur photographic equipment, about \$1,000 worth. Need good receiver or test equipment. W2DQW, Stormville, N. Y.

**HEATHKIT** PS-4 TV alignment generator, wired and working, new condition, \$45.00. K2CUI, 275 Middlesex Road, Buffalo, N. Y.

**BARGAINS:** With New Guarantee: S-53 \$59.00; NC-57 \$69.00; S-72 \$49.50; SX-43 \$109.00; SX-72 \$450.00; Lyco 600 \$69.00. Bienco 77-SB 100 watt \$399.00; Elicio TR-75TY \$25.00; Heath QF1 \$7.50; B&W 5100 \$299.00; Heath VFO \$17.50; Adventurer \$29.50; Knight CW xmttr. \$29.50; Morrow MAH-B \$499.00; Globe Trotter \$29.50; Globe King 500A \$475.00; Globe King 275 \$199.50; Scott 65 \$59.00; Scout 65A \$69.00; Scout 65B \$75.00; Globe Chief \$89.50; CE 600L SRH AMP "NEW SPECIAL" \$385.00; "NEW CLOSE OUT!" LYSCO 382 VFO \$199.95. Free trial, terms, write Leo, W6GFC for best deals. World Radio Laboratories, 3415 West Broadway, Council Bluffs, Iowa.

**SELL:** Little-used, improved DX-100 with built-in antenna relay, blocked-grid keying, frequency-spotting switch. Weak parts replaced with husky ones. Expertly wired, no bugs, guaranteed, \$200.00; A1 HQ129X with speaker, \$125.00; B&W TR-75 in factory-in-Articulated enclosure, immaculate, \$100.00; Hickok 600A w/CR, like new, \$125.00. Prefer pickup deal but will ship C.O.D. K2ZIB, 307 Richardson Drive, North Syracuse, N. Y.

**TELEX** 503A, 3-el. 20M, cost \$136, like new, \$70; Telrex 153A 3-el. 15M, cost \$110, like new, \$60; Gonset Commander Xmttr, 1.5 to 34 Mc., 50 watts, fixed or mobile, tone or c.w.; Gonset VFO, new \$150. Like new, \$75.00; Heath "Scout" 3 in. prt'd circuit, kit cost \$29.95; now assembled, \$25.00; Collins 1.5 to 2 Mc. xmttr and revr. 50 watts, send for mimeographed spec sheet. Will ansr. all letters. 2 chokes 6 hy. 500 Ma. Thordarson 5 KV insl., \$10.00; 1 new RK65 tubes (same specs as 4250A) with sockets, \$60.00 ea.; 1 Astatic D104C mike, \$10; PE103, \$15. Want: 5 or 6-el. Telrex, 10 M. beam, Frank Smith, W5HML, Rd #3, Paw Paw, Mich.

**FOR Sale:** Heath DX-35, v'y gd cond., \$60. Richard Pytlak, 201X Chestnut, Detroit 34, Mich.

**SX 71-1,** Deluxe Tri Band converter, 4 ft. Bud cabinet, SX42 cabinet, 2 home-built transmitters and modulators. Descriptions on request. Will ship anywhere. M. J. Clark, W5UWQ, 920 Yeso, Hobbs, New Mexico.

**FOR Sale:** SX-71 and R46 speaker, \$150.00. Reynolds, K5JGF, 3529 East 23rd St., Tulsa 14, Okla.

**FOR Sale:** Home brew 700 watt xmitter with hvy duty power supply, Collins 310B exciter, B&W low pass filter, #25, \$52, BMC, Telrex beam, 20 meter Mod. 520B, Heath GDO Model GD-1B; BC-221K, N. calibration book, National Selector, Lect. 7-9, 1 M. ARC 5 in cabinet with 400 watt power supply, Triplet TR-1213 Two-meter. Various meters, parts, etc. Station of late W2DKF, Contact W2DCA, Flushing 3-9779 for info. Louis Aherne, 5-17 124th St., College Pt, 56, L. I., N. Y.

**SELL:** HT30, Cost \$495. Used only few hours. Will sell for \$350.00; SX-99, like new, \$90. Arthur Allen, W1PXC, 15 Bartlett Ct., North Wilbraham, Mass.

**SELL** Prop pitch motor converted per CA article with 24 volt transformer, max. amp selsys, \$45. Gonset six meter mobile converter, \$35; CW3 receiver with hook, \$35, Richard Vogely, W2LBP, 554 7th Ave., New Hyde Park, L. I., N. Y.

**SELL:** Globe King 500A, \$350.00; SX28A, \$50.00. John Cox, K4BK, HC79749, 2211 Jefferson, Portsmouth, Va.

**FOR Sale:** TV camera, mod. CRV-59, complete and ready for air (uses power supply), instructions. \$99 F.o.b. or will consider trade for 58B exciter, beam equipment. Write for list. Syd Monte, W6ZEM, 18152 Sunburst St., Northridge, Calif.

**FOR Sale:** Unmodified ARC-4 with Dynamotor, all tubes, \$40 F.o.b. BC-625, no tubes, \$12. Edwin Johnson, K0CPN, 849 Forder Rd. St. Louis 23, Mo.

**FACTORY-Wired** Viking I installed in Viking II cabinet; Viking VFO, \$195 complete, HQ129X, with matching speaker, \$135.00. Wm. Madigan, 159 Not St., Wethersfield, Conn. W1VGE.

**MOBILE Batteries,** Vita Plate special service types, 6 and 12 volt, for all cars. Fixed by notice and fire departments. Free data. Cornell Communications, 1340 Ford Rd., Cleveland 24, Ohio (Paul Cornell, W5EFW).

**FOR Sale:** Plate xmttrs, Kenyon 5000V AC CT, UTC 3-49, 4000V AC CT, Both 300 Ma., \$25 each. Auto-xfrmr 60-220V AC, a brute, UTC 8-49, 110 watt mod. xfrmr, \$10 each. I pack, you pay freight. Inquiries welcome. Walter Herry, #16 2nd, Webster City, Iowa.

**FOR Sale:** Viking Adventurer, \$45; Gonset VFO unit, \$20; DM42 Dynamotor, \$7; K538 carbon mike, \$2; one 31928, \$2; 11 by 500 Ma. choke, \$10. L. C. Scranton, Arkansas. Fred N. Mertin, RFD 1, CURTAINING Activities; 75A2 and KWSI for sale for \$1990, or KWSI for \$1710. Transmitter practically new. W. Davidson, K2GDP, 4 Boulder Rd., Rye, N. Y.

**FOR Sale:** Heath OI-1 "RC" scope, \$20; Teeratt CC5-144 2M1 converter, \$20. H. M. Ash, K2KPH, 443 Eastgate Rd., Ridgewood, N. J.

**TECHRAD** 350 XMM transmitter, parallel 813's final, PP 505's modulators, built-in VFO with 5 xtal pos. Frequency 2 Mc. to 20 Mc., 30 watt speech amp, with hi-z and lo-z input, 220 volt operation. Box of spare tubes and parts. Condition of equipment like new, ideal for small broadcast, police or amateur station, navy array. Shipping weight 700 pounds. \$700.00 F.o.b. Los Angeles. Call Earle Davis, 4306 W. 60th St., W6WVL 3410 Buckingham Road, La Brea.

**CASH** for B&W L-1000-A or Thunderbolt factory-wired or kit. State lowest price in first letter or phone call. Prefer Southern California; deal; will consider other. W6ZRK, 521 Stewart, Loma Linda, Calif. Telephone PYramid 6-2714 evenings except Fridays.

**WANTED:** SX28 receiver. Also general coverage receiver for a shortwave listener, also anything that will help in becoming an amateur. Please state price and condition of receivers in first letter. John C. Keegan, P.O. Box 76, Cranbury, N. J.

**FOR Sale:** Collins KWS-1 and 75A4 with deluxe speaker. Estate of the late W. D. T. J. Will sell individually if necessary. Write: Eleanor Goldberg, 563 Bloomfield Avenue, Bloomfield, Conn.

**SELL:** Pair Vealene JRC-400 transceivers (Citizen Band operation, \$85; Traveler converter 6,12V DC, Input 110V, 28V output (100 watts), \$24; Hallcrafters SX28, \$100; Hammarlund Super Pro BC794B, \$110; Vibrator supply 6V DC @ 300V DC, 200 mls, \$18; telephone switchboard, \$30; mike T-17, \$3.50. Huberman, 129 Morgan St., Holyoke, Mass.

**QSTs** for sale, Vol. 6 bound and vol. 7 loose, with covers somewhat tattered. All queries answered. W. A. Mason, 1303 Lakeview Ave., Utrah, Ohio.

**HT-60** matching speaker; XCU-50-2 crystal calibrator, A. B. C. D. sold new condition, original carton and instruction manual, \$450; B&W T-R switch, Millen SWR bridge; Gordon heavy-duty R.F. relay; power supply 200 Ma. 700 and 850V DC, misc. meters and HV condensers. Cleaning house, any reasonable offers accepted. W4AIX, Smitz, Bonaire, Hendersonville, N. C.

**YOUR** kits wired. Price 20% of equipment price. Write, Alan Wilcox, W3DVC, 65 N. Church St., Carbondale, Pa.

**SELLING Out:** Southern California area only: 75A1, 3000 Kc mech. filter DB23 RME preselector, all perfect orig. cond., \$330; ART-13 250V trans. incl. 300 m. 1600V, 300 m. 100V, 15 amp, 28V supply antenna coupler, B&W TVT filter, all in Par-Metal cabinet, \$147; Telred 503 20 mtr. 3-el. inc. prop motor, selsyn, control mounted in alum. box, 110 ft. shielded control cable and coax, remote luminated indicator, cost over \$200. Will sell for \$130. Above on air now. W6HYL, 12321 21st Helena Dr., Los Angeles, Tel. GRanite 2-6602.

**SELL:** National HRO 50T1 revr. perfect condition, with matching speaker and 110 V. C. D. calibrator, \$250. Ed Hyrnie, W2GMW, 2095 Honeywell Ave., New York 60, N. Y.

**P&H** LA-400, \$125; Lyco 800, \$75; money-back guarantee. W5BUX, George Steed, 1605 Redings Drive, Oklahoma City.

**FOR Sale:** Johnson Ranger, \$175; Heath sweep generator, \$33; wanted or accepted in trade, Communications receiver or signal silencer. Don Maxwell, W5FQS, 110 Fayette St., Charleston, West Virginia.

**CANADIANS!** For sale, Deluxe 250 watt single 813 phone/c.w. with V.F.O. Also single 815 100 watt phone/c.w. crystal or V.F.O. Above equipment built by engineer. One 3-element 20 meter full size beam; one NC183D receiver 18 months old, Bud low-pass. Write or phone V63DZY, Box 1262, Atikokan, Ontario, Can.

**MOST** Sell, Make offer: Transcon 10 mtr. 6 volt Johnson Pacemaker; Hallcrafters SX-100; Hammarlund HC-10 converter; Gonset Communicator III (2 mtr). Write George Richardson, Box 68, Cambridge 39, Mass.

**FOR Sale:** SX-28 with speaker, excellent condition. Will express C.O.D. with inspection privileges. Trut, W9COZ, 2234 N. Goodiet, Indianapolis 22, Ind.

**SELL:** 40-watt xmttr for all bands, \$35; 7 ft. rack cabinet, \$15; 2-75 hy. chokes at 200 mls, \$10. W1DUR, 244 Prince St., West Newton, Mass.

**SELL:** Viking Vallant, \$285, plus shipping. W5BZW, C. L. Gomet, 1125 Dakota St., Albuquerque, New Mexico.

**SALE:** NC-300, 3 months old, Calibrator and matching speaker, \$325; Bonar 1-4W marine telephone. Make an offer. W2VZC, CT 4-335, 30 Pitcairn Ave., Hokus, N. J.

**SELL:** G-66B, 3-way PS/speaker, \$180; G-77 and Mod./PS with cables and brackets \$220 in exc. cond., both for \$380; WRL 3-el. Tri-band beam, \$45; Tele-Vue 40 ft. crank-up tower and accessories, \$45; CDR-AR22 rotor, \$25. All three for \$100. F. O. B. Albuquerque, N. M. Capt. Melvin W. Crain, W7YOF, 508 Vassar, S.E.

**FOR Sale:** Tubes, brand new, 32A's, \$3.75; 829B's, \$5; 304T's, \$12; 813's, \$7.50; 810's, \$7.50; 811's, \$2.00; cheap prices on receiver tubes. Write me for needs. Harvey-Weils TB8-501, all band transmitter, plus 3-6 meter Bandmaster VFO. APS-80 power supply. All for \$125; Bendix Scintilla in circuit metered condenser checker, \$25; RA-105 power supply 115v. outputs, 2000V, 610V, 115V, 300V, plus nine filament transformer voltages. \$45; T-23/ARC-5 two meter transmitter, \$15; BC-221AC frequency meter, original calibration book, \$10; W3VDE for list. Syd Monte, two-meter transmitter, \$38. Bill Slep, W4HYI, Box 178, Elletton, Fla.

**SALE:** HQ-150 receiver, six months old, in new condx. Sacrifice \$225. Globe Chief system built July 1957, in perf. condx. \$55. Will sell separately and demonstrate. No shipping. K2UOF, 57 Patton Blvd., New Hyde Park, N. Y. Phones Floral Park 2-4556, O'Regon 7-5537.

10 Meter husky 3 element pretuned beam. Twenty foot boom adaptable to 15, 20, or 3 bands. Quick Allen Wrench assembly. Materials alone \$65. Sell: \$32. J. P. Nell, 372 Rincon, Livermore, Calif.

**SELL:** Super Pro, BC779 with power supply and speaker, \$100 or your best offer. K2KFF.

**SSB Ops:** HT-30, \$295; HT-31, \$240; 6 Kc mechanical filter for 75A-3, \$25. W8WGA.

**WANTED:** Haulcrafters Sky Rider Panoramic 8P44 in perf. condx. Please state price in first letter. K2LGS, Auguste Schwab, Jr., 560 Woodmere Blvd., Woodmere, L. I., N. Y.

**FOR Sale:** R. E. power meter, AT-1 and R.E. monitor, \$50.00. Cecil Mills, Rt. 3, Winnsboro, Texas.

**SELL:** Vocaline JRC-400, Citizens Band transceivers, used 5 hrs. complete with mikes, antennas and 6 and 110V. cables. The whole works for \$95 for the pair. Frank Carroll, 111 W. Poplar St., Stockton 3, Calif.

**SELL:** SX-71 receiver, home wired Viking II, Johnson low-pass filter. Best offer above \$250 takes all. Write: Alan Ritter, 1207 Yale Station, New Haven, Conn.

**ELDICO TR-1-TV,** bandswitching 80-10, 300 w, phone c.w. with tubeless V.F.O., \$200.00. Come see it and operate it. K2AJM, Don Kilgus, 3 High St., Valhalla, N. Y. W.H. 6-8764.

**WRL 755 VFO,** \$35 or best offer. F.o.b. WRL 275 Globe-King, \$175 with colls. Won't ship xmtr. W3RPG, Frances Drive, Greenwood Hills, Harrisburg, Pa.

**WANTED:** 500 or 800 cycle filter for 75A-4. Will trade 2.1 Kc. filter, 75A-1 in good condition, \$250. W8RMH, 1910 Long Point, Pontiac, Mich.

**WANTED:** BX-42. Must be in absolutely perfect condx inside and out. Bob Creason, K5JLR, Athens, Texas.

**75A2, \$300; 75A3, \$375; Gonset 500W linier amplifier, \$200; HROSR with bandspread colls, \$75. Gonset two meter tuner, \$45; Gonset 6-meter Communicator, never used, \$195. W2ZMG.**

**WILL ship B&W 5100-B and 515B-B in original cartons anywhere in U.S.A. for \$500. Excellent condx with complete instruction manuals. W8MXS, Dan Marlen, 5093 Sumter, Cincinnati 38, Ohio.**

**FOR Sale:** BC610E, BC614E speech amp., colls five bands, spare tubes and parts through out, SX28 receiver, Mosley ten meter vest pocket beam. H-7-gain allband trap antenna, everything in excellent condx, and priced to sell. You pick up at my QTH. H. C. Stamats, W9CRP, Box 76, Leesburg, Ind.

**FOR Sale:** DX-100, perfect condition; beautiful wiring, final neutralized. Also Thordarson T21P81 plate transformer (3200 VCT 425 Ma) and UTC 8-46 plate transformer (2000 VCT 300 Ma). Best offer plus shipping for any or all. Wanted: A 600 watt MultiMatch modulation transformer. Ronald Slutz, Route 3, Salem, Ohio.

**FOR Sale:** Collins KWS-1, 75A2 with Central Electronics slicer, Pacemaker factory Reconditioned and guaranteed, 65 foot tilt-over tower, 4 element Vlex 15 meter beam. Immediate reply to inquiries or offers on all or part of these items. W7ZPO, 210 S. Summit, Bremerton, Wa.

**MICHIGAN — Used Collins 32V2, \$395; Gonset Communicator II GM 12V, \$195; Gonset Communicator II GM 12V push-to-talk, \$215; Globe Chief, \$52.50; Johnson Adventurer — \$45; SX-98, \$195; HQ129S w/spkr, \$149; RME50, \$135; National NC100X w/spkr and Q multiplier, \$65, etc. New: Collins Haulcrafters, Hammarlund, Johnson, National, WRL, etc. Radio Parts, Inc. 542 Division Ave., S., Grand Rapids 3, Michigan.**

**FOR Sale:** Assembled, tested Heath AG-7 audio generator, \$15; Unopened Heathkits VP-1-6, six-volt Vibrator supply, \$5; PM-1 RF meter, \$9.00. W2DJJ.

**HEATHKIT AR-3,** like new condx, \$20.95. Irv. KN8GPI, RFD #1, Box 426, Ironton, Ohio.

**FOR Sale:** Stancor ST-203A 10 meter mobile xmtr, \$25; Bell mobile carbon mike, push-to-talk, \$5; Master Mobile heavy duty spring mount and 8 ft. whip, \$10; General electronics RF-AF signal generator, model 200, \$5. Will ship. John E. Slais, K9BNH, 44 Hickory Grove, RR 1, Quincy, Ill.

**FOR Sale:** PP 813 all band fone and c.w. modulated by 8108 6146 buffer, Meissner shifter, now on air and excellent, \$445. NC183D with product detector, \$275; Bud tower 48 ft. on wooden tilt-over base, 20 meter beam and TR4 rotator, \$125, seven-in. scope, \$65; Pentron tape recorder, \$85. Cannot ship. W8WOA, Bedford, Ohio.

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**WANTED:** Gonset 6-meter converter or any 6 meter converter in good condx for mobile use. William M. McGonigel, 457 So. Grieks, St. Paul, Minn.

**SELL:** Collins 75A-3 with speaker, \$375; Johnson Matchbox, \$40. Will ship, in A-1 condition. O. H. Ketchum, 10125 Flora Vista Blvd., Bellflower, Calif.

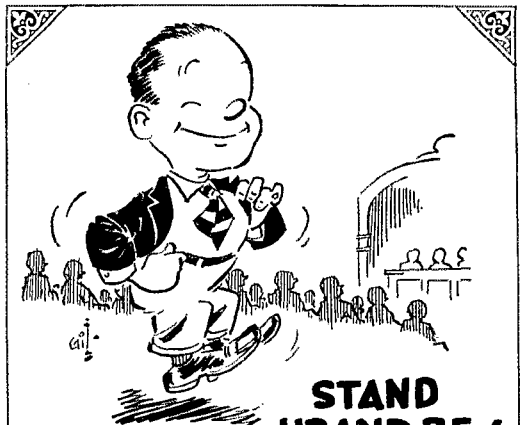
**SELL 12 volt Gonset Communicator 6,** Approximately 1 1/2 years old. In fine condition. \$150.00. P. O. Box 1225, Harrisburg, Penna.

**OKLAHOMA Area,** cannot ship. Full KW less exciter, 500 pound power supply, bridge 872 as big variac 0-3000 and 0-1500 output, separate filters, 1100 mill chokes, 805 modulators, speech amp. PP 4-250A final, all colls, antenna tuner 9 meters in 84 in. cabinet and 36 in tuner cabinet needs 25 watts drive. Also needs TVI work on final. Bring truck and \$350. No trades! R. M. Reavis, W50WG, Ardmore, Okla.

**FOR Trade:** 6 volt 60 amp. heavy duty Ford generator and amp. meter. Fits 1949 through 1953 V8 Fords. What do you have? Write K6DUG, 3158 Hunt Ave., Adlene, Texas.

**SELL:** Heath AR-3 with cabinet, excellent condx, \$25. Mike Schitsky, K6SAF, 1137 Shattuck, Berkeley, Calif.

**MUST Sell:** HRO60 w/4 colls. Excellent condition. Ship F.o.b. anywhere in U. S. First money-order for \$300. W5PYU, Bill Hughes, Box 474, Tech Station, Ruston, La.



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During the past eighteen months, under sponsorship of the Department of State, representatives of the numerous U. S. radio services — military, commercial, and private — have held a series of conference-preparatory meetings in Washington. These meetings will continue as long as necessary to establish our government's position toward future frequency assignments. Officials of ARRL have been, and will continue to be, in attendance at such meetings to speak for the amateur service when pertinent matters are brought up for discussion.

As an individual amateur, none of us could carry much weight at these meetings or conferences. Together we can do far more. Let your voice be heard — stand up and be counted as a fully-active, well-informed and interested member of the League.

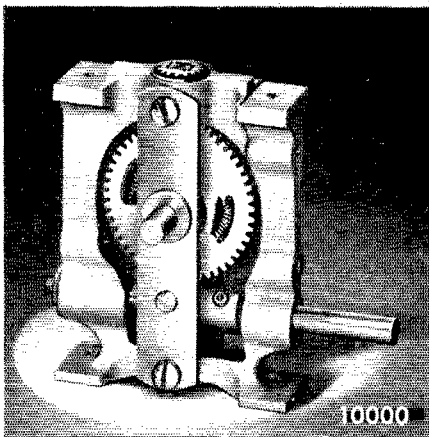
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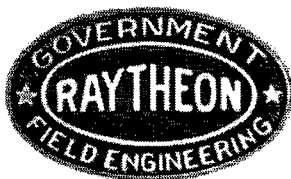
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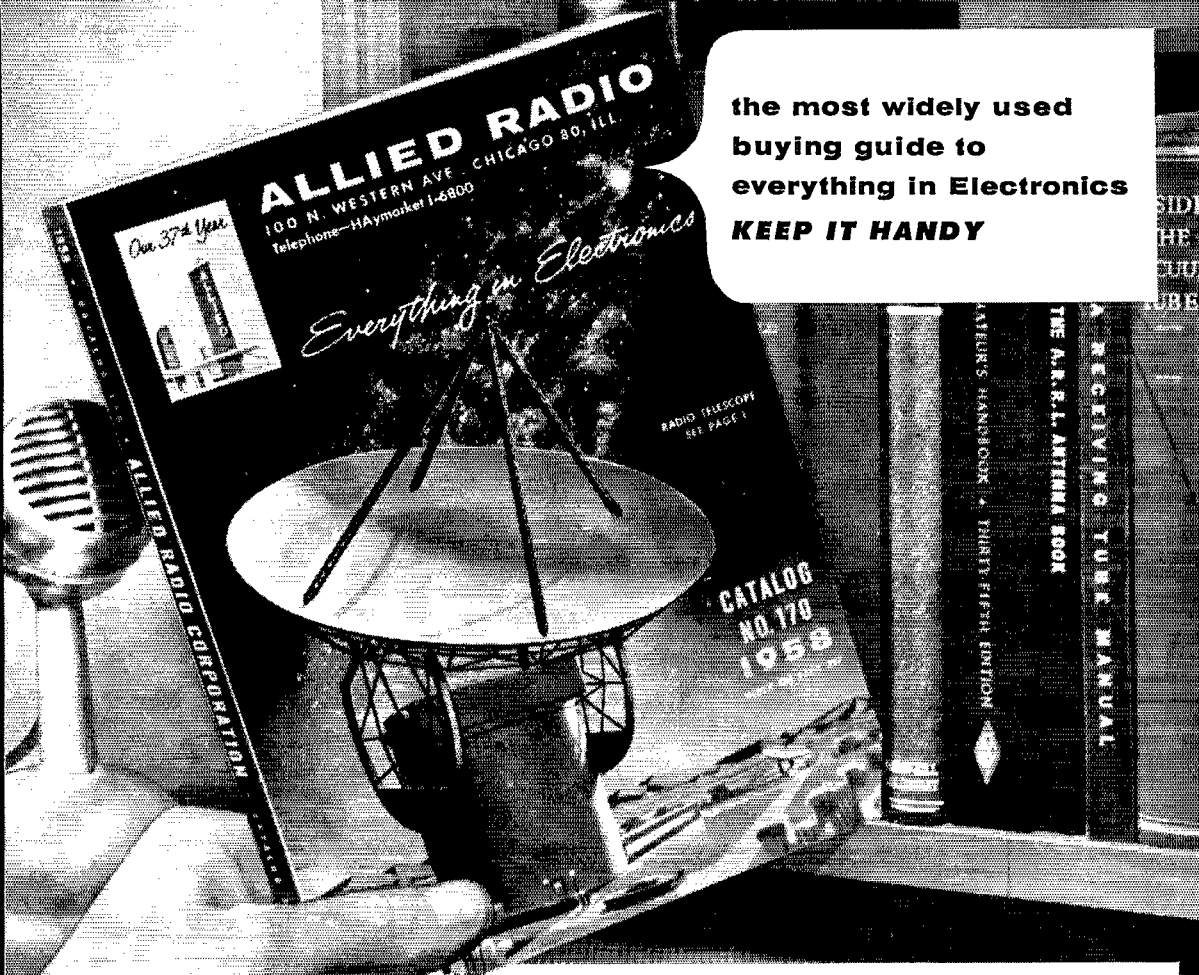
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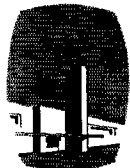
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- Provides up to 10 db more gain at sharpest position — no more losses!

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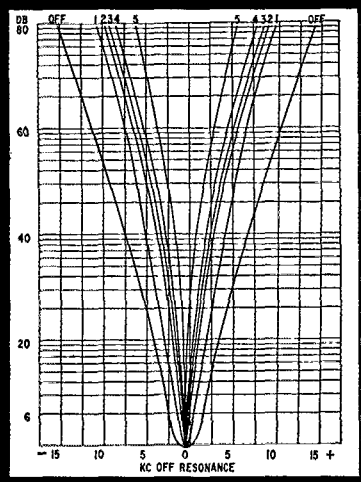
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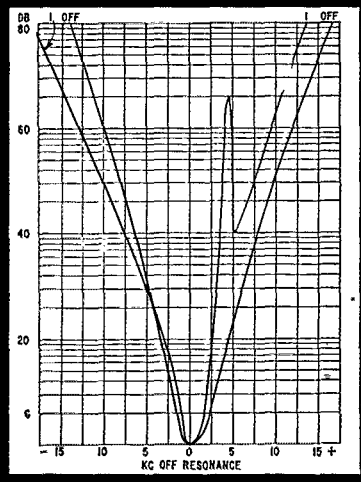
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				DC Plate Volts	DC Grid-No. 2 Volts	DC Grid-No. 1 Volts	Peak RF Grid-No. 1 Signal Volts	Zero-Signal DC Plate Current Ma.	Max. Signal DC Plate Current Ma.	Approx. Max.-Sig. Driving Power Watts	Effective Load Resistance Ohms	Approx. Max.-Sig. Power Output Watts
6CL6	AB <sub>1</sub>	60	6.3(H)	300*	150	-6	6	4.6	16	0	9100	3
6973	AB <sub>1</sub>	60	6.3(H)	400	250	-24	24	8.4	33	0	5600	9
2E24	AB <sub>1</sub>	125	6.3	500	210	-21	21	10	35	0	8300	11
1614	AB <sub>1</sub>	80	6.3(H)	450	300	-35	35	14	50	0	5000	16
2E26	AB <sub>1</sub>	125	6.3(H)	500	210	-30	30	9	53	0	5370	17
6893	AB <sub>1</sub>	125	12.6(H)									
837	B	20	12.6(H)	500	0#	0#	40	2.6	61	3.5	4630	21
807	AB <sub>1</sub>	60	6.3(H)	750	300	-35	35	15	71	0	6250	35
1625	AB <sub>1</sub>	60	12.6(H)	750	300	-35	35	15	71	0	6250	35
6816	AB <sub>1</sub>	60	6.3(H)	850	300	-15	15	40	100	0	3500	40
6524*	AB <sub>1</sub>	100	6.3(H)	600	300	-33.5	67†	30Δ	122	0	12100‡	50
6850*	AB <sub>1</sub>	100	12.6(H)									
6146	AB <sub>1</sub>	60	6.3(H)	750	180	-46	46	12	98	0	4640	52
6883	AB <sub>1</sub>	60	12.6(H)									
809	B	60	6.3	700	—	0	72	35	118	8	3900	59
829-B*	AB <sub>1</sub>	200	6.3(H)	750	225	-25	50†	20Δ	132Δ	0	13640‡	68Δ
			12.6(H)									
805	B	30	10.0	1250	—	0	110	78	204	3.5	3560	155
828	AB <sub>1</sub>	30	10.0	2000*	750	-115	95	25	116	0	10300	157
4X150A	AB <sub>1</sub>	500	6.0(H)	1250	300	-50	50	57	202	0	3500	157
811-A	B	30	6.3	1500	—	0	85	13	150	13	6260	160
813	B	30	10.0	2500	#	0#	91	30	133	12	11000	219
6161	B	900	6.3(H)	1600	—	-57	82	80	239	18	3720	225
813	AB <sub>1</sub>	30	10.0	2500*	750	-95	90	25	148	0	9660	245
7094	AB <sub>1</sub>	60	6.3(H)	2000	400	-50	44	30	200	0	6000	280
7034	AB <sub>1</sub>	150	6.0(H)	2000	300	-48	48	60	250	0	4270	290
833-A	B	30	10.0	3000	—	-70	165	50	328	5	5600	700

\* Twin Type

Δ Total Value per tube in Push-Pull application

† Grid No. 1 to Grid No. 1 Signal

# With Grids Nos. 1, 2 & 3 tied together at socket

• With -60 Volts on Grid No. 3

● With Grid No. 3 Tied to Filament Supply Center Tap

‡ Effective plate-to-plate value

# How to put your finger on the right tube for SSB!

The *right* RCA Tube for your single-sideband amplifier is listed in this chart. For the power you want, simply read down the column on the right. For the corresponding RCA Tube type, read the column on the left. When you make your choice—let the Typical Operating Conditions be your guide.

Known for their big reserve of cathode emission,

RCA Tubes meet the requirements for single-sideband transmission—to the letter. And they have the power sensitivity it takes to build a signal up to full power in one stage—from low input signals. When you go SSB...any power from a few watts to the limit ...remember, you can do it better *with RCA Tubes*. They are available at your RCA Tube distributor.



**RADIO CORPORATION OF AMERICA**

Electron Tube Division

Harrison, N. J.

