

January 1958

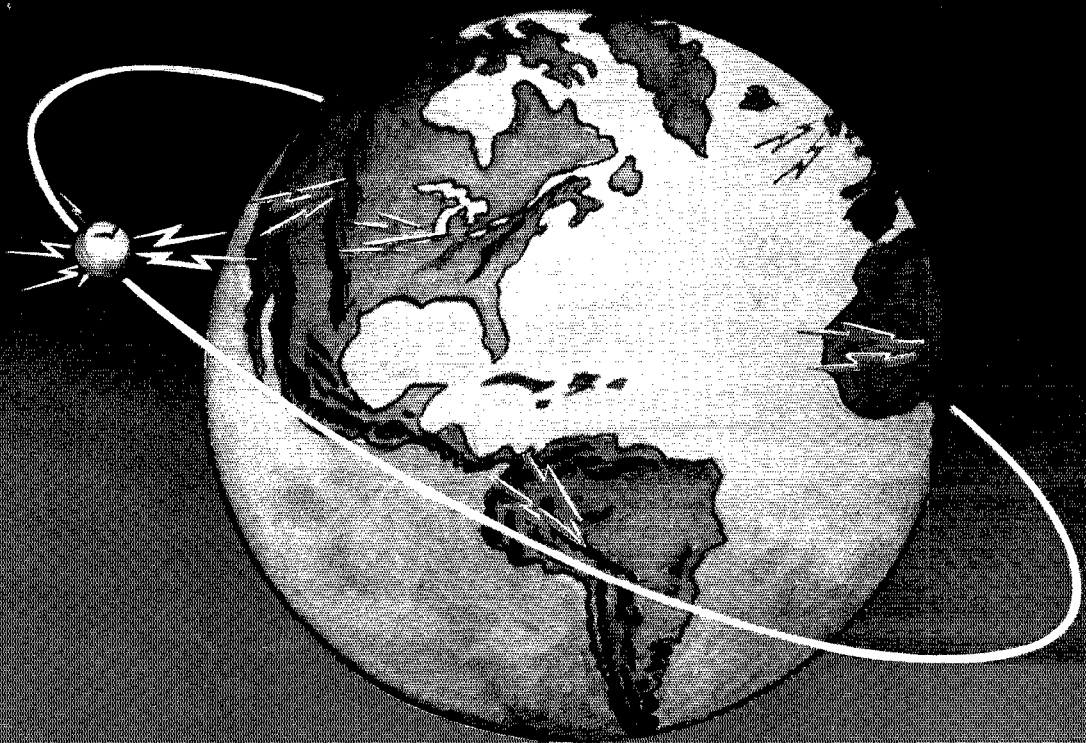
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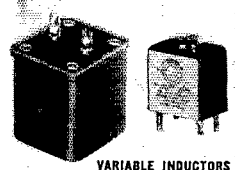
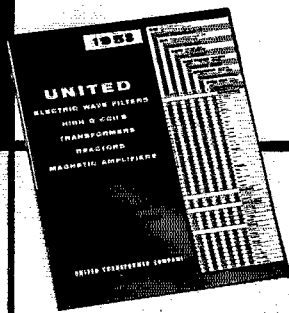
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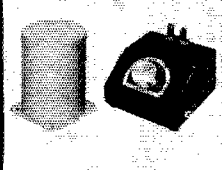
amateur radio



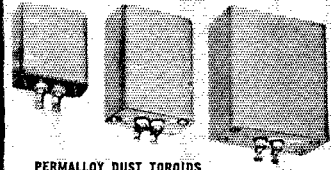
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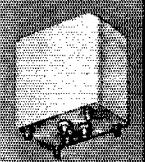


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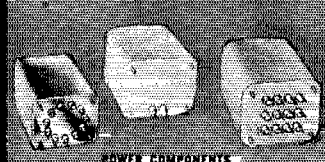
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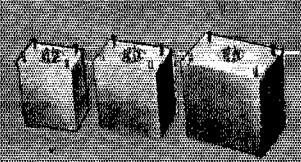
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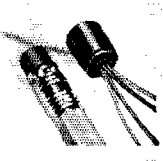
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For every application



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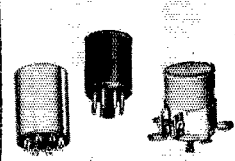
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Transistor transformers .1 oz.
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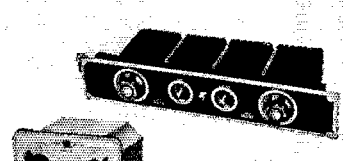
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Wound Core, MIL-T-27A



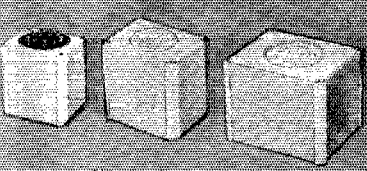
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Audio and Transistor



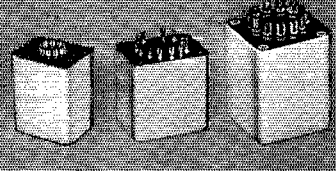
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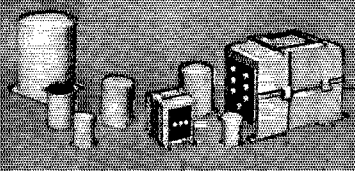
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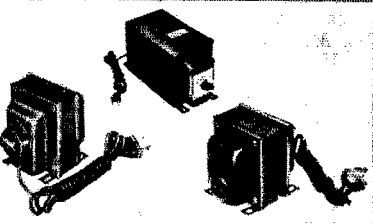
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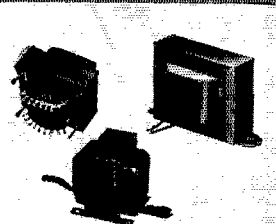
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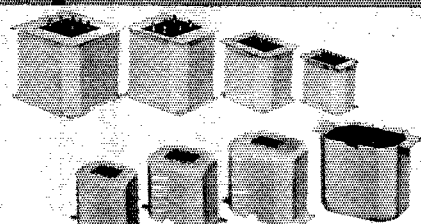
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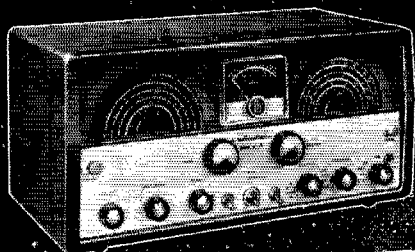
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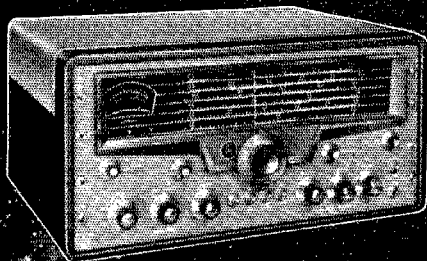
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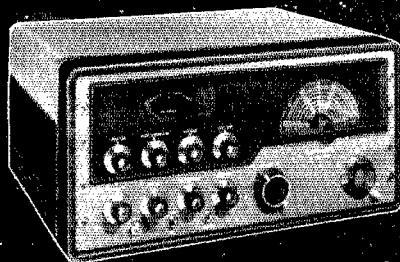
**MODEL
SX-99**



**MODEL
SX-100**



**MODEL
SX-101**



**MODEL
HT-32**



**MODEL
HT-33**

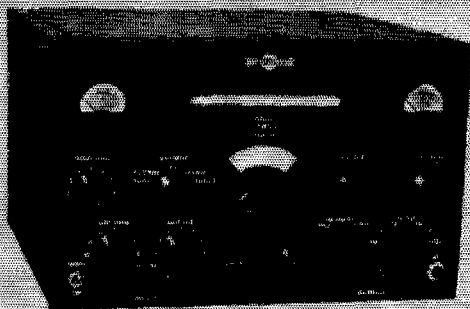
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CREATIVE LEADER IN COMMUNICATION

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

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Subscription rate in United States and Possessions, \$1.00 per year, postpaid; \$4.25 in the Dominion of Canada, \$5.00 in all other countries. Single copies, 50 cents. Foreign remittances should be by international postal or express money order or bank draft negotiable in the U. S. and for an equivalent amount in U. S. funds.

Entered as second-class matter May 29, 1919, at the post office at Hartford, Connecticut, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1102 Act of October 3, 1917, authorized September 9, 1922. Additional entry at Concord, N. H., authorized February 21, 1929, under the Act of February 28, 1925.

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—CONTENTS—

TECHNICAL —

VXO — A Variable Crystal Oscillator	
<i>Herman Shall, W3BWK</i>	11
Adjustable 4-Element 10-Meter Beam	
<i>J. H. Kuranz, W9CWK</i>	16
A Safe Method for Etching Crystals	
<i>A. J. Newland, W2IHW</i>	20
Some Experiences with "Cheap and Easy S.S.B."	
<i>M. R. Gutman, W2VL</i>	22
The "Tee-Pee".....	<i>Robert Bunce, K0DBG</i> 23
The "Matchtone".....	<i>William S. Grenfell, W4GF</i> 26
Using the Dynamic Microphone.	<i>W. F. Soules, W8HCW</i> 30
Low-Distortion Modulator for Clipped Speech	
<i>Thomas E. Beling, W9AEI</i>	31
Technical Correspondence:	
October Quist Quiz.....	<i>R. K. Hobbie, W1RHU</i> 35
Regeneration in the Filter-Clipper	
<i>L. D. Hagenbook, jr.</i>	35
Recent Equipment:	
The National NC-109 Receiver.....	36
Transistorized Q Multiplier..	<i>E. L. Campbell, W1CUT</i> 38
Scientific Telemetry for USNC-IGY	
<i>Whitney Matthews and G. H. Ludwig</i>	41

MOBILE—

Three-Phase Power Supply for Mobile Use	
<i>Jo Emmett Jennings, W6EI</i>	28

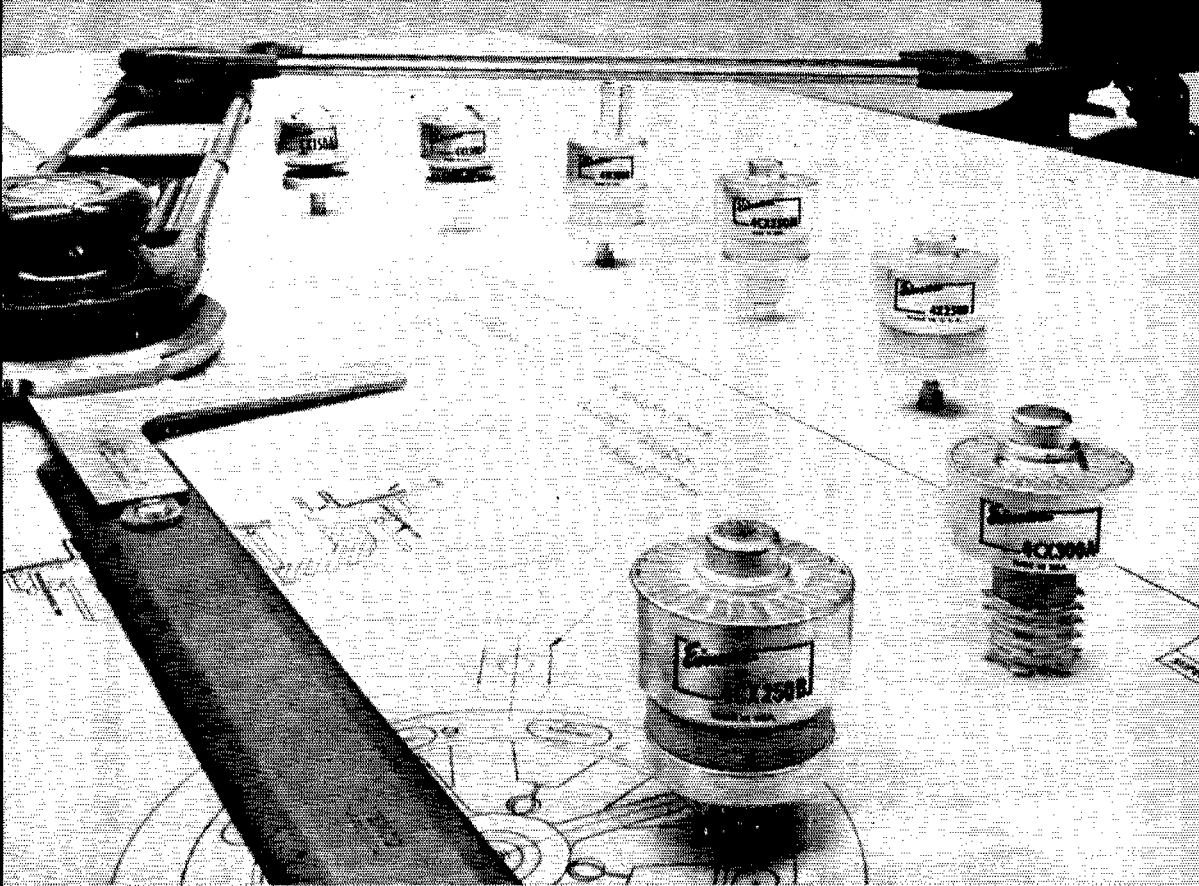
OPERATING —

Novice Roundup Announcement.....	51
ARRL International DX Competition Announcement...	76
ARRL Countries List.....	70

GENERAL —

Occurrence in Alpha Sub I..	<i>Wilbert Hilbrink, W8KKQ</i> 47
From Somera to Samoa.....	<i>Ted Henry, W6UOU</i> 54
Want a Moon QSL?.....	56

"It Seems to Us...".....	9	The World Above 50 Mc.....	68
In QST 25 Years Ago.....	10	How's DX.....	71
Our Cover.....	10	Correspondence From Members	80
Silent Keys.....	34	Quist Quiz.....	79
Hints & Kinks.....	52	Operating News.....	81
Happenings of the Month.....	57	With the AREC.....	83
YL News and Views.....	62	Station Activities.....	98



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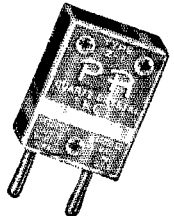
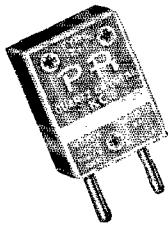
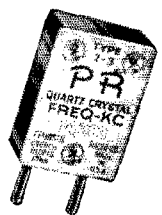
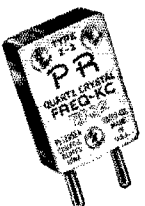
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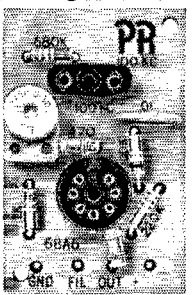
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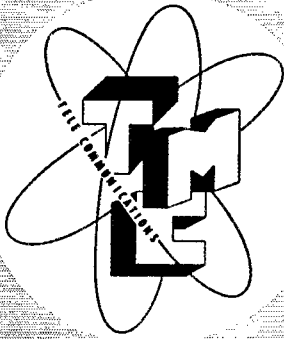
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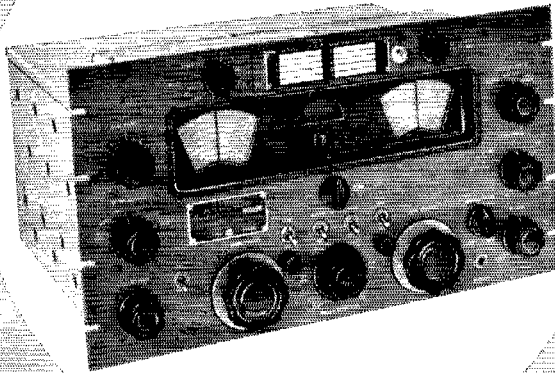


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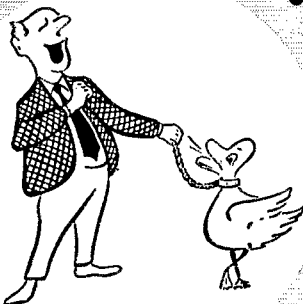
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- EXTERNAL HFO POSITION
- 100 KC CALIBRATION
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WRITE FOR
BULLETIN 205

The TECHNICAL MATERIEL CORPORATION

IN CANADA

TMC Canada Ltd., Ottawa, Ontario

Main Office: MAMARONECK

NEW YORK

THE AMERICAN RADIO RELAY LEAGUE, INC.,

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

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

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

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

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



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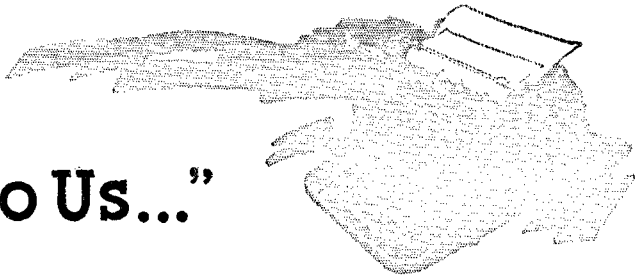
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"It Seems to Us..."



THE YEAR IN REVIEW

Every year about this time we sit down in front of the mill with a stack of copy paper and a pile of *QST*'s at hand, and attempt to fill a page or so with the worth-remembering events of the past twelve months. Sometimes it's quite a chore to find enough really outstanding items. This year, though, the review practically writes itself. For instance . . .

We won't forget the Sputniks in a hurry. Practically all the hams we know just *had* to have a try at listening for the revolving spheres, and most were successful. The newspapers quickly learned of this, and the result has been more favorable publicity for the amateur than any single event in recent times. We've stuffed two manila folders full of front-page clippings sent in by hams all over the country. Perhaps more important, the Naval Research Lab and other scientific groups have expressed their deep appreciation for the hundreds of reports received in the first few days, and credit amateurs with providing much of the raw material for early analysis.

Scientists also solicited amateur cooperation in tracking our own MOUSE. So that hams would be able to supplement the professionals' work in intercepting the U. S. satellite, NRL developed for *QST* a simplified version of its Minitrack system which could be constructed by radio clubs. *QST* also carried information on Microlock, another relatively-simple tracking device.

Stanford University's radio propagation lab invited amateurs in the southwest to help in "Operation Smokepuff," an attempt to create an artificial *E*-layer by release of nitric oxide gas from a rocket. The 600-plus hams taking part will try QSOs by bouncing signals off the man-made cloud.

Then, too, we won't soon forget the world's record on 144 Mc. racked up by KH6UK and WGNLZ on July 8th, after eight months of daily tests. This success is a perfect example of the amateur method at work — in theory, there wasn't a chance! The 2450-mile stretch splintered the previous record of 1400 miles, set in 1950, and was more than three times as far as any previous over-water work on the band. Tests have continued, and the feat was repeated on August 18th.

Less spectacular, but also a highly important

contribution to the art, is the work of more than 1200 amateurs in the ARRL-IGY Propagation Research Project. V.h.f. enthusiasts cooperating in the Air Force-sponsored study report all longer-than-normal QSO paths to a special office in Wethersfield, Conn., where W1VLIH and his staff evaluate the data and punch up IBM cards for later analysis by IGY scientists. The project is gathering info on transequatorial scatter, sporadic-*E* skip, and auroral and meteor scatter.

In other respects, too, this was a great year for amateur radio. DX conditions have seldom been better — the "daylight" bands have remained open late into the night, contest participation has broken all records with scores higher than ever, and WAC, WAS and DXCC claims choke administrative channels at Hq. in unprecedented numbers. There are more RCC and code-proficiency certificates leaving 38 LaSalle Road than ever before, and AREC participation is also increasing. The total number of amateurs surpassed 160,000 during the year.

Hams handled emergency traffic in the Kentucky floods, Hurricane Audrey, the Malibu fire, a bomber crash in New Brunswick, and sixty-two other major or minor emergencies reported in *QST* — drownings, fires, explosions, tornadoes, lost persons, blizzards, sleet storms and even a gas-line break.

Six meters went absolutely hog-wild late in the year, with openings practically all over the world, a number of WACs completed for the first time, and QRM as bad as 75-meter phone.

Chicago's reputation as a convention city was upheld and enhanced by the Ninth ARRL National Convention held there over Labor Day weekend. Twenty-five hundred hams captured the Palmer House for three days of rag-chewing, instruction, sight-seeing, exhibit-viewing and general fun. There were sideband meetings, novice programs, DX gatherings, v.h.f. groups, traffic and emergency roundups and innumerable *ad hoc* discussions. Everything ran like clockwork, due to first-class planning by the Chicago Area Radio Club Council.

In 1957 several amateurs were honored for their outstanding achievements in our hobby. Mrs. Mae Burke, W3CUL, received the 1956

(Continued on next page)

Edison Award in recognition of her long service as a top-notch brass pounder, contributing to the morale of GIs through her message-handling. C. Newton Kraus, W1BCR, and Paul Blum, W2KCR, were presented with the Navy's Public Service Award for their Antarctic relaying in support of Operation Deep Freeze. The 1956 ARRL Merit Award went to Fred H. Schnell, W4CF and ex-W9UZ, for his pioneering DX work.

On the regulatory side, FCC introduced a docket proposing to switch various citizens and industrial frequencies, and deleting amateur use of 11 meters in the process; the League filed strong opposition to the proposal. The Commission instituted two sweeping surveys of radio spectrum usage, the first covering frequencies above 890 Mc. and the second covering 25-890 Mc. In the latter study the League submitted a particularly extensive comment, reported in detail in "Happenings" this issue. FCC also proposed to relax notice requirements for amateur portable and mobile stations, and ARRL filed in support. The League's 1956 proposals to expand the 20-meter phone band, and to return to the 125-mile limit governing personal appearance for the amateur exam, went through internal FCC processes during the year but were not formally acted upon. One more nation — Korea — came off the ITU ban list, leaving just four countries U. S. amateurs can't work.

Precise figures are not yet available, but ARRL membership continued its rapid growth; the number of Full Members is well above 60,000. The healthy state of all phases of our hobby was responsible for the largest volume of *QST* ever — 2192 pages, 192 more than 1956 — an average of 183 pages per issue. December *QST* was the fattest ever, a whopping 224 pages. In August, *QST*'s general newsstand distribution was discontinued, the operation being much too small in comparison with costs involved.

... What did you say, Boss? I've run out of space? But shucks, there's lots more ...

Anyway, 1957 was a fine year for ham radio, and here's wishing you another, from the entire Hq. staff.

NEW MAILING GEAR

The rapid growth of your League — e.g., Full Membership has doubled in the past seven years — has brought its share of administrative headaches to 38 LaSalle Road, particularly in the fields of record-keeping and mechanization of office procedures. Our latest acquisition, to keep step with ARRL growth, is a completely new set of automatic addressing machinery and mailing plates. Henceforth, a member's record will be keyed not only for class of membership and expiration date, but also for the ARRL division in which he resides. More important, electronic sorting and selection should add to the process not only increased speed, but 100% accuracy to avoid the occasional error which occurred in our former mechanical selection system.

This issue of *QST* is the first to be addressed with the new equipment. The job of converting

approximately 100,000 mailing plates from one system to another is a tremendous one, and in the transition period there may be a few things go awry. If it should happen to you, bear with us; right now the new machines are probably smarter than we are, but we hope it won't take long to reverse that condition.

One of the essentials of the new system is that records are filed geographically, with no alphabetical cross-index. When writing us concerning your membership, therefore, it is important to show your complete and correct address. This is particularly true of many individuals who write us from, for example, a business address while their membership record is at a home address in another city.



January, 1933

... The editorial twenty-five years ago was written by one A.L.B. and had to do with the great influx of new amateur radio operators — the FCC had announced that as of June, 1932, there were over 30,000 amateurs. There had been predictions of utter bedlam on the bands, and that amateur radio was headed for the skids because the interference would drive amateurs away from the hobby. But A.L.B. predicted that technical improvements would solve the interference problem, that the amateurs would spread out to unused portions of the band, and that amateur radio would continue to flourish. (He was right!)

... In a special message Hiram Percy Maxim reported that Warner and Segal had been successful at the Madrid conference and that all amateur bands and operating privileges had been retained.

... Technical articles included descriptions of a three-tube regenerative receiver, a complete portable station, and a frequency meter and monitor; there was more information on modifying the screen-grid amplifier and dope on tunable hum. And, of course, the ever-present pages of hints and kinks.

... There was a summary of amateur emergency work during the past year, and a report on amateur observations during the total eclipse of the sun.

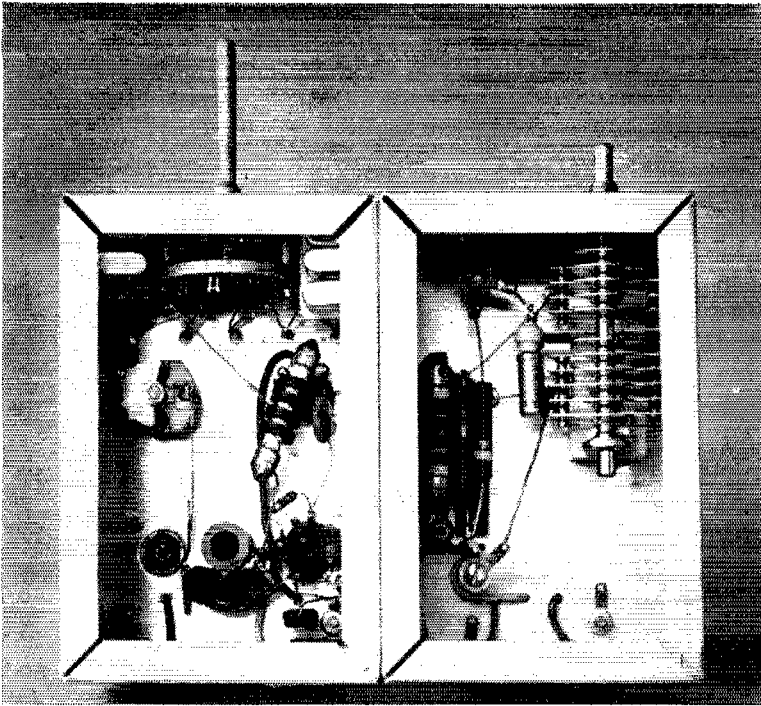
... "Whistling in the Dark" was the catchy heading of a circuit breaker advertised by the Don H. Mix & Co. concern, of Bristol, Conn.

... In the IARU News section there was interest expressed in the approaching sun-spot minimum, bringing with it better DX conditions on the lower frequencies and poorer conditions on the higher frequencies.

... Hah! In the Communications Department section there was a discussion of "the good old days" of ham radio!

OUR COVER

As we write this in early December interest continues high on the subject of satellites, a condition that will probably exist through much of 1958. In fact, we have just been listening to late news reports on the imminent launching of the first U. S. satellite. Our cover this month symbolizes the extended satellite activity that will take place during 1958. And, should there be any question in your mind of which satellite we're picturing, just kindly note the angle.



Below-chassis view of the fixed oscillator and mixer chassis (left) and variable crystal oscillator (right). The series coil has been removed from the latter in order to show the other circuit components. The coil mounts between the two ceramic pillars at the left, top and bottom, in this view.

VXO—A Variable Crystal Oscillator

CRYSTAL OSCILLATORS are so stable that the poorest of crystals is usually more stable than most self-excited oscillators. Our efforts to change the frequency of crystal oscillators usually end in dismal failure. Conversely, self-excited oscillators are comparatively unstable, and heroic efforts to improve stability sometimes end just as dismally.

We thought it would be delightful to be able to combine the flexibility of a v.f.o. with rock-bound stability of the crystal oscillator. What follows is the record of such an attempt and what we think is the acceptable resulting compromise.

Fig. 1 shows a greatly expanded crystal impedance curve near its resonance points. The series-resonant frequency is f_s and is the frequency of lowest impedance, while f_a is the parallel or anti-resonant frequency. (The points of highest and lowest impedance are not neces-

500-Kc. Continuous Range with All Crystal Control

BY HERMAN SHALL,* W3BWK

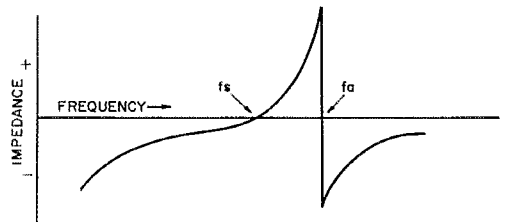


Fig. 1—Typical impedance-vs.-frequency curve of a quartz crystal. The parallel or anti-resonant frequency, f_a , always is higher than the series-resonant frequency, f_s .

Although it isn't unusual to claim "crystal stability" for a variable-frequency oscillator, here's a circuit that reverses the process—it uses crystal control to cover a continuous range usually associated only with self-controlled oscillators. Six crystals cover 3500 to 4000 kc.

sarily the exact parallel- and series-resonant points.)

The series-resonant frequency is fairly well fixed and is normally unaffected by circuit values. It is the resonant point used in the crystal filter in your receiver. The anti-resonant frequency can be made to wander around a bit.

*Hupp Electronics Company, Carlisle, Penna.

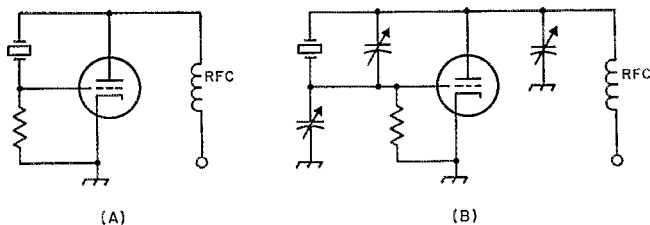


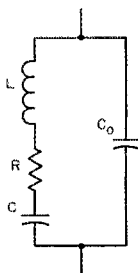
Fig. 2 — Pierce oscillator circuit (A) and modifications (B) for changing the oscillation frequency over a limited range

This is the variable high-impedance rejection notch of your receiver crystal filter.

The anti-resonant frequency can be adjusted to any value between f_s and f_a , but the maximum difference is limited by the type of crystal cut. In the "A" cut type of crystal used here, the maximum theoretical shift is approximately the crystal frequency divided by 500. Only about one third to one half of this shift can be realized in practice with routine methods.

Fig. 2A shows a simple triode Pierce oscillator that utilizes the crystal's anti-resonant frequency. Fig. 2B is the same circuit with variable capacitors placed where they can affect frequency. These capacitors can be varied individually or collectively to shift the crystal frequency from f_a to f_s , where oscillation will cease. Since the limits of frequency shift are f_s and f_a , raising f_a or lowering f_s appear to be the only solutions to increasing the frequency range. Raising f_a is very difficult but lowering f_s is easy.

Fig. 3 illustrates a simplified equivalent circuit of a crystal. In relation to normal tuned circuits,



$f = 20,125.5$ kc.
 $L = 11.7$ mh.
 $R = 7$ ohms
 $C = 0.033$ μ mf.
 $C_0 = 7.2$ μ mf.

Fig. 3 — Lumped-constant equivalent circuit of a crystal. At the right are listed the electrical constants of the crystal used in the variable-frequency circuit of Fig. 5.

L is extremely large, C is extremely small and C_0 is a value around 5 to 10 μ mf. for plated crystals. The measured values of the key crystal in the unit shown later are given in the figure.

Adding series inductance to a crystal, Fig. 4A, adds to the total equivalent circuit inductance, Fig. 4B, and lowers the series-resonant frequency a marked amount.

The Circuit

Fig. 5 combines Figs. 2 and 4A in a practical circuit for the results we would like to achieve. It consists of (1) a tunable crystal oscillator covering approximately 19,995 to 20,105 kc., (2) a semi-fixed crystal oscillator with five crystals, at 16.5, 16.4, 16.3, 16.2 and 16.1 Mc.,

and (3) a mixer which gives output in the 3.5- to 4-Mc. range by heterodyning the above frequencies. The virtues of beat-frequency v.f.o.'s have been pointed out in the past. To get adequate shift a high frequency is dictated, which also has the advantage of starting with frequencies too high to create annoying birdies. In this

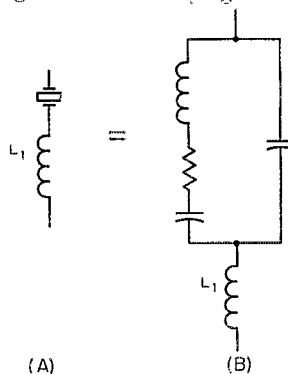


Fig. 4 — The addition of a coil, L_1 , in series with a crystal lowers its series-resonant frequency, the equivalent circuit being that shown at the right.

circuit the frequency of oscillation is always below the old series-resonant point.

The model shown is simplified for 3.5 — 4.0-Mc. output only. However, a more complete unit has been built for direct heterodyned output in the 7- and 14-Mc. bands, by switching additional crystals in the "fixed" oscillator (13.0, 12.9 and 12.8 Mc. for 40 meters and 6.0, 5.9 and 5.8 for 20 meters) and additional coils in the mixer.

Direct heterodyning as used here has another advantage. Since the drift in cycles is absolute and not a fixed percentage of the output frequency, the relative stability improves as the output frequency increases.

C_1 is a dual capacitor that provides both variable grid and variable plate loading simultaneously. It serves as the main tuning control, shifting the crystal frequency from some new low value of f_s to a new lower value of f_s .

Increasing L_1 lowers the frequency of the crystal's original f_s and increases the tuning range of C_1 . L_1 is chosen and adjusted to make C_1 tune through a frequency change of 110-120 kc. With the crystal and capacitor used in this unit it is possible to achieve tuning ranges of 400-500 kc. by making L_1 larger.

There is something very, very sad about this whole business of using series inductance — we don't get something for nothing! The coil is

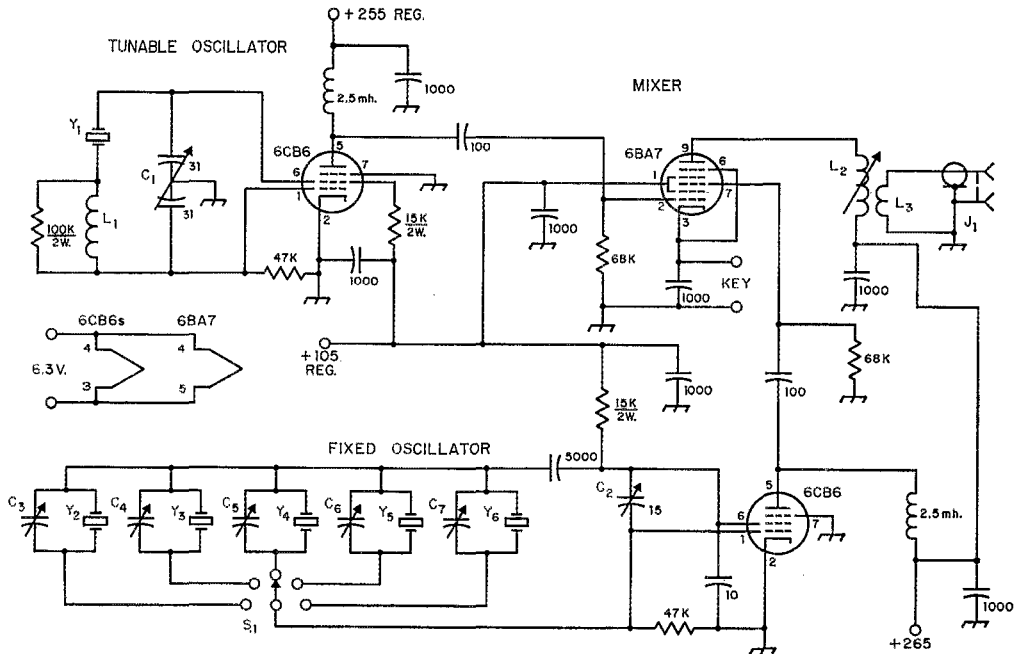


Fig. 5 — The basic VFO circuit, for output on 3.5-4.0 Mc. Unless otherwise indicated, capacitances are in $\mu\text{mf.}$, resistances are in ohms, resistors are $\frac{1}{2}$ watt. Fixed capacitors are ceramic.

- C_1 — 31- $\mu\text{mf.}$ per section (Hammarlund MCD35SX).
 C_2 — 15- $\mu\text{mf.}$ air padder.
 C_3 - C_7 inc. — 1.5-7- $\mu\text{mf.}$ ceramic padder, zero temp. coeff.
 J_1 — Coax receptacle, chassis mounting.
 L_1, L_2 — See text. L_2 wound on National XR-50 form, $\frac{1}{2}$ -inch diam., slug-tuned.
 L_3 — 13 turns insulated wire wound over L_2 .

- S_1 — Ceramic rotary, 5 positions needed.
 Y_1 — 20,125.5 kc.; see text (Hupp 2001-200-201).
 Y_2 — 16.5 Mc. (Hupp 2001-35-36).
 Y_3 — 16.4 Mc. (Hupp 2001-36-37).
 Y_4 — 16.3 Mc. (Hupp 2001-37-38).
 Y_5 — 16.2 Mc. (Hupp 2001-38-39).
 Y_6 — 16.1 Mc. (Hupp 2001-39-40).

now a major frequency-determining component and its stability has a lot to do with the over-all stability. The same rules that apply to coils for v.f.o.'s apply to coils for VFOs.

The simplest readily available coil was used here to illustrate a principle and permit ease of duplication. A better coil design, from the standpoint of temperature stability, is necessary if more of the advantages of crystal stability are to be gained from this rig.

The 100K resistor shunting L_1 suppresses the parasitic oscillations resonated by C_1L_1 .

Y_1 is the key crystal of the VFO. The performance has been built around its equivalent-circuit values. If the unit is to be duplicated, a crystal of the same parameters must be specified — ordering by frequency and input capacitance are not enough. However, values of L and C within 5% should be adequate. Y_2 to Y_6 are straightforward anti-resonant crystals with enough circuit padding to insure their being set to frequency.

The functions of the remainder of the components are normal.

Regulated voltages are required where indicated, and any suitably filtered power supply is a satisfactory source.

The two crystal oscillators run continuously but there is no output in any ham bands until

the cathode of the mixer is keyed. Provisions are made in the complete unit for "zeroing in" by closing the mixer cathode circuit without keying the balance of the transmitter.

Construction

The basic VFO is built on two $4 \times 6 \times 3$ -inch aluminum chassis bolted together. The photographs show the external construction along with the power supply and a modified version of the calibrator described in July 1957 *QST*.¹

The left-hand shaft on the two-chassis assembly is the crystal switch for the "fixed" crystals. The right-hand shaft is the tuning capacitor, C_1 . It has been offset 1 inch to the right of the chassis center to make room for the National Type ACN dial. A "left hand" parts arrangement will place the shafts 3 inches center-to-center instead of 5 inches.

The bottom view was taken with the coil L_1 removed to permit seeing the parts layout. It is suggested that the parts configuration and the same chassis, coil and tuning capacitor be used if the tuning range is to be duplicated.

The tuning capacitor has a pin in the shaft which limits its rotation to only 180 degrees. If you like to tune clockwise to increase fre-

¹ Campbell, "A Saw-Tooth Crystal Calibrator," *QST*, July, 1957.

quency, it will be necessary to remove the pin and either place it on the other side of the shaft or just throw it away.

The crystals in the VXO are shown in sockets which were used to make the experimental work easier. It is entirely satisfactory to solder the crystals in place without sockets.

L_1 should be started with 33 turns of B & W 3011 which has 16 turns per inch, $\frac{3}{4}$ -inch diameter (approximately 6.5 μ h.). Break one turn free at each end from just two of the plastic strips and bend half the turn to a horizontal position. Mount between the two 1-inch stand-off insulators visible in the bottom view. Follow the alignment procedure for final adjustment.

L_2 was close-wound with 95 turns of No. 32 on a National XR-50 form. At about 75 turns it became necessary to start another layer. When coupled to the load (the ex-crystal oscillator of the transmitter) turns had to be removed to achieve resonance. We suggest you start with about 95 turns and tailor both L_2 and L_3 to your own load conditions.

The bottom plate of the 20-Mc. oscillator (not shown) is important because it lowers the inductance of L_1 and should be securely replaced when checking the effect of any adjustment.

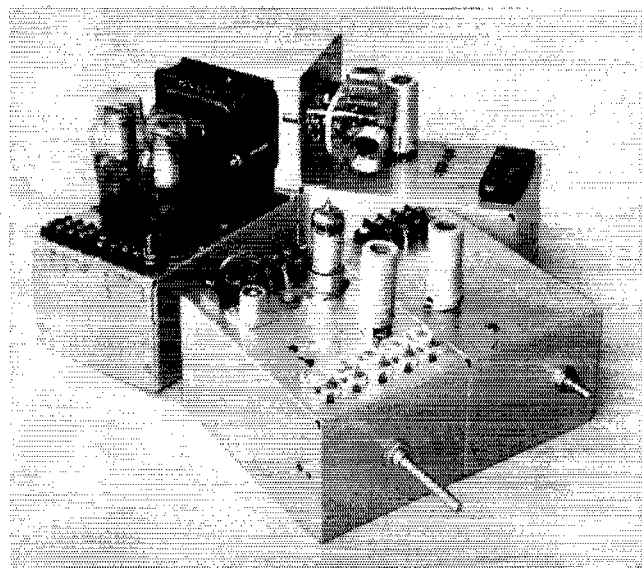
The basic unit was designed to be made a part of an existing piece of gear as well as to be a self-contained VXO. In the panel view, only the VXO band switch and the center tuning knob are part of the basic unit. The "a.c." switch is for the power supply and the "keying" switch connects the mixer cathode to either the transmitter cathodes or ground. The four controls to the right of the dial are for the calibrator described in July *QST*. A 1000-kc. crystal has been added. The calibrator crystals are not visible in the photo of the four chassis, having been placed below the chassis to remove them as far as possible from the direct heat of the tube.

Alignment

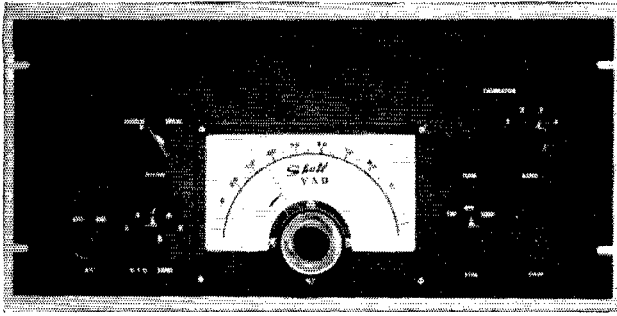
The alignment is simple, although it looks lengthy.

- 1) Couple your receiver to the fixed oscillator.
- 2) Locate 16.5 Mc. with a calibrator.
- 3) Set the NPO capacitors to half capacitance.
- 4) Switch the 16.5-Mc. crystal into the circuit and adjust C_2 to bring crystal to zero beat with the calibrator.
- 5) Adjust the other four crystals to frequency using the NPO capacitors only.
- 6) There is an interaction between these controls as a result of saving a switch wafer, so run back through and retrim.
- 7) Switch to the 16.3-Mc. crystal (3700-3800 range).
- 8) Couple the receiver to the mixer.
- 9) Locate the VXO signal in the receiver and check the tuning range of C_1 .
- 10) Now start trimming L_1 until 3700 kc. falls close to one end of the dial and 3800 kc. is close to the opposite end. Replace the bottom plate after each adjustment or you may end up wanting to replace a quarter turn on the coil. It is not likely that you will finish the alignment with the overlaps symmetrical, so don't waste time trying to do this.
- 11) Set the VXO to 3750 kc. and adjust L_2L_3 for maximum output.
- 12) Age the unit for a day. Turn off and cool for several hours. Turn on for $1\frac{1}{2}$ hours and calibrate to suit your fancy.

You now have an excellent variable-frequency source. The VXO does have some drift but for the fellow who has little time for operating, being able to use an equipment immediately upon turning the switch is a godsend. If the power supply is kept away from the VXO, the unit can perform acceptably for a.m. and c.w. within one or two minutes of flicking the switch. For



The two chassis shown in the foreground constitute the basic VXO (the other two are for the power supply and crystal calibrator). The selectable fixed-frequency oscillator and mixer are on the nearer chassis. The one at the right contains the crystal oscillator that can be varied over a 100-kc. range.



The rack-mounted unit at W3BWK includes a power supply and calibrator in addition to the basic variable crystal oscillator described in the article. Only the band switch and tuning dial are essential parts of the VXO.

the first quarter hour it stays within 100 cycles of its 2-minute starting point. It then drifts negative in smoothly decreasing amounts for another 300-400 cycles, stabilizing in 1½ hours.

If the VXO is included with heat-generating equipment, drift will be more rapid but stabilization should occur sooner. The friction drive of the type ACN dial tends to set up strains which ease off after each resetting and shift the frequency 15-30 cycles.

All stability checks were made with a Hewlett-Packard counter on which each cycle change could be observed immediately. The stability checks are not of the "no noticeable drift"

variety even though the initial drift is not noticeable.

With some sacrifice in flexibility and with the addition of more crystals the VXO shifting can be done entirely with capacitors. Crystals can be selected to compensate for drift in capacitor values, effectively reducing frequency drift to a few cycles irrespective of temperature.

From the foregoing it should be pretty clear that it is the using circuit that helps determine a crystal's frequency. We hope you will use an accurate frequency-checking system when you play "footsie" with the band edges with either v.f.o., VXO or plain crystal!

Strays

Are you an engineer? If you're having trouble trying to decide, or if you wonder whether you should become one, you might compare yourself with the following definition: "An engineer is one who passes as an exacting expert on the strength of being able to turn out, with prolific fortitude, strings of incomprehensible formulae calculated with micrometric precision from extremely vague assumptions which are based on debatable figures acquired from inconclusive tests and quite incomplete experiments, carried out with instruments of problematic accuracy by persons of doubtful reliability and rather dubious mentality with the particular anticipation of disconcerting and annoying everyone outside of their own fraternity."

— . . . —

The latest claimant for the long-winded c.w. QSO record is W8VYU (with W8DNC) at four hours and thirty-five minutes.

Hey, Novices! Wanna see what an old-timer looks like? Well, here's WØRX. You can tell he's an old-timer by the two-letter call. Of course, not all old-timers go around with such handsome beards and period costumes—it just happens that WØRX won a beard-growing contest which was run in connection with the 75th anniversary of Grand Junction, Colorado.

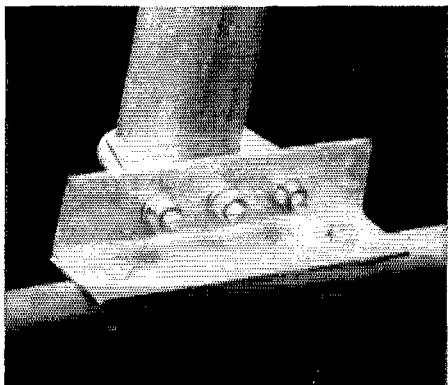
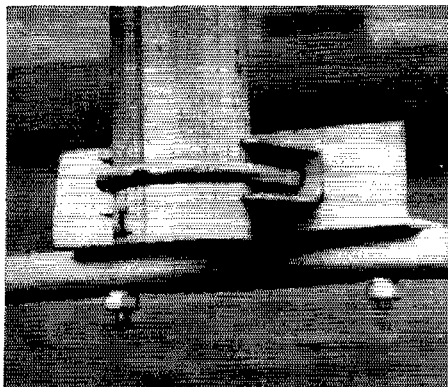


Adjustable 4-Element 10-Meter Beam

Twenty-Five Pounds of Beam for 25 Dollars

BY JOSEPH H. KURANZ,* W9CWK

Many beam antennas you read about look simple to construct until you find that the writer "just happened to have" a few hard-to-get items. Not so with the beam of W9CWK. He tells you what you need and where to get it, and none of the components are hard to find. You don't have to build a beam as large as this one, but you can certainly get some ideas from its construction.



FOR those who still prefer a full-size, single-band rotary antenna in which some of the latest (streamlined) construction practices are incorporated, the beam to be described may be the answer. This antenna was not conceived entirely by the author, since many excellent references¹ were used throughout the design and building stages.

What does this beam offer? First of all, many beams look unfinished, but not this one. It could pass as a commercial job in the best of company. Don't worry about its trade-in value; even the best commercial beam antennas fare poorly in that department. Only readily-available standard parts and materials were used, resulting in a beam with no extra material left over to clutter up ye old junk box. The element length and spacing can be readily adjusted to any desired or favorite combination with a minimum of time and effort. If you are short of funds, use only two or three elements at first and add the others later. The footnote references¹ offer many element spacing and length combinations that would work fine. Several hams or a radio club can combine their resources and purchase enough material to build several beams, thereby further reducing the already modest price of 25 to 30 dollars.

The beam is simple to build. The itemized list of material in Table I is for your convenience and ready reference. Suitable substitutions may be made, but do not reduce the wall thickness of

* 418 East Wabash Ave., Waukesha, Wis.
¹ E.g., Orr, *Beam Antenna Handbook*, Radio Publications, Inc., Wilton, Conn.; and *The A.R.R.L. Antenna Book*.

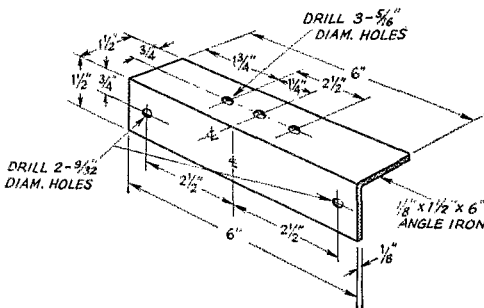


Fig. 1—Four angle-iron brackets are used with Sears Roebuck No. 8493-5 muffer clamps to hold the elements to the boom.

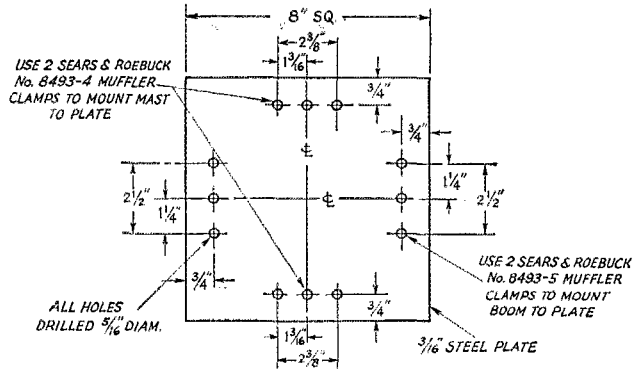
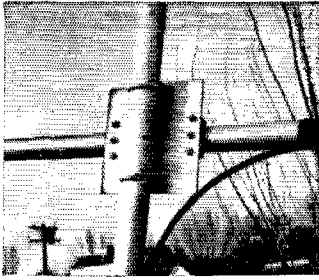


Fig. 2—A steel plate is used to tie the 2-inch diameter boom to the 1/2-inch inside diameter galvanized iron pipe mast. Sears Roebuck No. 8493-5 and 8493-4 muffer clamps hold the boom and the mast.

the aluminum tubing elements below that indicated. The prices are given only as a guide. They may run more or less, depending upon one's shopping abilities.

While very desirable, cadmium plating is not a necessity. However, if plating is decided upon, make sure that all the items are plated except the aluminum elements and the boom. Include the nuts, bolts, washers and miscellaneous items. If plating is not feasible, the beam should be weather protected in some other approved manner.¹

Nothing has to be done with the 20-foot boom; it is ready for use as purchased. The two 3/4-inch diameter by 12-foot long and the four 5/8-inch diameter by 12-foot long lengths of aluminum tubing should all be cut into six-foot lengths. This can be done simply with a hack saw. However, a neater-looking job will result if a pipe cutter is used.

Next cut four 1 1/2 X 1 1/2 X 6-inch long angle iron brackets and drill as shown in Fig. 1. After these brackets have been plated, they will be used between the antenna elements and the boom. After the two 9/32-inch diameter holes are drilled in the brackets, the 3/4-inch diameter aluminum elements can be temporarily clamped on the bracket with C clamps and the two matching holes drilled through the elements. Care should be exercised to assure correct alignment and centering of the element before drilling. Each element should be drilled in this way for its corresponding bracket, to insure easy assembly later on.

The mast-to-boom mounting plate shown in Fig. 2 can be fabricated next. If possible, obtain the 3/16-inch thick 8-inch square steel plate cut to size and ready to use. Most welding shops have shears available and will do this for a nominal fee. The cost to the writer was only 75 cents. Drilling the holes will probably prove the toughest job, although if a drill press is available there isn't much to it. A small hole shooter or hand drill can be used, but it will require a little elbow grease. In either case lay out and drill the holes as accurately as possible, using the dimensions given in Fig. 2.

Feeding the Antenna

Several methods of feeding the antenna are available. You may use your favorite combination and the results should prove satisfactory provided, of course, that the tuning is done properly. I used a T-match and coaxial half-wave balun because it provides a perfect transition for unbalanced (coaxial) feed. An efficient but somewhat less balanced method of feed is the gamma match, which does not require a balun and hence has a simpler terminal arrangement. The T match is simple to construct, and by following the suggestions in Fig. 3 you will

TABLE I
List of Materials

6 Muffer clamps, Sears-Roebuck No. 8493-5.....	\$1.20
2 Muffer clamps, Sears-Roebuck No. 8493-4.....	.40
1 3/8 X 8 X 8-inch steel mounting plate....	.75
4 1/2-inch thick 1 1/2 by 1 1/2-inch angle iron, 6 inches long.....	1.00
1 2-inch diam. aluminum irrigation pipe, 20 feet long (Sears-Roebuck).....	6.00
2 3/4-inch diam. 6061-T6 seamless aluminum tubing, 12 feet long, 0.058-inch wall..	5.78
4 5/8-inch diam. 6061-T6 seamless aluminum tubing, 12 feet long, 0.058-inch wall..	10.36
1 1/4-inch diam. aluminum tubing, 6 feet long (gas or refrigeration company).....	
3 Coaxial cable receptacle, SO-239 (surplus).....	1.20
2 Adjusta stand-off TV line insulators....	.22
1 1/4 X 2 X 5/2-inch phenolic sheet.....	
12 4-40 r.h. machine screws, 5/8 inch long, nuts, lock washers.....	
5 6-32 r.h. machine screws, 5/8 inch long, nuts, lock washers.....	
8 5/8 bolts 3/4 long, nuts, lock washers.....	
11 1/4 bolts 1 1/4 long, nuts, lock washers....	
8 3/8 bolts 1 1/4 long, nuts, lock washers	
Cadmium plating (price is usually based on some minimum poundage, as 35 pounds for \$2-\$3).....	\$25 to \$30

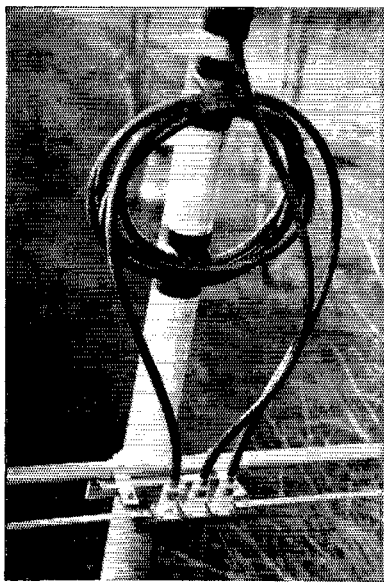
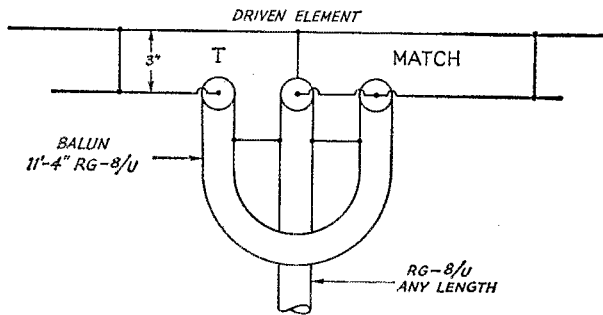
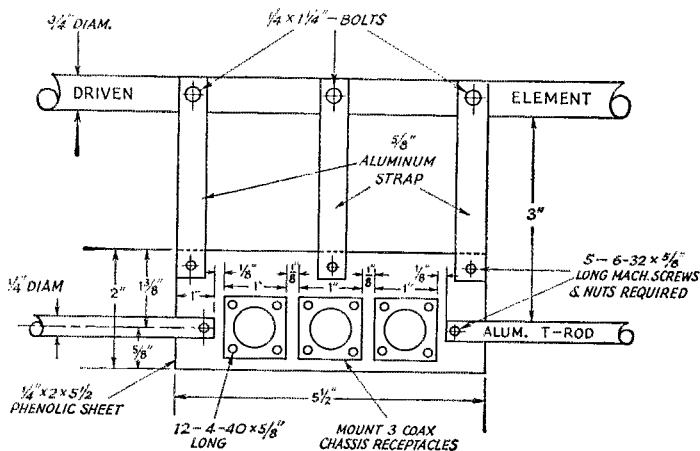


Fig. 3—Detail of the coaxial-line termination board and T-match support. The balun of RG-8/U cable is coiled and then fastened to the boom with tape



obtain a T match that will do the job. The aluminum straps that hold the plastic to the center element are made from some of the Reynolds "do-it-yourself" aluminum available through many hardware stores. The writer obtained his $\frac{1}{4}$ -inch diameter T-match tubing from the local gas company (no charge). While it came in a coil, it was easily straightened and presented no problems. If $\frac{1}{4}$ -inch diameter tubing is not available, $\frac{3}{8}$ -inch diameter can be substituted with no ill effects. In any case make

sure it is at least .058-inch wall thickness.

Straps are required to connect the T rods to the element. These are to be spaced approximately 27 inches each side of center and adjusted later for minimum s.w.r. The straps that hold the T-match rods to the driven element were made as shown in Fig. 5. The strap material was obtained from two "Adjusta" stand-off type mast insulators. These straps are fine for the purpose; they are $\frac{1}{2}$ inch wide and 0.012 inch thick, and they are covered with an anticorrosion coat.

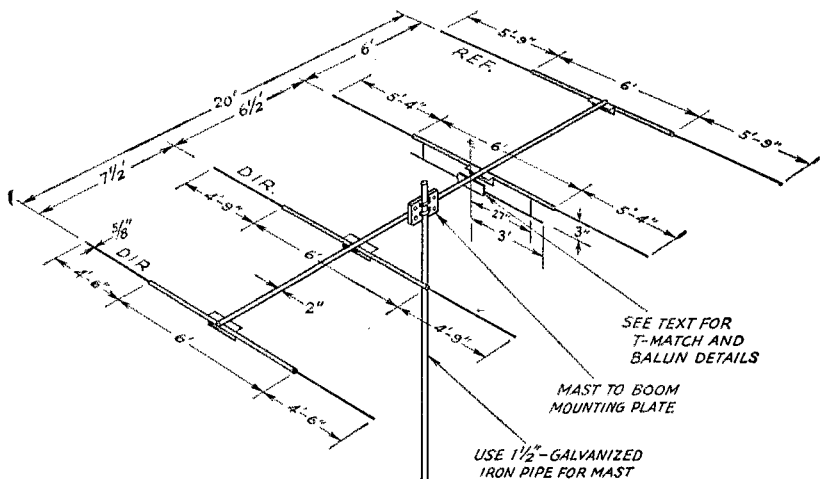


Fig. 4—Dimensions of the 4-element 10-meter beam.

Assembly

The $\frac{5}{8}$ -inch diameter elements are telescoped into the $\frac{3}{4}$ -inch diameter elements (indicated in Fig. 4), and then secured with a bolt. However, if you wish to have a more readily adjustable element, the $\frac{3}{4}$ -inch elements should be slotted on one end with a hack saw a distance of about 3 inches after which suitable size hose clamps can be used to secure the elements after telescoping them.

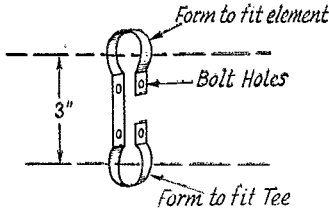


Fig. 5—The T-match sections are connected to the driven element by clamps made from the strap material taken from Adjusta TV stand-off mast insulators. The circular bends are made slightly smaller than the diameters of the element and T section, to insure a good connection.

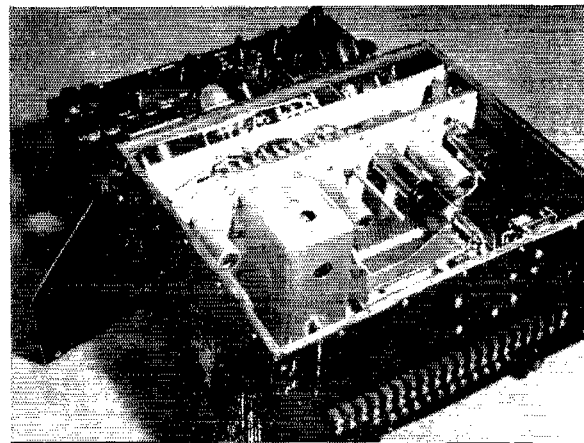
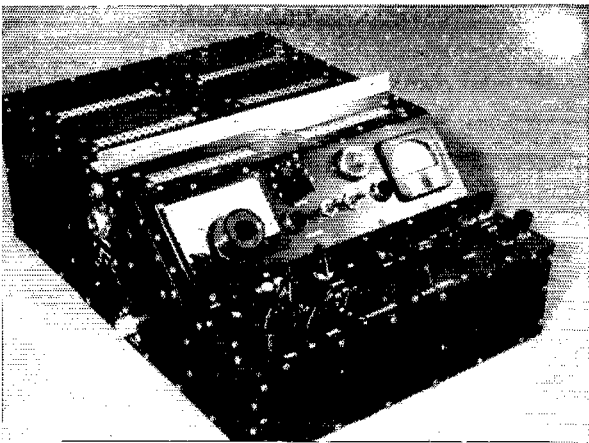
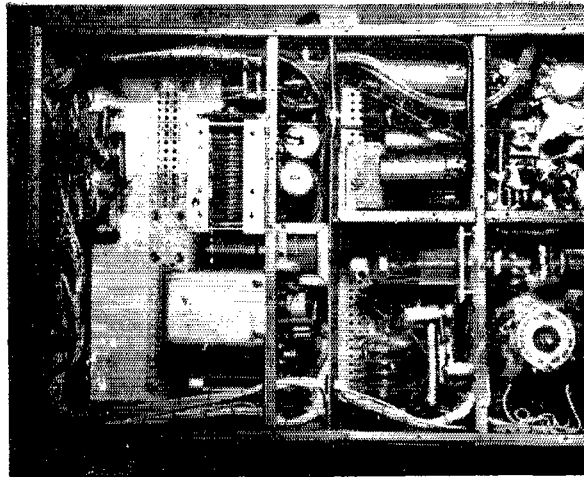
The beam can be assembled in about an hour or so and, of course, be taken apart and stored in similar time. Care must be exercised to obtain

proper alignment. Elements should be at right angles to the boom and the mast-to-boom mounting plate should be at right angles to the elements. This can be done accurately enough by simply using your eyes. As each element is clamped to the boom, align each succeeding one by raising one end of the boom and sighting down the boom. It is surprising how the smallest error will show up during this test. Use a recommended anti-seizure compound where the elements telescope together, in order to prevent corrosion and poor electrical bond. Use nothing less than type 6061-T6 aluminum tubing with .058-inch wall thickness or structural failure due to metal fatigue may result. This beam has withstood winds up to 65 miles an hour as well as severe icing conditions with no ill effects.

How does the beam work? I am running 100 watts into this beam 50 feet above the ground while my very good friend and neighbor W9HAT is running 140 watts and a commercial 5-element beam 60 feet above the ground, yet during simultaneous checks with DX stations in different areas, our reports run about the same and some have even favored my signal. I think that's good enough. Try it, and I am sure you will agree that for 25 dollars this 25-pound 4-element beam is a bargain.

Strays

W2GZD designed this rig to be used as a driver for an amplifier which was trunk-mounted. The driver uses either a 2E26 or a 6146 in its output stage, and although the electrical circuits are pretty much routine, OM Potter has done a clever job of designing a good-looking rig that incorporates mechanical and electrical stability and which occupies a minimum of space. Designed for underdash mounting, the accompanying photos pretty well tell the story of the mechanical layout and construction. The cabinet is constructed of $\frac{1}{16}$ -inch sheet aluminum and held together with tapped $\frac{1}{4}$ -inch brass stock and 4-40 machine screws (two gross of them!). Detailed specifications are not given here, because anyone looking for constructional ideas would probably not want to duplicate this rig exactly.



A Safe Method for Etching Crystals

BY ALBERT J. NEWLAND,* W2IHW

Changing the Frequency of Those Low-Cost Surplus Rocks

EVEN AFTER more than ten years, the surplus market still has an abundant supply of crystals at very low prices. Many of them will not multiply into any amateur band, unfortunately, and those that do are so widely used that surplus-frequency QRM is a common complaint on the v.h.f. bands. This article describes a safe and almost effortless way of raising the frequency of the pressure-mounted type of crystal, such as those found in the popular FT-243 holders.

Crystals may be raised in frequency by grinding with a fine abrasive. Valve-grinding compound, jewelers' rouge and various scouring powders may be used, provided that the work is done on a completely flat surface. A piece of plate glass is often used. This method has some disadvantages, however, one of them being occasional loss of crystal activity. Acid etching is a more satisfactory method, but has been little used by amateurs because of the dangers inherent in the handling of the solutions needed. The method of handling the ammonium bifluoride described here is not only safe, but it is an accurate and easy way of putting your surplus crystals on frequencies you won't have to share with hundreds of others when the v.h.f. bands are open for long-distance work.

Equipment and Materials Needed

An oscillator for checking the activity of the crystals is very desirable, though it is by no means a necessity. The oscillator in the station transmitter will be usable for a frequency check, but if it has tunable circuits the setting of these will affect the grid current reading; consequently, it provides no accurate check on crystal activity. If the oscillator of Fig. 1 is used before etching

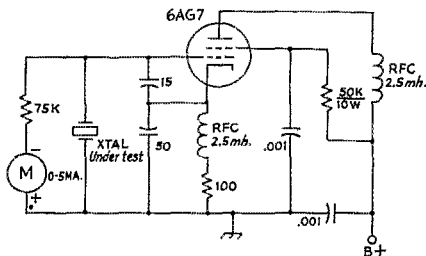


Fig. 1 — Crystal activity may be checked by connecting the crystal in a circuit that has no tunable elements and measuring the grid current developed. The oscillation frequency in this circuit may be somewhat different from that when the station transmitter is used, so the activity-checking frequency should not be relied on when band edges are involved.

• “Crystal control — what’s that?” the fellows who work only on the lower frequencies may well ask. But v.h.f. men still find crystals to be the safest and most satisfactory means of frequency control. What’s more, surplus crystals are cheap and plentiful. Here’s how to move yours off the popular bargain frequencies.

is done it will serve as a reference for judging future activity of the crystal. The frequency of oscillation is not necessarily the same as it will be when the crystal is used in the station transmitter, however, so the activity-checking oscillator should not be relied on completely if you are etching for a precise frequency.

Now we need a teaspoon of ammonium bifluoride salt and some special containers and tools for handling it and the crystals. When the solution is made it becomes dangerous to handle and requires special precautions. It attacks glass, as well as crystal quartz, so it must be used and stored in plastic containers, and handled with plastic tools. The ammonium bifluoride may be obtained from a chemical supply house, or in some cases from drugstores.

Safe methods for handling the solution and crystals are shown in Fig. 2. A small plastic con-

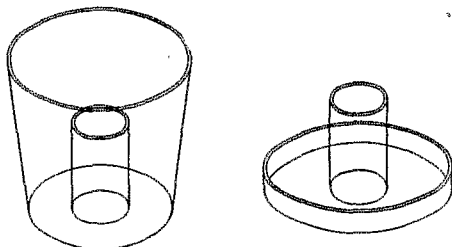


Fig. 2 — The two-container method for handling the etching solution. The small plastic container is cemented inside the larger, or to its cover, to prevent spilling.

tainer of the type used for pill dispensing in drugstores holds the solution. This container is cemented inside a larger one, which may be the sort often used for packaging various kinds of food. Use plastic cement or acetone. As an alternate method, the small container may be cemented inside the cover of the larger one, and the main part of the large container used as a cover. It can then also serve as a water dish, to

* 206 S. Highwood Ave., Glen Rock, N. J.

be used in the washing process. Either way we have a method that involves the use of only a very small amount of the solution, and provision for storing it in a way that will make spilling unlikely.¹

About one teaspoon of the ammonium bifluoride salt should be placed in the small container, which is then filled about three-quarters full with water. Let the solution stand, or stir it occasionally with a plastic rod, until the crystals are completely dissolved.

The crystals should be handled with plastic tweezers, which are probably available commercially, but we made our own as shown in Fig. 3.

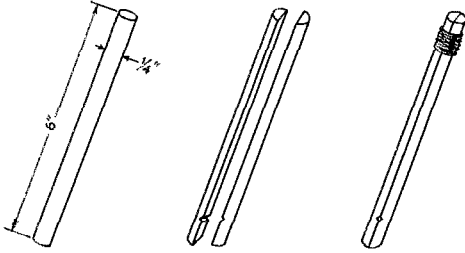


Fig. 3 — Plastic tweezers of the normally-closed type for handling the crystals may be made readily from plastic rod.

A plastic rod slit down the center will do very nicely. The tweezers will be the normally-closed type, tension being maintained by wrapping the top ends together with a rubber band. The inner surfaces should be filed to form a notch, and the crystal is held by the edges, inserted in this notch. Immersion of the crystal in the solution in the tweezers allows the solution to reach both surfaces equally and eliminates probing for the

¹ An alternative method is suggested by W8ZJY. He uses a container of such size that the crystals will not lie flat in it. He drills holes in the bottom of this container and uses it as a basket to immerse the crystals in the solution. The container and crystals are removed and inserted in water for washing. More solution is needed in this way, but some workers may prefer it to the tweezer method. — Ed.

crystal in the solution when you want to remove it.

A container of water for washing and a clean cloth for drying are also needed. Paper tissues may be used, provided that they are the plain untreated type. The final tools required are your receiver and some method of checking frequency accurately. Now let's go to work.

Etching and Checking

Select a crystal that will require a large change in frequency for the initial try. First check its activity and frequency of oscillation. Now remove the crystal from the holder and place it in the tweezer slots. Immerse the crystal (in tweezers) in the solution for exactly one minute. Remove it from the solution and place it in the water container at once. Agitate for fifteen seconds or so. Now slide the crystal onto a clean cloth and wipe it dry, being careful not to touch the crystal with the fingers. When the crystal is completely dry, slide it back into the holder and recheck the frequency and activity. Plot a graph of frequency and etching time, as shown in Fig. 4, increasing the time in the solution until a satisfactory curve has been developed.

The solution strength and the surface finish of the crystal will affect the etching rate. If the rate is too fast or slow, add more water or salt, as required. After three years of use, the author's original solution has a nonlinear etching rate of approximately 100 kc. in 10 hours. In the event that a decrease in crystal activity is observed, try cleaning the pressure plates and holder.

Remember always that you are handling a dangerous solution. Arrange the working area so that there is no possibility of spilling. Should the solution come in contact with the skin, wash it off at once with plenty of water. The small amount of solution required with this method makes safe disposal easy. If you want to discard the solution (even though it apparently can be kept and used indefinitely) pour it down the drain and flush with plenty of water at once.

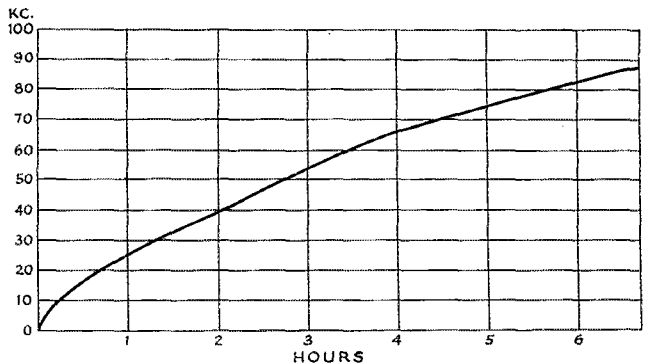


Fig. 4 — Typical curve for etching solution. Frequency change is plotted against time, as a guide for future work.

Some Experiences with "Cheap and Easy S.S.B."

Hints and Variations on a Popular Transmitter

BY MAURICE R. GUTMAN,* W2VL

If you have built or intend to build a W2EVL side-band rig, you will be interested in the experiences of W2VL and his friends. This article might even give you some ideas about modifying the older design.

THE modified ARC-5/274N exciter-transmitter of W2EVL¹ has been an extremely popular "do-it-yourself" side-band rig. Its construction became a group project in this area. As could be expected when a half dozen hams work on the same project, new ideas came thick and fast. By pooling equipment, and especially test gear, some of these kinks were tried.

The photographs show one of the variations. It was an attempt to see how much power could be obtained from this converted BC-458 with more potent tubes in the output stage. Two 4X250B tubes were borrowed from a KWS-1 and tried. A surplus blower supplied air for cooling, and plate voltages up to 2000 volts were used. Maximum input ran 650 watts, and approximately 275 watts output was measured in a dummy load. This was with a two-tone test signal. More power could have been obtained if slight modifications were made to the original unit. Lack of adequate grid voltage swing was the limiting factor. Tony has suggested a 12BY7 in lieu of the 12A6 mixer to improve this drive. When Tony was shown the photo of the higher power version of his famous brain child he said, "Hams will stop at nothing!"

The group project produced other variations, notably the use of link coupling from the driver stage to the final grids. This made for more efficient coupling and provided greater suppression of unwanted v.f.o. output on 5.3 Mc., and also the 3rd harmonic near 15 Mc. Tuning to either of these spurious signals has caused many builders of the rig to lose sleep in large quantities.

Another group facility which aided in the original lineup of the transmitter was the use of a sweep generator and oscilloscope to obtain

proper interstage coupling and best suppression of unwanted signals.

The alignment procedure described by W2EVL is excellent and additional useful data on adjusting this type of s.s.b. transmitter may be found in Bob Ehrlich's fine article.²

For those amateurs fortunate enough to own or be able to borrow a Panadapter there exists an interesting and rapid means of alignment of s.s.b. transmitters. With antenna removed from the receiver and a dummy load on the transmitter, the signal may be viewed on the scope of the Panadapter. With audio generator input to the transmitter and moderate gain, one may spread out the two side bands with the carrier in between. An audio frequency of 2 or 2½ kc. will spread out the side bands far enough from the carrier to be viewed clearly. A view such as shown in Fig. 5 of Ehrlich's article may be obtained. A word of caution: if the Panadapter is not uniform in its amplitude response across the screen it might be advisable to mark a spot on the scope face and move each side band by receiver tuning to that same spot.

In trouble shooting several of these units it was found most often the builder had made a wiring error or had placed a wrong value of component in the audio circuits. Sometimes, if coils L_1 and L_2 (r.f. phase shift) are a bit too far apart, the addition of a small capacitance in the order of 2 or 3 $\mu\text{f.}$ will aid in obtaining proper alignment. This is between the hot ends of both coils, of course.

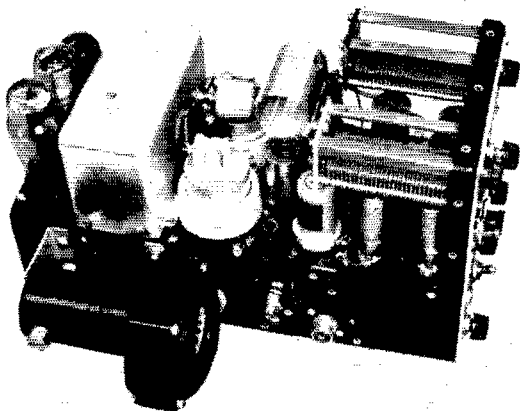
In addition to the very fine 1625s used originally, several other types were tried. These were all horizontal deflection TV types such as the 6CB5, 6BG6, and 6BQ6. However, in this power range the 1625s seem to be the best. Nevertheless, several experimenters are reporting very excellent results with 6146s. At the present time the writer is installing a single Eimac 4CX300A all-ceramic tetrode along with the 12BY7 mixer. It is expected to obtain close to 250 watts output from about 500 watts input.

² Ehrlich, "How To Adjust Phasing-Type S.S.B. Exciters," *QST*, Nov., 1956.

A pair of 4X250B tubes have been substituted for the more common 1625s of a W2EVL side-band exciter. This called for strenuous measures like a blower and increased spacing in the tank capacitors. Inputs up to 650 watts have been handled by this extensively-reworked BC-458.

* 5 Rebecca Lane, Oceanside, L. I., N. Y.

¹ Vitale, "Cheap and Easy S.S.B.," *QST*, March, 1956.



The "Tee-Pee"

A 28-Mc. Portable/Emergency Ground-Plane Antenna

BY ROBERT BUNCE,* KØDBG

Here is a simple 10-meter antenna made from readily available parts. Although its designer uses it for portable work, the antenna might serve well at permanent stations, suitably guyed by plastic line.

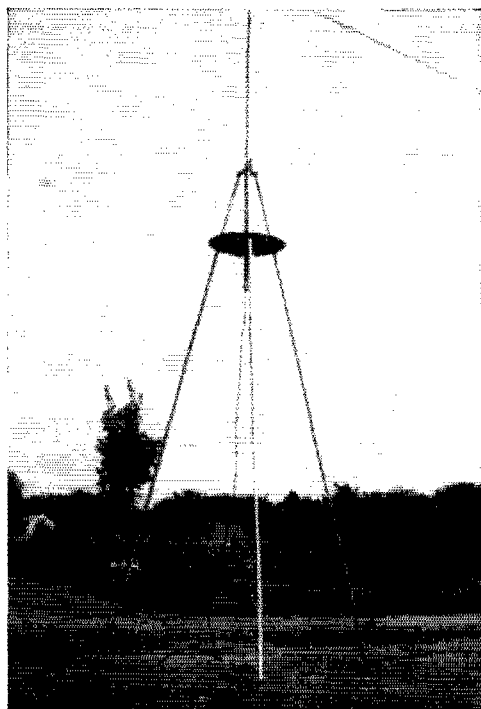
WHILE USING the antenna to be described, we have been accused of communicating with smoke signals rather than r.f. The local gang has dubbed the beast the "Tee-pee."

This antenna was originally designed to boost the signal from our 8-watt "peanut whistle" rig used during local hidden-transmitter hunts on 29.6 Mc. The portability and type of construction, however, suggest general temporary/emergency use, such as vacation installations, Field Day, RACES, and c.d. operation.

The tripod tilted ground plane gives a firm, self-supporting three-point base regardless of irregularities in the terrain and, after it's erected, any objectionable tilt in the structure can be corrected simply by pushing one of the mounting dowels into the ground a few inches.

The antenna gives excellent coverage for "short-haul" work on ten meters, up to ten or fifteen miles, outperforming by a considerable margin several other similar antennas we've tried. One station reported that the signal was 3 S units stronger with this antenna than with the conventional quarter-wave whip mounted on the back of the car! Although we haven't tried this type of antenna on other bands, there is no reason why the same basic constructional form couldn't be applied to portable vertical antennas for use on 6, 15, or 20 meters. It should be as good an an-

* 3333 Prairie Drive, N.E., Cedar Rapids, Iowa.



This is not a man from Mars stalking Earthmen on Main Street; it is a readily constructed and portable 10-meter antenna.

tenna for DX as similar types of ground-plane radiators. The entire antenna was constructed in about four hours, at a cost of less than ten dollars.

Materials

The structure requires the following basic materials:

- 1 — Standard 10-foot length of 1-inch aluminum tubing
- 1 — 3-foot length of 1-inch aluminum tubing
- 3 — Standard 10-foot lengths of 1/2-inch i.d. electricians' conduit
- 1 — 16-inch aluminum recording disk (most radio stations will give these away)
- 1 — 9-inch diam. circular piece of 16-gauge aluminum sheet
- 3 — Conduit connectors for 1/2-inch i.d. conduit (the type used at conduit junction boxes, available from any electrical supply store)
- 1 — Hose clamp
- 1 — 1-inch i.d. aluminum sleeve, approx. 3 inches long, with 1/8-inch walls (1 1/4-inch o.d.)
- 3 — 3/4-inch i.d. rubber grommets¹
- 1 — 1-inch i.d. rubber grommet¹
- 3 — 1/2-inch o.d. dowel rods, approx. 2 feet long
- 1 — 1-inch o.d. dowel rod, approx. 6 inches long
- 1 — length of RG-58/U coaxial cable, length as required, with connector

Miscellaneous 6-32 and 8-32 hardware.

¹ Oversize grommets can be used; see Fig. 2.

Construction

Refer to Fig. 1 and details A, B, and C in Fig. 2. Cut the 9-inch aluminum circle to the dimensions shown in Fig. 2A. The center hole is slightly undersize to provide a "force fit" over the 3-foot center extension. The three outside holes mount the conduit connectors at 120-degree intervals. Score the aluminum lightly at the bend lines, but do not bend into position until the structure is first erected. Install the conduit connectors.

On the large disk, the large rubber grommet should be a tight fit over the center extension, as friction between the grommet and the extension holds the disk in position while the antenna is erected. The center hole in the recording disk should be cut undersize at first and gradually opened until the grommet fits snugly into the hole and around the extension. A little "cut and try" will result in the desired fit. The recording disk will probably have three small holes already positioned near the center at 120-degree intervals; these holes make a handy reference for laying out the three holes near the edge of the disk. The diameter of these edge holes will also vary with the dimensions of the grommets used, and the holes are best opened up to full size by trial-and-error methods, fitting the grommets as snugly as possible. To give the proper i. d., I used large grommets with a small section cut out. To ream the hole, a sharp knife will "carve" the

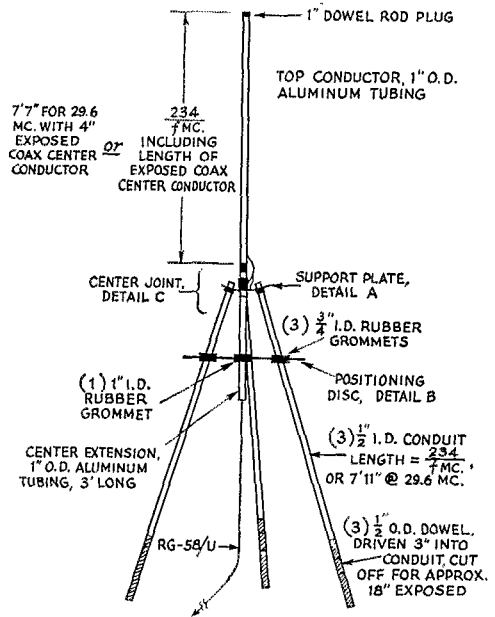


Fig. 1 — Assembly of the 28-Mc. "Tee-pee" antenna. Details A, B and C are shown in Fig. 2.

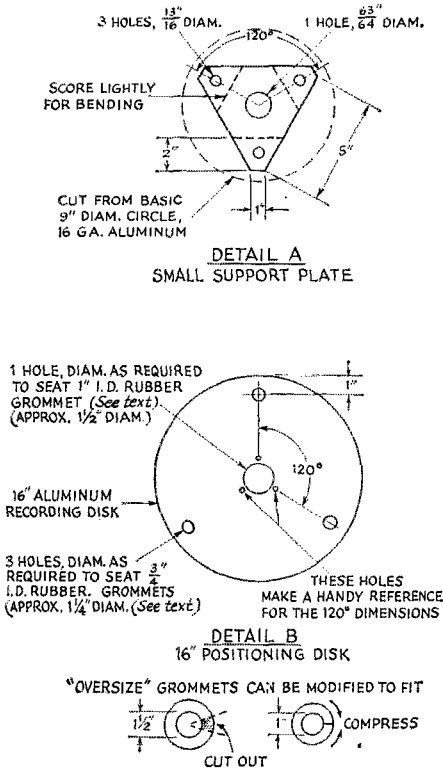
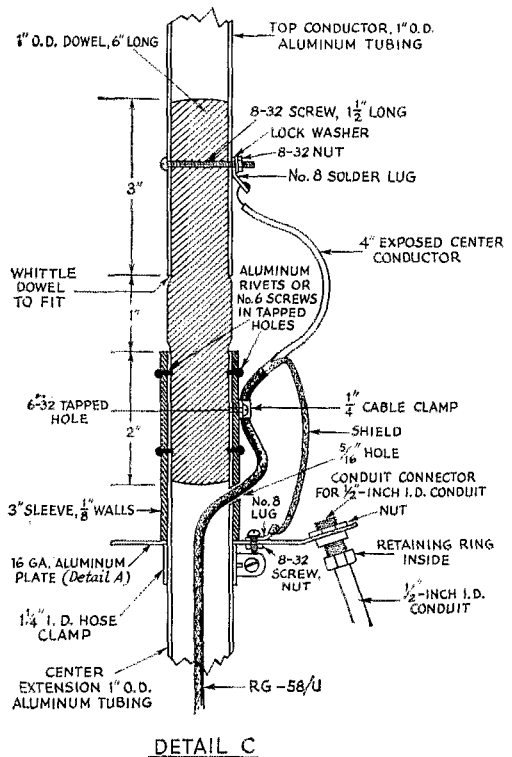


Fig. 2 — Details of the support plate, positioning disk and center joint.



aluminum. The initial holes were made with a socket punch. If desired, the plastic coating on the recording disk can be removed by soaking the disk in boiling hot water for about ten minutes in a large tub, and then simply peeling the coating off before it hardens. Old disks "give up" their coating much more easily than newer ones, and a radio station castoff will probably "peel" easier than a fresh one.

The dimensions given for the conduit and top conductor are for a frequency of 29.6 Mc. The proper dimensions for other frequencies can be determined by formula:

$$\text{Length (ft.)} = \frac{234}{f(\text{Mc.})}$$

Cut the 10-foot pieces of conduit and aluminum tubing to length with a hacksaw. Drive the $\frac{1}{2}$ -inch dowel rods into one end of each of the pieces of conduit for three or four inches. If the dowel is not a "driving fit," shim as necessary for a snug fit. Cut the dowels off at about 18 inches to equalize the length of the three legs.

Slip the 1-inch i.d. sleeve over one end of the center extension. Hold the sleeve to the extension with a couple of aluminum rivets, or drill and tap holes through both the pieces and bind them with 6-32 screws. Drive the 1-inch diameter dowel into the top conductor and the 3-foot extension, leaving about one inch between them. I had to "whittle" the dowel slightly to fit it snugly into both sections. Drill clear through the top extension and internal dowel with an 11/64-inch drill. Push an 8-32 screw through the hole and secure a solder lug on the far side with an 8-32 nut. Force the small aluminum plate over the free end of the center extension (with scored side down) and run it up tightly against the base of the sleeve. Place the hose clamp directly below it and tighten it up. Drill a 5/16-inch hole downward through the sleeve and the center extension, below the end of the internal dowel rod. Feed one end of the coax through the hole, leaving about 6 inches of coax outside. Strip back the outer coax covering for about 5 inches. Separate the center conductor from the shield, strip off about 1 inch of dielectric from the center conductor, "loop" the conductor, and solder to the lug fastened to the top section. Solder a lug to the shield and secure to the small aluminum plate in the small hole with 8-32 hardware. Drill and tap an 8-32 hole near the top of the sleeve. Install a cable clamp over the coax and fasten to the sleeve to prevent undue tension on the coax. Install the desired connector on the far end of the coax. Place a dowel-rod plug in the top of the top conductor to keep out rain.

Erection

The photographs and Fig. 1 show the general appearance of the erected antenna. Since this is a portable "break-down" structure, it was designed to keep the assembly procedure to a minimum. It is important to keep several points in mind for best results. The following schedule is recommended (it takes less than five minutes to put up the antenna): Slip the aluminum recording disk over the coax and about one-third of the way up

the extension pole. Release the three conduit connectors about one turn. Line up the holes in the large disk with the conduit connectors by eye. Slide one of the lengths of conduit through one outer grommet and bend out the plate and the associated conduit connector along the scored line until the conduit slips into the connector. Be sure the conduit is inserted fully to the shoulder of the connector. Tighten the connector with *hand pressure only* — you have to get the thing loose later on! The connector has a narrow retaining ring on the inside that provides a good electrical bond between the conduit and the connector, even with relatively light pressure. Install the other two lengths of conduit in the same manner as the first. Grasp the structure by the center extension pole and lift it up into the vertical position. The large disk serves to keep the three "legs" and the top conductor in the proper positions as the structure is raised. Hook the coax to the transmitter, and you're in business!

Breakdown and Packaging

To break down the structure, simply reverse the above procedure. As the conduit connectors are released, be careful not to disengage them fully because the retaining rings may fall out and get lost. We looked for one for ten minutes in the tall grass one evening! After disassembly, place the center structure and the three legs parallel, roll up the coax, and tie the package at two places. We tie it up with short lengths of small rubber hose; they grip the pieces together nicely and don't slip like cord or string. The resulting package is about 10 feet long, and it rides easily in our car when slid through the front right window and clear back to the rear deck. About three feet of antenna sticks out through the window, parallel to the hood. The thing could also be conveniently carried on car-top carriers, or simply could be tied to the side of the car.

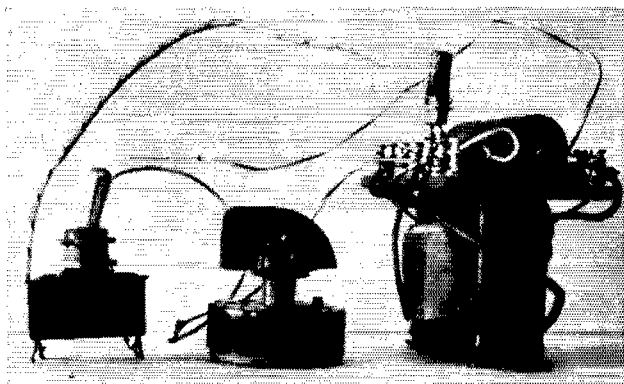
Match

The "tilt" of the legs can be changed to vary the antenna impedance by slipping the large disk up or down the extension pole before the structure is raised. The match seems to be best, as measured with a resistance bridge, when the legs are at about a 60-degree angle with the ground, although very little change in match was noticed as the angle was varied about 20 degrees either side of this setting. The bridge indicated very little reflected power regardless of the angle used. The antenna requires no balun on the coax line, and r.f. pickup on the coax shield will be kept to a minimum if the line is brought down to ground level as nearly vertical as possible. The dowel rods in the ends of the "legs" lift the high voltage points up off the ground, and the effect of various soil conditions seems to be negligible.



Strays

W6APQ claims to be the only motion picture make-up artist in hamdom.



Components except the switch and variable resistor are assembled on a small terminal board (from surplus). The controls are mounted on a rack panel that also contains the controls and indicator for the Monimatch.

The "Matchtone"

A Bridge-Powered Audio Keying Monitor

BY WILLIAM S. GRENFELL,* W4GF

If you have a Monimatch (and who hasn't?) you've got a keyed power source for a transistor side-tone generator to monitor your sending. This article shows how to do it. As a bonus, the device can double as an auditory tuning indicator.

THE "MATCHTONE" is a combination of the Monimatch¹ and a c.w. tone generating monitor. It consists of a transistor audio oscillator which uses the Monimatch as a keyed source of d.c. power. In addition to the usual function it should be of benefit to the sightless amateur as an audible transmitter-antenna tuning indicator.

While direct monitoring of c.w. transmissions via the receiver is a preferred method because it can reveal much about the keying characteristics, transmissions offset from the receiving frequency call for a separate monitor. The self-powered transistorized monitor fills the bill nicely. The use of the r.f. bridge, already connected in the r.f. transmission line, as a source of power for the monitor is a logical choice.

The circuit of the Matchtone and the connections to the Monimatch and the receiver are shown in Fig. 1. A small 2- or 3-to-1 push-pull grid-to-plate audio interstage transformer is used for feedback as well as for coupling to the receiver. If a transformer having a p.p. grid winding is not available from the junk box, the audio coupling to the receiver can be obtained by connecting C_2 to the ungrounded end of R_1 . While use of a low value of capacitance for C_2 is necessary to avoid

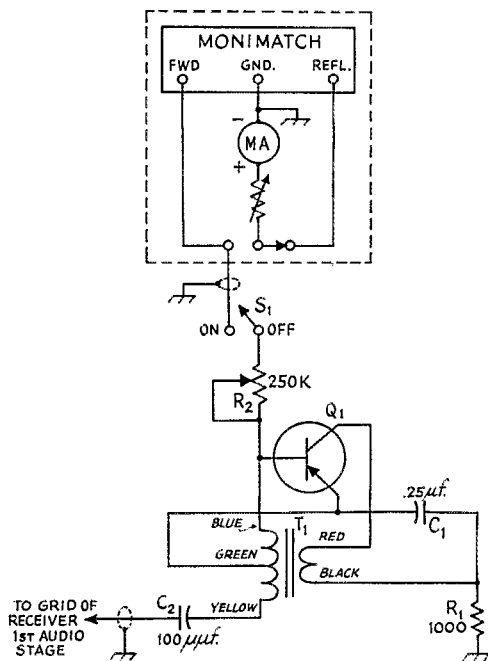


Fig. 1—Circuit of the Matchtone. Section enclosed in dashed line is the Monimatch and its indicating circuit. Braid of shielded lead to audio grid should connect to receiver chassis.

- C_1 —Paper.
- C_2 —Mica or ceramic.
- Q_1 —2N109, CK722 or similar.
- R_1 —1000 ohms, ½ watt.
- R_2 —0.25-megohm volume control.
- S_1 —S.p.s.t. toggle.
- T_1 —push-pull interstage audio transformer, 2:1 or 3:1 total grid to plate.

* 1412 Valleycrest Blvd., Falls Church, Va.

¹ McCoy, "Monimatch, Mark II," *QST*, Feb., 1957.

excessive shunting of the high-impedance receiver audio circuit, the value shown will provide sufficient coupling for a good audio tone level from the monitor. A third possibility for the audio output connection from the monitor is to substitute the headphones for R_1 , together with a single-pole double-throw switch or relay to switch the phones between the monitor and the receiver. The on-off switch, S_1 , can be made a part of R_2 by use of a volume control switch attachment.

The value shown for C_1 gives an audio pitch in the 500-1000 cycle range, depending somewhat on the particular transformer, the setting of R_2 and the transmitter output power. Other values of C_1 can be used to adjust the pitch to the operator's individual preference. R_2 may be adjusted to compensate for the changes in the d.c. current from the Monimatch caused by a change in transmitter frequency band or power. Using either a 2N109 or a CK722 transistor, it was found that the circuit would oscillate with usable audio level with as little as 0.1 ma. d.c. flowing to ground through the monitor. Other low-cost transistors such as the 2N107 and the 2N170 should work equally well.

In the assembly shown in the photograph the terminal board (surplus) is lashed to the top of the transformer by threading two wires between the winding and the top leg of the core and fastening the ends to otherwise unused posts on

the board. Five posts are used to terminate the wires from the transformer windings. One additional terminal is used for the junction between C_2 and the "hot" lead of the audio line to the receiver and another additional terminal is used for the ground connection to R_1 . The two wire ends visible in the picture are the ground and the "hot" lead for connecting the Matchtone to the Monimatch. The socket for the 2N109 is supported by short wires connecting to the terminal posts to which the red, green and blue transformer wires are connected. If a type of transistor such as the CK722 which has wire leads is used, the leads can be soldered directly to the terminal posts. Hold each lead between the transistor and the solder point with the long-nose pliers while soldering so as to avoid damaging the transistor.

At W4GF, the transformer, S_1 and R_2 are mounted on a rack panel which also contains the switch, variable resistor and meter for the Monimatch.

Because the pitch of the audio tone is to some degree dependent upon the d.c. voltage obtained from the Monimatch, the pitch gives a reasonably accurate indication of correct final amplifier plate circuit tuning (maximum power output) and, if an antenna tuner is used, will also indicate resonance of the tuner to the transmitter output frequency. This characteristic of the Matchtone should be of considerable aid to sightless amateurs.

Strays HO, W

OM W2TXB and NYL W2WOW have had N. Y. license plate M-73-88 for years.

— . . . —

W9GBT reports that Esso is going to be using aluminum motor oil cans for its products in the near future. We are looking forward to the first description of a rig built in an ex-oil can!

— . . . —

K9GVD, who is 73 years old, is quite tickled over working KN9JHR, who is 9 years old.

On Nov. 12, 1957, W1QUA checked into the Pine Tree Net (3596 kc.) using only transistorized gear for both sending and receiving. He thereby claims to be the first completely transistorized station to participate and handle traffic in the National Traffic System. Any challengers?

— . . . —

One evening recently W9NN worked UA3BB, DL3QQ, and UA1CC in rapid succession.

At one time, these were all of the operators at KC4USA, but these fellows have since returned Stateside. Left to right, rear; George Moss, John Higby, John McCaffrey. Front; Vic Young and Bob Graham.



Three-Phase Power Supply

The economy in space and weight and improvement in over-all efficiency through the use of three-phase power supplies in high-power mobile installations are discussed in this article. Details of a 1-kw. unit are included.

IN RECENT YEARS, the alternator has largely replaced the d.c. generator for charging the battery in commercial mobile installations. The main reasons for this are that greater output, especially at slow speeds, can be obtained, and the commutator problem is eliminated.

In the most common type of installation, the output of the alternator is passed through rectifiers and is then used to charge the car's storage battery. High voltage for a transmitter is obtained in the usual way by means of a d.c. high-voltage motor-generator operating from the battery.

Motor-generators leave much to be desired. Starting current is high and efficiencies in converting from battery voltage to the desired high voltage may run as low as 50 to 60 per cent. They are slow in coming to rest after being turned off, which is a hindrance in rapid change-over from transmitting to receiving. Leaving the generator running and switching off the high voltage is usually impractical both because of the high voltage involved and because it is not economical.

With a view toward overcoming or reducing these problems, we have been working with a system that eliminates the battery and d.c. generator. A.c. from the alternator is fed directly into the primary of a high-voltage transformer.

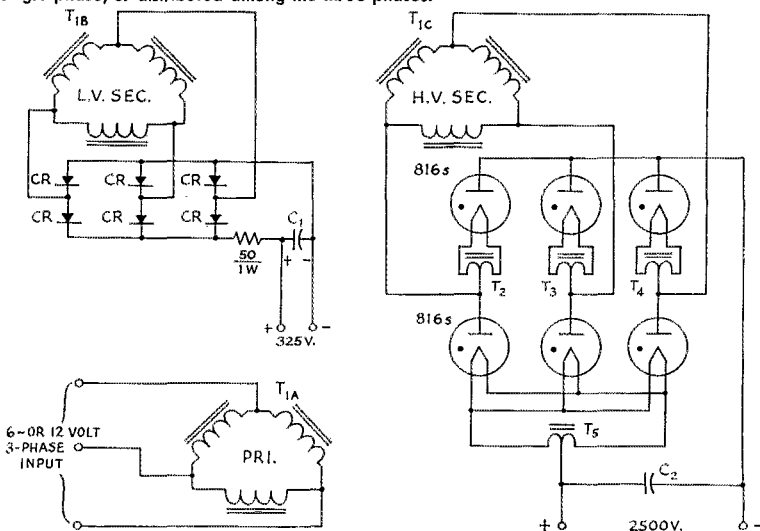
The high-voltage a.c. is then rectified and filtered in the usual manner.

In operating a transformer from the alternator certain problems arise. The conventional alternator has three-phase output, requiring three separate transformers or a single transformer with three sets of windings. Although the output voltage of the alternator can be controlled by a regulator, the output frequency varies with the speed of the alternator. (The output frequency of Leece-Neville alternators in cycles per second is one tenth the speed of the alternator in r.p.m. and may run as high as 800 cycles, depending on engine speed and pulley ratio.) Standard 60-cycle transformers were found to be reasonably satisfactory at idling engine speed, but at high speeds, the increased eddy losses in the transformer as the frequency increased caused the voltage to fall off. To take full advantage of the capabilities of the system a special transformer designed for higher frequencies is required.

The three-phase transformer-rectifier circuit is shown in Fig. 1. In addition to the three-phase transformer, it requires six rectifier units. However, the three-phase system has compensating advantages. In a single-phase full-wave rectifier circuit using two rectifier units, the peak inverse voltage that each rectifier unit must withstand is 3.14 times the d.c. output voltage, whereas in the three-phase circuit it is only 1.05 times the d.c. output voltage. This means that for the same d.c. output voltage rectifiers with one third the peak voltage rating of those required for the single-phase circuit may be used.

Also, whereas each rectifier unit in a single-phase circuit must handle half the total d.c. load

Fig. 1—Circuit of the three-phase power supply. Rectifier filament transformer primaries may be operated from a single phase, or distributed among the three phases.



- C₁—10- to 40- μ f. 450-volt electrolytic.
- C₂—2 μ f. or more, 3000-volt oil-filled.
- CR—130-volt 50-ma. selenium rectifier.
- T₁—Special three-phase 120-cycle transformer (see text).
- T₂, T₃, T₄—Special 2.5-volt 2-amp. 120-cycle filament transformer, 10,000-volt insulation.
- T₅—Special 2.5-volt 6-amp. 120-cycle filament transformer, 10,000-volt insulation.

for Mobile Use

1-Kw. Unit for High-Power Work

BY JO EMMETT JENNINGS,* W6EI

In comparing this photograph with the one below, the saving in space afforded by silicon rectifier stacks is obvious.

current, each rectifier unit in the three-phase circuit handles only one third the d.c. load current. Another great advantage of the three-phase system is that the output ripple before filtering is less than 5 per cent and the ripple frequency is three times the ripple frequency in a single-phase full-wave rectifier (the ripple frequency is six times the supply frequency). With the high frequency delivered by the Leeco-Neville alternator, the filtering problem is easily solved by a simple capacitor of moderate size.

The Transformer

Transformers suitable for the purpose are not available on the market, so it was necessary for us to design our own. The one shown in the photographs will handle 1 kw. at 2500 volts. It also has a low-voltage winding delivering about 300 volts for a screen and exciter supply.

Design data is available in nomograph form from Arnold Engineering Co., Marengo, Ill., and the core (No. ATA-1573) for the transformer shown was also obtained from this source. The core has 12-mil Hypersil laminations. A design frequency of 120 cycles was selected and this turned out to be a good choice.

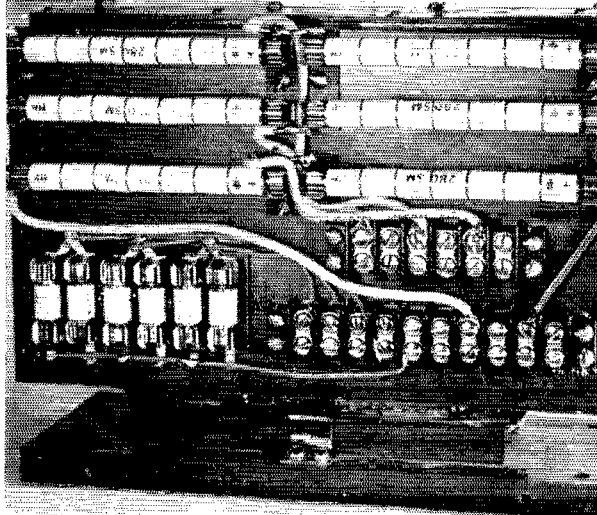
To operate from a 12-volt alternator, each primary leg should have 15 turns of No. 8 wire; a 6-volt unit would need 7 turns of No. 5 (or two No. 8 in parallel if No. 5 is not available).

The low-voltage secondaries each have 266 turns of No. 30 wire, while the high-voltage windings each have 2400 turns of No. 28. For proper operation, it is important that corresponding windings on the legs be as identical as possible.

The high-voltage winding was placed next to the core with 7500 r.m.s.-volt insulation between the winding and the core and between the high-

*316 South 18th St., San Jose 27, Calif.

A 1-kw. three-phase power supply for mobile use. It occupies less than a cubic foot of space. The type 816 rectifiers have more recently been replaced by silicon units (as shown above) eliminating the need for filament power. Transformer shown is less than 8 inches wide.



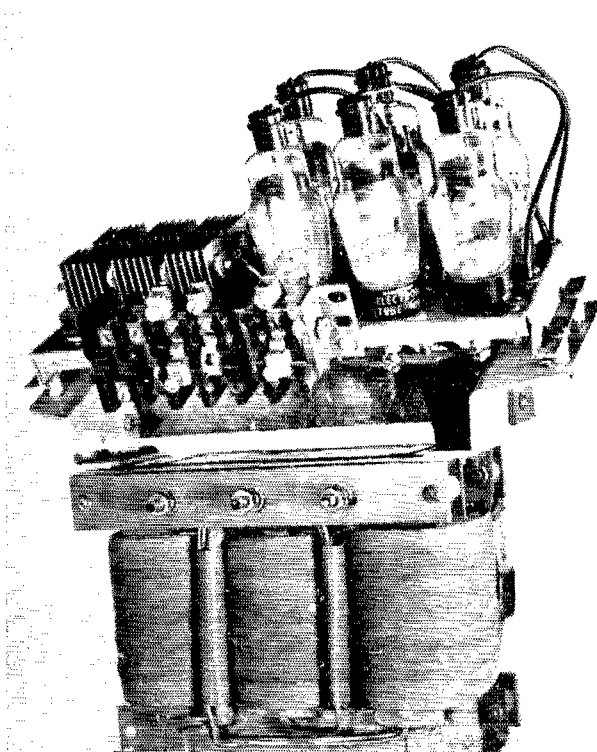
voltage winding and the low-voltage secondary which was wound over the high-voltage secondary. The primary was wound on the outside with 1800-volt insulation between it and the low-voltage secondary. If possible, the windings should be vacuum impregnated.

The windings must be polarized correctly if the transformer is to work properly. A simple means of checking the polarization consists of a parallel pair of 6-volt 50-c.p. lamps in series with each of the three primary input leads. If any of the bulbs shows more than a dull red color, the windings are not polarized correctly. Correct secondary polarization will be indicated when the design output voltage is obtained.

Rectifiers

As the photograph shows, selenium rectifiers are used in the low-voltage supply. Type 816

(Continued on page 15E)



IN THE PAST, most amateur operators have used crystal microphones with their speech equipment because of their low cost, high output, and acceptable quality of speech reproduction. However, some widely-used crystal microphones have certain disadvantages. The frequency response is apt to be peaked, as indicated in Curve A of Fig. 1. To avoid overmodulation on these peaks, the average level must be limited with a resultant loss in average power output.

Crystal microphones are also relatively poor physically. The element is an artificially-grown crystal having a high content of water of crystallization. In hot dry weather, this moisture content tends to evaporate, resulting in deterioration of the element. Humid weather will cause the element to absorb moisture and the crystal starts to dissolve. The crystal element is quite fragile, and if the microphone is dropped, the element is usually fractured. These are some of the reasons why guarantees on crystal microphones are usually limited.

In recent years, the design of dynamic microphones has improved, with a result of increased output, much flatter frequency response and physical ruggedness not easily affected by shock, heat or humidity. The reason for the trend toward this type of microphone by amateurs is obvious.

Controlling Low-Frequency Response

However, when a dynamic microphone is simply substituted for a crystal unit, the response in the audio system will occasionally be too "bassy," and many amateurs are inclined to believe that this is a characteristic of the dynamic microphone. With a crystal microphone, the bass response is governed by the value of the grid resistor in the first speech-amplifier stage. An input resistor of 100K will limit or "roll off" at about 500 cycles, 500K at about 250 cycles, and a 1-megohm resistor will extend the response to about 100 cycles.

On the other hand, the grid resistor has no effect on the frequency response of the dynamic microphone. Instead, the low-frequency response of this type of microphone is governed by the value of the input coupling capacitance. So if the response is too "bassy," this can be corrected by connecting a capacitor between the microphone

Using the Dynamic Microphone

BY WEBSTER F. SOULES,* W8HCW

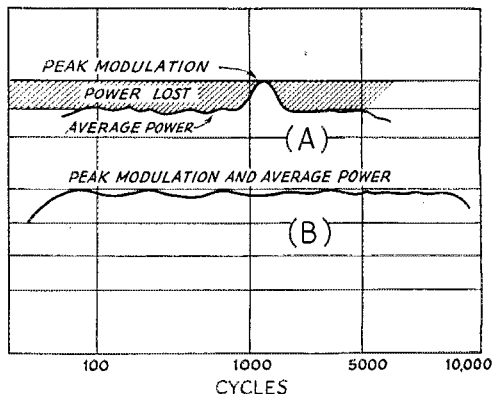


Fig. 1—Microphone response curves. Curve A indicates the average power lost when a microphone has a peaked response. Curve B is the improved response curve of a dynamic microphone.

and the grid of the first stage. Less capacitance restricts the low-frequency response more. An average value for the coupling capacitor is about 0.001 μ f. If it is not convenient to install the capacitor inside the transmitter or modulator, it may be placed at the microphone plug.

With the flatter response of the dynamic microphone indicated in Curve B of Fig. 1, the improvement in average output is apparent.

*Manager, RME Division, Electro-Voice Inc., Buchanan, Mich.

Strays

"A Boy's Quiet Voice," by Ruth K. Cohen, is the story of the late KN2IVH, as told by his mother. KN2IVH was stricken with polio, and profits from the book sale will go to a memorial fund for medical research. It is published by Greenberg, at \$2.75.

A Washington newspaper reports a most unfortunate accident to a young ham whose call was not given. He brought home some "ca-

pacitors" and hooked one in a set he was working on. The "capacitor" turned out to be a dynamite cap, which blew up in his face and damaged his sight. Please, fellows, always be careful.

Donald G. Fink, W3TVI, Director of Research of the Philco Corporation, has just been elected president of the Institute of Radio Engineers for 1958.

Low-Distortion Modulator for Clipped Speech

*Using Negative Feedback
To Maintain Wave Form*

BY THOMAS E. BELING,* W9AEI

• The necessity for low distortion and good low-frequency response in amplifier stages following a clipper-filter has repeatedly been emphasized. Here's a circuit, based on "hi-fi" techniques, that achieves the desired performance with inexpensive components. The modulator described has an output of about 50 watts, but the circuit can be used with any Class AB₁ modulator.

IN COMMUNICATION using either a.m. or the d.s.b. system, there is much to be gained in "talk power" if some form of clipped speech is employed. The reason for this is simple. If the system faithfully reproduces the full volume range of the human voice, high-intensity peaks will be the only portions of the voice that modulate the transmitter 100 per cent. Since these peaks occur only occasionally, the average level of modulation will be quite low — on the order of 25-30 per cent.

The solution to this problem, of course, is to clip off the high-intensity peaks. The intelligibility of the transmission suffers very little, but the wave shapes that result from deep clipping contain many harmonics of the original voice frequency and would unnecessarily broaden the channel if transmitted. So a low-pass filter must be included to limit the frequencies transmitted to those lying within the 3 kc. or so necessary for communication purposes. All of this is not particularly difficult to accomplish, and there are many satisfactory designs available for speech-amplifier clipper-filter combinations.

However, another problem arises to prevent

*4619 Alexander Drive, Fort Wayne, Ind.

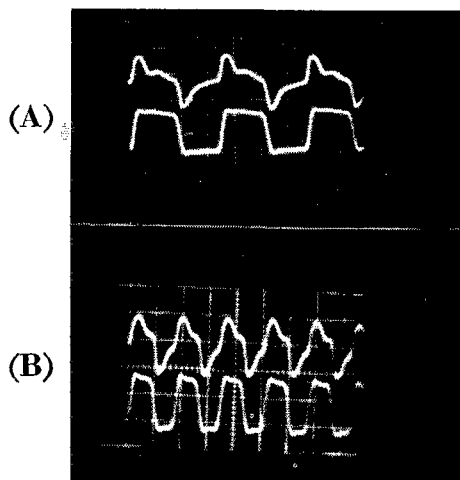


Fig. 1—Oscillograms showing effect of poor low-frequency response on square-wave input. A—lower line, 300-cycle square-wave input to amplifier; upper line, wave form at secondary of output transformer. B—same but at a frequency of 600 cycles.

the best utilization of the speech clipper so far as the average ham is concerned. Most inexpensive modulation transformers have a rather poor low-frequency response, and the output that results when they are hit with a square wave in the range of 300-1000 cycles is not an exact replica of the input, to put it kindly. Notice the input-output wave forms in Fig. 1, showing the response of a typical modulator to 300- and 600-cycle square waves. This poor low-frequency response is not particularly detrimental so far as unclipped speech is concerned, but it tends to defeat the purpose of clipped speech, since the modulation transformer alters the wave form to introduce sharp peaks having low energy content.

One solution to the problem, of course, is to buy a transformer with excellent low-frequency response. However, this can run into real money, particularly if much power is involved. There is a much cheaper way to accomplish the same thing — the use of feedback to extend the low-frequency response of an inexpensive modulation transformer.

Negative Feedback

Negative feedback as a means for reducing distortion and extending frequency response has been in use for a long time, but perhaps a quick explanation of the way that it works might not be out of order. First of all, the method of operation of any negative-feedback system is this: a portion of the output voltage of an amplifier is subtracted from the amplifier input signal. This difference signal is in such a direction as to make the amplifier try to force the output to look like the input — which was the original idea, of course.

Sound complicated? Let's take an example. Suppose we were trying to reproduce the flat top of one of our clipped speech waves. The input

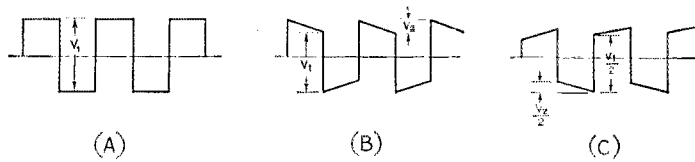


Fig. 2—How feedback shapes the input signal to improve the reproduction. A—square wave as applied to amplifier input; B—output with poor low-frequency response, no feedback; C—resultant signal at input when part of the output signal is added to the input signal, out of phase. The rising characteristic given to the flat top of the original input signal tends to compensate for the droop introduced by the amplifier.

to the amplifier is a square wave, Fig. 2A, but the transformer has poor low frequency response, so without feedback the output would show a definite sag as in Fig. 2B. However, the negative feedback system subtracts a portion, say half, of the output from the input. Now the amplifier input looks like Fig. 2C. This wave form is just what is needed to make the output look more like a square wave. Of course, the output will not be a perfect replica of the original signal, but a vast improvement is not difficult to obtain.

There is, of course, a price to pay for the improvement. Roughly, the gain of the amplifier is reduced as much as the frequency response is increased. This comes about because the actual input signal to the amplifier is reduced by the voltage fed back. However, it is easy enough to make up the gain in the speech amplifier.

Another difficulty encountered with feedback amplifiers is the danger of oscillation at frequencies above or below the pass band of the amplifier. This occurs because it is possible for the whole system to resemble a phase-shift oscillator — Fig. 3A at low frequencies and Fig. 3B at high frequencies. At low frequencies the coupling capacitors and transformers cause the phase shift, and at high frequencies tube and wiring capacitances and the transformer stray capacitances are responsible. However, since we are interested only in amplifying a fairly narrow band of frequencies, it is easy to use a substantial amount of feedback without running into any trouble with oscillation.

Practical Circuit

A practical modulator for any rig running up to 100 watts input is shown in Fig. 4. Those who are interested in high fidelity will notice that the modulator bears a striking resemblance to a hi-fi power amplifier, which is natural, since the hi-fi problems are much the same. The modulator has a gain without feedback of about 4000, which is

reduced to 400 by the feedback. This reduction in voltage gain by 10:1 corresponds to 20 db. of feedback.

The response of this modulator to 300- and 600-cycle square waves is shown in Fig. 5. A

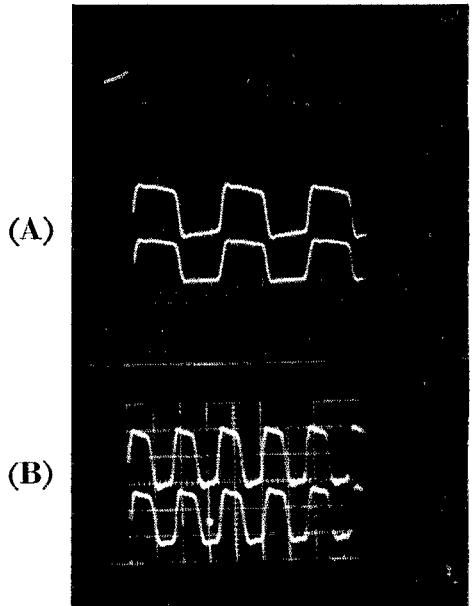


Fig. 5—Effect of feedback on square-wave response. These waveforms may be compared directly with Fig. 1. A—300-cycle square wave: bottom, input signal; top, output signal. B—600-cycle square wave: bottom, input signal; top, output signal.

comparison with Fig. 1, the response of the same modulator without feedback, shows the big improvement resulting from the use of feedback. Fig. 6 is a comparison of the output tube grid wave forms with and without feedback. Notice

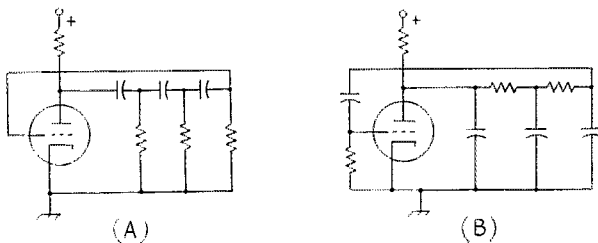


Fig. 3—High-pass (A) and low-pass (B) phase shift oscillators. Unless carefully designed, a negative-feedback amplifier may be equivalent to A at low frequencies and/or B at high frequencies. If the gain is high enough at the frequency where the total phase shift reaches 180 degrees the amplifier will oscillate.

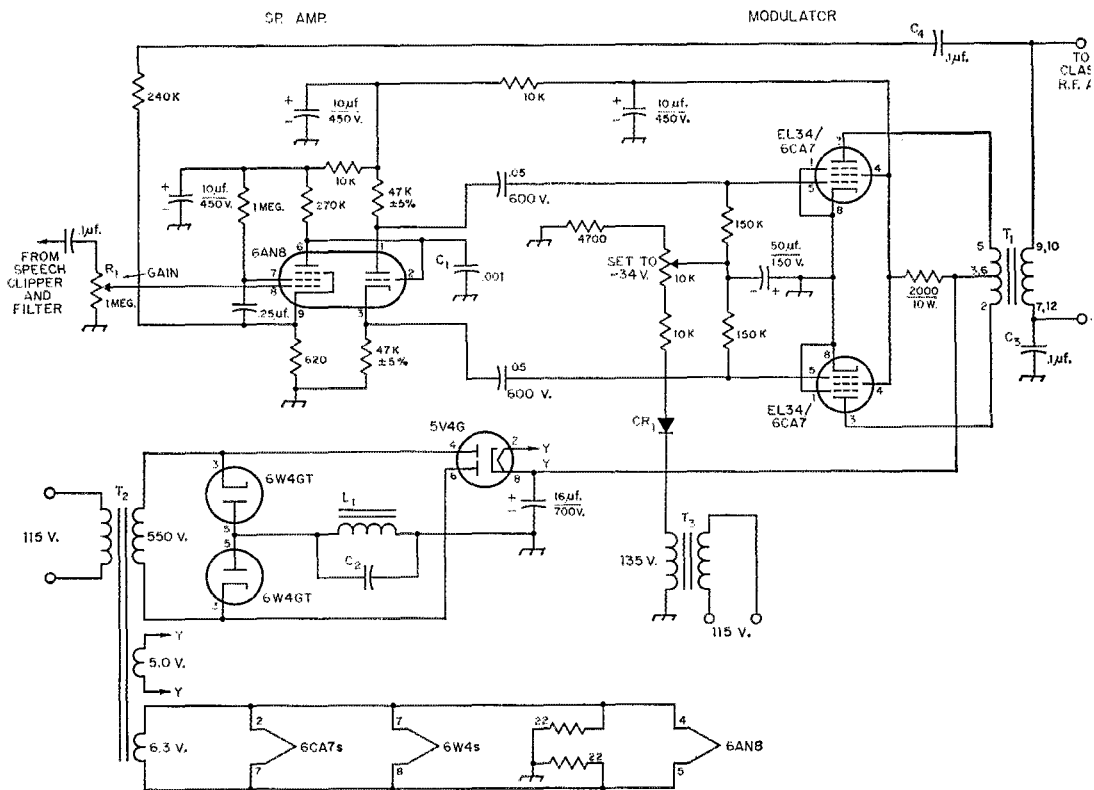


Fig. 4—Circuit of the feed-back modulator. Unless otherwise indicated, capacitances are in $\mu\text{f.}$, resistances are in ohms, fixed resistors are $\frac{1}{2}$ watt. Capacitors with polarities marked are electrolytic; others paper except as listed below.

- C_1 —0.001- $\mu\text{f.}$ mica or ceramic.
- C_2 —0.25- $\mu\text{f.}$ paper, 600 volts.
- C_3, C_4 —0.1- $\mu\text{f.}$ paper, rating according to Class C amplifier plate-supply voltage.
- CR1—Selenium rectifier, 20 ma.
- L_1 —Filter choke, 2 henrys, 150 ma.
- R_1 —1-megohm volume control.

- T_1 —Modulation transformer, multimatch type, 60 watts (Stancor A-3893). Taps should be chosen to give required plate-to-plate load for audio tubes used. See text.
- T_2 —Power transformer, 550 volts c.t., 200 ma.; 5 volts, 2 amp.; 6.3 volts, 5 amp.
- T_3 —TV booster transformer, 135 volts, 15 ma.; filament winding not used. See text.

the distorted wave form required on the grids to produce a reasonable facsimile of a square wave at the output.

The modulator circuit is more or less straightforward. A high-gain pentode stage is direct-coupled to the phase splitter, which drives the output stage. EL-34s were selected here, but 6146s would do as well and would allow considerably more power output to be obtained. Extensive decoupling is used to reduce the possibility of hum and oscillation. The capacitor C_1 is required to reduce the high-frequency response sufficiently to prevent high-frequency ringing or oscillation. Fixed bias is used on the output grids in order to obtain maximum power output with low plate voltage.

The power supply is designed around a surplus TV power transformer which furnishes about 550 volts r.m.s. under load. A bridge rectifier using a pair of 6W4 damper tubes and a 5V4 delivers

about 450 volts for the plates of the output tubes. The high heater-cathode voltage rating of the 6W4s allows the filament winding to be grounded and eliminates the necessity for a separate filament transformer for the bridge circuit.¹ The filter choke is tuned with C_2 , which gives a good measure of ripple reduction, and better regulation under light load conditions.

The bias supply is a simple half-wave type, since little current is required. The transformer used was one that was on hand; a filament transformer with its 6.3-volt winding connected to the filament line would do just as well.

The output connections given in Fig. 4 are for working into a 5000-ohm Class C load. If some other load impedance is to be driven, or

¹ Strictly, the high-voltage heater-to-cathode rating (450 to 500 volts d.c.) applies only with the heater negative with respect to cathode. With heater positive with respect to cathode the rating is 100 volts. — *Ed.*

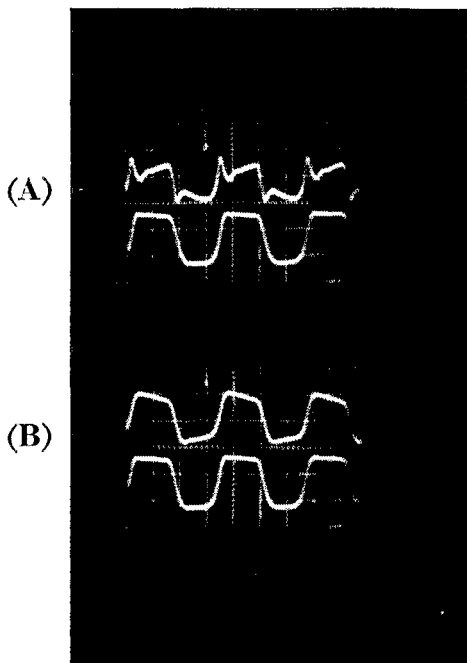


Fig. 6—A—wave form at modulator grids with feedback; B—wave form at grids without feedback. In both cases the input signal is shown in the lower line.

if another modulation transformer is used, it is important that the phase of the secondary winding be correct — if it is reversed, the feedback will be positive instead of negative, and a high-powered audio oscillator will be the net result! The correct condition is one in which the output

voltage is in phase with the input. If an oscilloscope is not available, the phase can be determined in the following way: Place a load across the modulation transformer secondary and ground one end of the secondary as shown in Fig. 7. Now adjust the potentiometer in this figure until E_2 equals E_1 , as measured on a high-impedance a.c. meter, preferably a v.t.v.m. Measure E_3 . If E_3 is zero, or very close to it, the output is in phase with the input, which is as it should be. If E_3 is approximately twice E_1 , the phase is incorrect and the modulation transformer secondary connections should be reversed.

The modulator as shown provides a very satisfactory output when fed with correctly clipped and filtered speech. However, it should be emphasized that this system should not be used unless the preamplifier ahead of it cuts off sharply above 3000 cycles. The actual high-frequency response of the unit extends far beyond the region required for communications, and if used without high-frequency cutoff would only put another very broad signal into our already crowded phone bands.

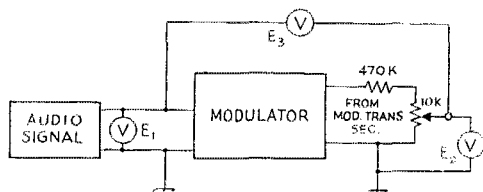


Fig. 7—Setup for determining correct phase of feedback voltage. E_1 is approximately .2 volt r.m.s.

Strays FROM

KN5MUS, operating on board the *SS R. E. Wilson*, wonders if there are any other Novices working maritime mobile.

During the SS, K4GZX worked K6LVT and K6TVL in succession.

I care not where they put me
When with this life I'm through,
As long as from my resting place
I can still call "CQ."
— K0DCC

W8WT is forming a clan of all those whose last name is Jeffery. He's already got ten members signed up, and is looking for more.

K9CKP wonders if he was the first to give the ham exam to a Moon-man. Glen Moon is now KN9JVD.

Silent Keys

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

W1AYL, Samuel E. Powers, Concord, N. H.
W1RYS, William F. Strecker, Piermont, N. H.
W1WOA, George W. Tappan, Rutland, Vt.
W2CHT, Clifford H. Bowie, Huntington, N. Y.
W2QLO, Daniel W. Gibbs, Utica, N. Y.
W2RRQ, Lester E. Grove, Geneva, N. Y.
W3ALX, Henry H. Moyer, Allentown, Pa.
W3NJ, Francis P. Yotter, Cabot, Pa.
W4BWN, Robert E. Cobble, Atlanta, Ga.
W4FHN, Guerny M. Ellis, Colonial Heights, Va.
W5GGQ, William M. Hieronymus, Temple, Texas.
K6ATO, Willard A. Katz, Los Angeles, Calif.
W6RNN, Stuart F. Walmsley, Maywood, Calif.
W7KQN, John C. Langham, Astoria, Oreg.
W8BGG, Robert B. Marshall, Middletown, Ohio
W8FNN, Charles W. Hines, Barns-ville, Ohio
VE3FZ, J. H. Cox, Beamsville, Ontario
VE3VM, George C. Wheeler, St. Catharines, Ontario
ZL1AX, R. Jack Orbell, Auckland, N. Z.

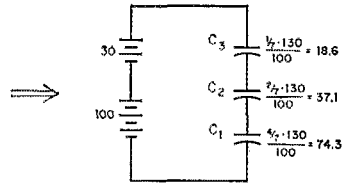
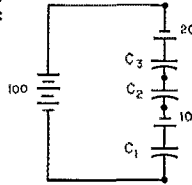
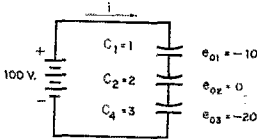
Technical Correspondence

October Quist Quiz

260 Harvard St.,
Cambridge 39, Mass.

Technical Editor, *QST*:

I believe that the answer to the answer given in *QST* (November) to the October Quist Quiz is in error. This situation immediately after the switch is closed is:



A current idt must flow through all the capacitors (since they are connected in series) until $e_1 + e_2 + e_3 = 100$. The charge Q on each capacitor at a time t after the switch is closed is

$$Q_j = Q_{0j} + \int_0^t idt, \quad (j = 1, 2, 3)$$

where Q_{0j} is the initial charge on the capacitor. After a time T the capacitors have become charged; $i = 0, t > T$.

$$Q_j = Q_{0j} + \int_0^T idt \quad (1)$$

The voltage across each capacitor is given by

$$Q_j = C_j e_j; \quad Q_{0j} = C_j e_{0j} \quad (2)$$

and

$$e_1 + e_2 + e_3 = 100 \text{ volts} \quad (3)$$

Combining (1) and (2),

$$e_j = e_{0j} + \frac{1}{C_j} \int_0^T idt$$

Denote $\int_0^T idt$ by J . Then

$$e_j = e_{0j} + \frac{1}{C_j} J \quad (j = 1, 2, 3) \quad (4)$$

The three equations (4) and equation (3) can be solved for e_1, e_2, e_3 and J . We are not concerned with J so we eliminate it.

$$e_{01} = -10 \quad e_{02} = 0 \quad e_{03} = -20$$

$$e_1 = -10 + \frac{1}{1 \times 10^{-6}} J$$

$$e_2 = \frac{1}{2 \times 10^{-6}} J$$

$$e_3 = -20 + \frac{1}{4 \times 10^{-6}} J$$

$$100 = e_1 + e_2 + e_3 = -30 + (1 + \frac{1}{2} + \frac{1}{4}) 10^6 J \\ = -30 + 7/4 (10^6 J)$$

$$130 = 7/4 (10^6 J)$$

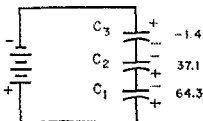
$$10^6 J = 4/7 \times 130 = 74.3$$

$$e_1 = -10 + 74.3 = 64.3 \text{ volts}$$

$$e_2 = \frac{1}{2} (74.3) = 37.1$$

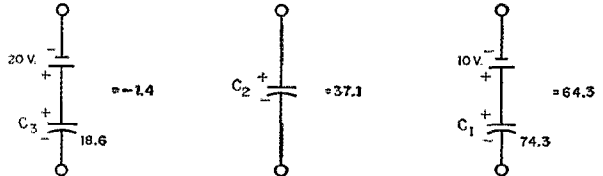
$$e_3 = -20 + \frac{1}{4} (74.3) = -1.4$$

So, in equilibrium (and turning my original drawing upside down, to correspond to the drawing in *QST*),



To solve the problem without using integrals, and in a manner analogous to that used on page 63 of the November *QST*, we would have to consider

But, now to get the correct voltage across each capacitor, we must associate with it the fictitious voltage source corresponding to the initial charge:



which agrees with the above.

— Russell K. Hobbie, W1RHH

(Letters offering similar solutions were also received from W1PLJ, K2RTR, W2UWN, W3EBW, W4AKJ, W4EIN, W4TPV, W5PHI, W6DPU, K9DRU and Daniel DeBra. — Ed.)

Regeneration in the Filter-Clipper

8439 S. Honore
Chicago 20, Ill.

Technical Editor, *QST*:

I constructed the filter-clipper circuit published in the September *QST*. The fine performance claimed by the author and similarly found by me is apparently due to regenerative coupling between the chokes L_1 and L_2 . The coupling, when tight enough, results in sustained oscillation. Slightly looser, on key up, it results in objectionably long damped oscillation, the "ringing" referred to by the author. However, there is a certain optimum amount of coupling which is desirable for best performance. My two chokes are mounted parallel, with centers $1\frac{1}{8}$ inch apart. I was able, by varying the number of layers of paper between the "E" and "I" bars, to vary the frequencies of the two resonant circuits and hence to control the amount of regeneration. It might be pointed out that the leads of the chokes have to be correct to insure regenerative coupling rather than degenerative coupling.

— Loy D. Hagenbook, jr.

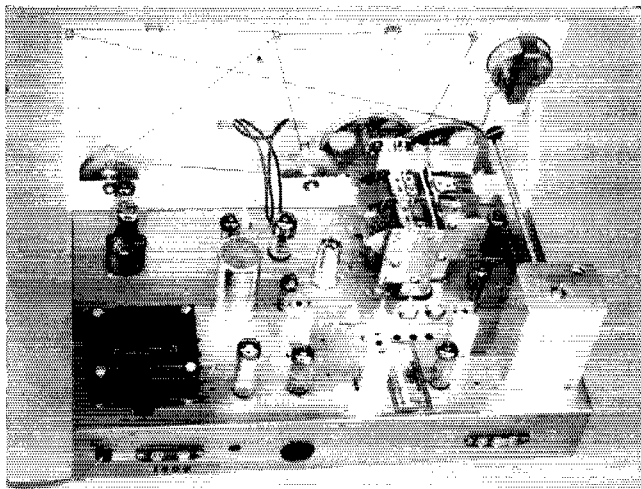
Strays

This has nothing to do with ham radio, but KN5KGF's dad, whose name is Ford, has the Chrysler agency in Laurel, Miss.

The cross-country balloon flight which we mentioned last month (Dec. *QST*, p. 65) was called off because of weather. Present plans call for the flight to be attempted this spring.

• Recent Equipment —

A top view of the NC-109 out of its cabinet. The shield can at the right houses the crystal filter.



The National NC-109 Receiver

THE HAMs and SWLs who had NC-109 receivers when the *Sputniks* were launched really stole a march on the rest of the gang, because they were all set to listen to the Russian satellite on either 20 or 40 Mc. Yes, this receiver covers the spectrum from 0.54 to 40.0 Mc., quite a range for a medium-priced receiver. The two-dial NC-109 does it in four bands: 0.54 to 1.6 Mc., 1.6 to 4.7, 4.6 to 15.0 and 14.0 to 40.0 Mc.

The NC-109 is a single-conversion receiver (i.f. of 455 kc.) that gets its i.f. selectivity from a crystal filter. Six degrees of selectivity are provided, ranging from a -6 db. band width of 4 kc. to about 50 cycles. Corresponding band widths at -60 db. are 22 and 6.5 kc.

A block diagram of the receiver is shown in Fig. 1. The separate high-frequency oscillator uses the grid-tickler circuit, long a favorite circuit for stability with the manufacturer. The crystal filter selectivity is varied by detuning the tank circuit that serves as the filter load (instead of

changing the *Q* as has been done in some other receivers). Manual gain and a.g.c. are applied to the r.f. and two i.f. stages. In the detector and the receiver gets a little fancy, using a 6AL5 as automatic noise limiter and a.m. detector (when are we going to start calling these "envelope detectors"?) and a 6BE6 as b.f.o. and side-band detector ("conversion" or "heterodyne" detector). Output from the detector in use is amplified by a 12AT7 triode and the 6AQ5 output tube. The second 12AT7 triode is used as an S-meter amplifier, metering the a.v.c. voltage during a.m. reception.

Tube complement of the NC-109 is rounded out by the 5Y3GT rectifier in the power supply and the 0B2 voltage regulator. Regulated voltage is used on the high-frequency oscillator, r.f. screen, mixer screen and plate, i.f. screen and plate, b.f.o. screen and plate and meter amplifier plate.

Externally the NC-109 bears a family resem-

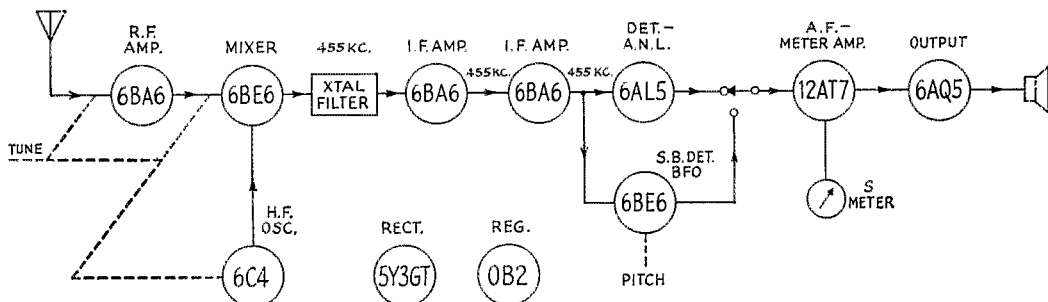
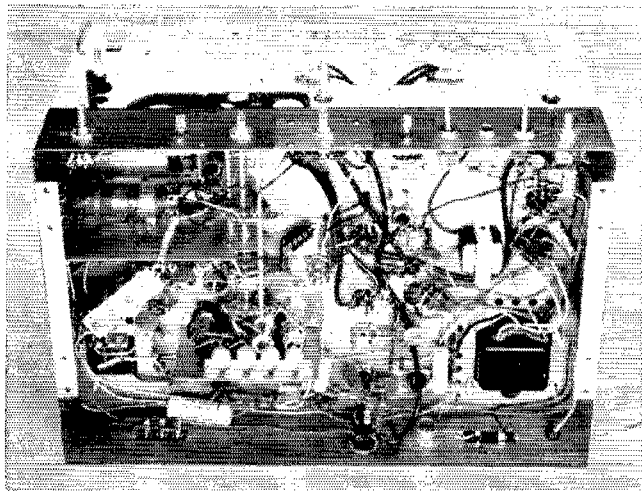


Fig. 1—Block diagram of the NC-109 receiver. The receiver covers 0.54 to 40.0 Mc. in four bands.

The r.f. coils are all wound on one form and the mixer coils are all wound on another form, but individual oscillator coils are used, wound on slug-tuned ceramic forms.



blance to the larger NC-300, in that the same general styling is used. Full-vision linear dial scales are used; string drive ties the dial pointers and the capacitor shafts to the counterweighted tuning-knob shafts. Eight turns of a tuning knob sends its corresponding pointer across the scale; the amateur bands vary in the amount of the scale they occupy, as is common in receivers of this type. Panel controls other than the two tuning knobs (band set and band spread) include the antenna trimmer, crystal filter selectivity and phasing, (b.f.o.) pitch, sensitivity and volume. Toggle switches are used for the send-receive and high-low tone control jobs, and rotary switches change bands and select the mode (ANL, AM, SSB, CW, ACC). In the acc position the receiver is properly connected to the accessory socket (at the rear of the receiver) for f.m. reception provided, of course, you have purchased the necessary NFM-83-50 adapter and have plugged it in. We suspect that the XCU-109 Crystal Calibrator will be a more popular unit at the accessory socket, since it provides 100-ke. marker signals

throughout the spectrum. The instruction book includes the schematic diagram of the XCU-109, for the amateur who prefers to save a few dollars by building his own calibrator. A switch on the calibrator turns its plate voltage on and off; it is not necessary to switch to ACC to get output from the calibrator. The difference between the ssb and cw positions of the mode switch is a change in the gain-control characteristic; in the cw position the gain reduces faster as you turn the sensitivity control counterclockwise.

The NC-109 has no provision for listening with both the b.f.o. and the a.v.c. off, and as a result, some users may start up the old "side-band-is-broad" story because they can't disable the a.v.c. without turning on the b.f.o. But a savvy owner could correct that situation in a hurry, just as he could substitute a d.p.d.t. toggle for the existing send-receive switch, bring out a pair of extra leads from the switch to the accessory socket and have a single switch for controlling his station. — B. G.

Strays MRO

W2EQS called CQ and was answered by W2BKZ and W6BKZ on the same frequency.

— . . . —

KN4SHE is a YL, reports W4YZC.

— . . . —

K6COP doesn't know when to give up. His 15-meter antenna was down, so he used his 40-meter folded dipole. His final gave up the ghost and so he hooked the antenna to the buffer and

proceeded to work a W9 on 15-meter s.s.b., with 2.8 watts input!

— . . . —

KH6UL called CQ on 10 meters and was answered by W5DNK and K5DNK at the same time.

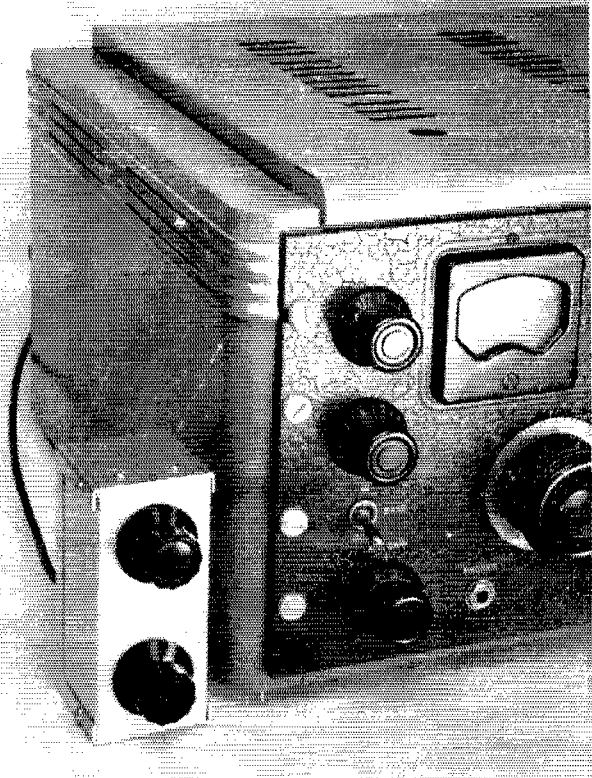
— . . . —

KN4ROZ, of Winder, Georgia, says he's interested in starting up a net for rag-chewing and Civil Defense. Write *him* if interested.

New Hampshire license plates are displayed by several members of the Manchester Radio Club, l to r: Conrad Proulx, W1KBU; club president John O'Reilly, Jr., W1SWP; vice-president Albert Haworth, W1YHI; Roger Couturier, W1WUR; treasurer Henry Hawkins, W1NKI; John Beasley, W1ELH. (Photo courtesy Union Leader.)

January 1958





View of the Q multiplier showing its single connecting cable to the receiver. The box can be placed in any convenient spot on or around the receiver.

Transistorized Q Multiplier

*A Device for Increasing
Receiver Selectivity*

BY E. LAIRD CAMPBELL,* WICUT

Most of the transistor applications involve first considering a vacuum-tube application and then sitting down and figuring out a transistorized equivalent. But not the transistorized Q Multiplier! Here is a fine example of an experimenter noticing an effect with a transistor that wasn't to be expected and then utilizing it in another application. Although this is a straightforward constructional article, it also shows how an alert experimenter can discover new effects and circuits in this hobby of ours.

IT MAY SEEM strange that the transistorized Q Multiplier started its career as a transistor beat-frequency oscillator. Our vintage "all-wave" receiver tuned several amateur c.w. bands but was without a b.f.o. An interest in transistors naturally led to the construction of a simple transistorized variable oscillator that operated at the i.f. of the receiver. The scheme worked remarkably well and the oscillator was stable enough to use for serious c.w. operating. The b.f.o. obtained its power from small penlight batteries. When one set of these batteries neared the end of its life, the metamorphosis took place!

Since the voltage was low, the oscillator failed to oscillate and was only regenerative. While frantically turning the tuning control of the b.f.o. and trying to find a beat note, a strange thing was observed. As the frequency of the ex-oscillator was changed, a notch moved across the passband of the receiver. Further experimentation showed this notch to be extremely sharp, and when the device was connected into another receiver (which already had a b.f.o.) it proved effective and practical for removing unwanted heterodynes. With this principle in hand, another model was constructed with means for controlling the amount of regeneration. Not only did this improved version work better, but it had a variable notch width that was controlled by varying the amount of regeneration.

Circuit and Theory

After a practical working model was finished the next step was to explain how the unit functioned. It was quite plain that the transistorized version of the Q multiplier used a different principle of operation than did its vacuum tube counterpart.¹

Parallel-tuned circuits have been used for years as "suck-out" trap circuits. Properly coupling a parallel-tuned circuit loosely to a vacuum-tube amplifier stage, it will be found that the amplifier stage has no gain at the frequency to which the trap circuit is tuned. In other words, the additional tuned circuit puts a "notch" in the response of the amplifier. The principle is used in

* Technical Assistant, *QST*.

¹ Harris, "Simplified Q Multiplier," *Electronics*, May, 1951.

Villard & Rorden, "Flexible Selectivity for Communication Receivers," *Electronics*, April, 1952.

TV and other amplifiers to minimize response to a narrow band of frequencies.² Increasing the Q of the trap circuit reduces the width of the rejection notch.

The transistorized Q multiplier apparently makes use of the above effect for its operation. A tuned circuit is made regenerative to increase its Q and is coupled into the i.f. stage of a receiver. By changing the frequency of the regenerative circuit, the sharp notch can be moved about across the passband of the receiver. The width of the notch is changed by controlling the amount of regeneration.

Although it seems paradoxical, the transistorized Q multiplier with no change in circuitry will also permit "peaking" an incoming signal the way a vacuum-tube Q multiplier does. The mode of operation is selected by adjustment of the regeneration control, and this then usually requires a slight readjustment of the frequency control. The peaking effect is not quite as pronounced as the notch, but it is still adequate to give fairly good single-signal c.w. reception with

² E.g., Dome, *Television Principles*, p. 197, published by McGraw-Hill Book Co., New York.

a receiver of otherwise inadequate selectivity.

The principle of regenerative peaking of this type has been used in amateur radio before.³ Apparently the regenerative circuit builds up the signal and feeds it back to the amplifier at a higher level and in the proper phase to add to the original signal. The notch effect described earlier works in a similar manner except that the adjustment of the regenerative circuit is such that it feeds back the signal out of phase.

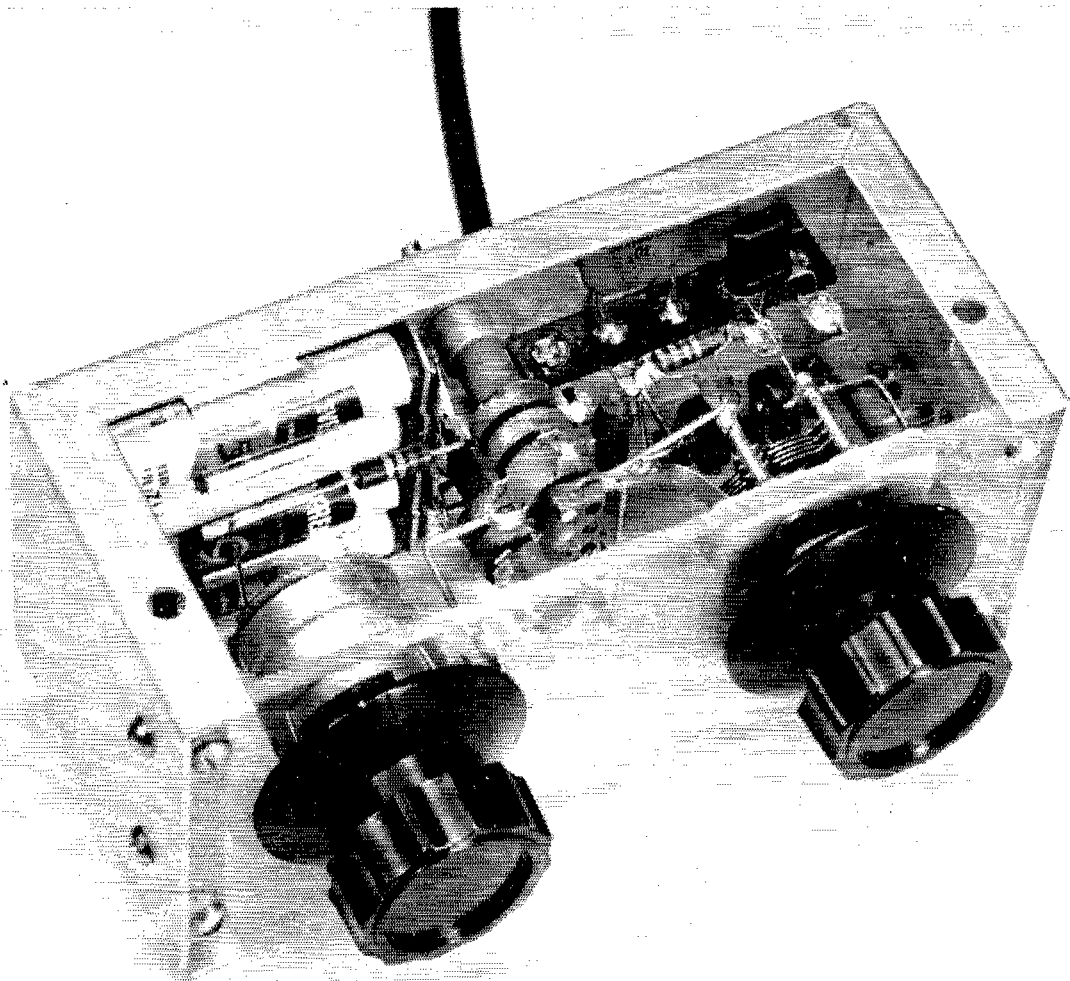
The schematic diagram of the Q multiplier is Fig. 1. The inductor L_1 furnishes coupling from the receiver to the Q multiplier, and C_4 is included merely to prevent short-circuiting the receiver's plate supply. The multiplier proper consists of the tunable circuit $C_1C_3L_2$ connected to a transistor in the collector-tuned common-base oscillator circuit using capacitive feedback via C_2 . Regeneration is controlled by varying the d.c. operating voltage through dropping resistor R_1 .

Layout

The unit and power supply are built in a small

³ Jensen, "Regenerative Amplification at Signal Frequency," *QST*, December, 1935.

The Q multiplier and its battery supply are combined in one small Minibox. The single transistor is visible near the top right corner.



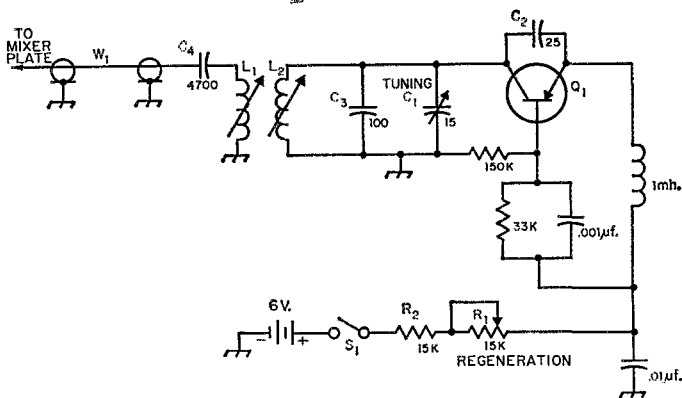


Fig. 1—Circuit diagram of the transistorized Q multiplier. Unless otherwise indicated, capacitances are in $\mu\text{mf.}$, resistances are in ohms, resistors are $\frac{1}{2}$ watt.

C_1 —15- $\mu\text{mf.}$ variable capacitor (Hammarlund HF-15).
 L_1 —1000–2000- $\mu\text{h.}$ slug-tuned coil (North Hills 120-K.
 North Hills Electric Co., Mineola, N. Y.).

L_2 —500–1000- $\mu\text{h.}$ slug-tuned coil (North Hills 110-J).
 Q_1 —CK768 PNP junction transistor.
 W_1 —Three-foot length of RG-58/U cable.

aluminum "Minibox" measuring $5 \times 2\frac{1}{4} \times 2\frac{1}{4}$ inches (Bud CU-3004) and the operating controls are mounted on a lucite or aluminum subpanel. As you can see from the photographs, all parts of the unit are built on one half of the box. This feature not only simplifies construction but makes a battery change a simple job, even if this is required only a couple of times a year!

All major components, such as the two slug-tuned coils, tie point, battery holder, regeneration and tuning controls, are mounted directly on the box and subpanel. The remaining resistors, capacitors and the single transistor are supported by their connections to the above parts.

The two slug-tuned coils, L_1 and L_2 , are centered on the box and spaced one inch apart on centers. Operating controls C_1 and R_1 are placed $1\frac{1}{4}$ inches from the ends of the subpanel and centered. The tie point mounts directly behind tuning control C_1 .

Power for the unit is supplied by four penlight cells (type 912) which are mounted in the battery holder (Lafayette Radio Co. Stock No. MS-170) directly behind regeneration control R_1 . Total drain on the battery never exceeds 0.2 ma.

Connection to the receiver is made with a three-foot length of RG-58/U cable brought through the rear wall of the Minibox. A rubber grommet should be placed in the hole to prevent chafing of the cable insulation.

When soldering the transistor in place, be sure to take the usual precautions against heat damage.

Alignment

After completing the wiring (and double-checking it) connect the open end of the three-foot cable to the plate circuit of the receiver mixer tube. This can be done in a permanent fashion by soldering the inner conductor of the cable to the plate pin on the tube socket or any point that is connected directly to this pin, and by soldering

the shield to any convenient nearby ground point. If you are one of those people who is afraid to take the bottom plate off his receiver,⁴ and you have a receiver with octal tubes, a "chicken connection" can be made by removing the mixer tube and wrapping a short piece of small wire around the plate pin. Reinsert the tube in its socket and solder the center conductor of the coax to the small wire coming from the plate pin. Now ground the coax shield to the receiver chassis. It is important to insulate the lead from the tube pin to the coax, and to keep it as short as possible to prevent stray pickup.

Check the schematic diagram of the receiver for help in locating the above receiver connection.

Now it is time to turn on the receiver and tune in a signal strong enough to give an S-meter reading. Any decent signal on the broadcast band will do. Next, tune the slug on L_1 until the signal peaks up. Actually, what you are doing is tuning out the reactance of the connecting cable, and effectively peaking up the i.f. If the receiver has no S meter, use an a.c. voltmeter across the audio output. When this step has been successfully completed the Q multiplier is properly connected to the receiver and when switched to "off" will not affect normal receiver operation.

The next step is to bring the multiplier into oscillation, and to adjust its frequency to a useful range for our purpose. Set the tuning control to half capacity and advance the regeneration control to about half open. This latter movement also turns the power on. Tune the receiver to a clear spot and set the receiver b.f.o. to the center of the pass band. Now adjust the slug of L_2 . The multiplier should be oscillating, and somewhere in the adjustment of L_2 a beat note will be heard

(Continued on page 150)

⁴ Goodman, "Who's Afraid of a Receiver?", QST, May, 1957.

Scientific Telemetry for USNC-IGY

How Amateur Recordings Can Aid in the Satellite Program

BY WHITNEY MATTHEWS *
AND GEORGE H. LUDWIG **

ARTIFICIAL earth satellites planned to be launched by the United States as a part of the International Geophysical Year will be of several types, each containing a different combination of scientific experiments. One group of satellite designs will provide continuous transmission of telemetered scientific information which will be rather easily received and recorded by interested radio amateurs and high-fidelity hobbyists, or by scientific organizations. This group of experiments will measure the intensity of the solar radiation in the Lyman-alpha region of the hydrogen spectrum, the intensity of primary cosmic rays, and environmental conditions. Wide volunteer participation is desirable for receiving and recording data from those satellites employing continuous telemetering. Participation in areas not near a primary telemetry recording station will be particularly valuable.

A second group of satellites will employ satellite-borne tape recorders for obtaining complete synoptic data, or will require relatively high power consumption for making measurements. Such satellite designs will carry a "command" receiver to initiate data transmission upon interrogation by one of the primary telemetry recording stations. General participation in the collection of data from this second group of satellites is impractical. However, limited participation by volunteers located near enough to a primary station to receive the data initiated upon command may be of value as a backup to the primary recording.

With one exception, all telemetered data from

* U. S. Naval Research Laboratory, Washington, D. C.

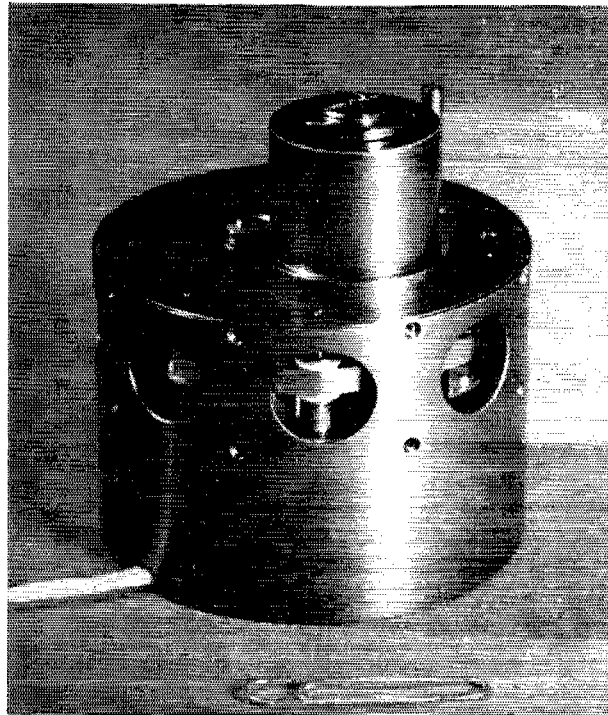
** State University of Iowa.

US-IGY satellites will be transmitted by amplitude modulation of the radio tracking transmitter operating at 108 megacycles. Many radio amateurs now own communications receivers capable of receiving these signals. High-fidelity f.m. tuners cover this transmission frequency, which lies at the upper end of the f.m. broadcast band, and could easily be adapted to reception of these signals by the addition of an a.m. detector. Commercially available antennas for fringe-area reception of f.m. broadcast signals should provide adequate gain for all but the most unfavorable reception conditions. All frequency components of the telemetry signals lie below 15 kilocycles and are thus within the recording capability of many of the magnetic tape recorders now in use in home high-fidelity music systems.

The ideal amateur recording would be made with a high-fidelity stereophonic home tape recorder operated at its maximum tape speed. Stereophonic or dual-track heads are available for most of these recorders. One recording track would carry the satellite telemetry signal while the second was being used simultaneously to record regularly-broadcast WWV timing signals, including at least one time announcement.¹ Single-track recordings without the precision timing signals could be of interest in many cases, as in the event of a satellite with short active life or the occurrence of an unusual scientific event during the recording interval.

¹ Another possibility for simultaneous recording on a monaural (but high-fidelity) recorder is to use a simple mixer and feed the telemetering signals and WWV simultaneously to the tape. A low-pass filter—cutoff in the neighborhood of 2500 cycles—would prevent any components of the WWV voice announcements from interfering with the telemetry recording, in the Lyman-alpha experiment. — *Editor.*

Tape recorder developed for satellite instrumentation. Note paper clip in foreground for size comparison.



A. VOLUNTEER TELEMETRY RECEPTION OF DATA FROM THE LYMAN-ALPHA ENVIRONMENTAL SATELLITE

Scientific experiments in the Lyman-alpha environmental satellite will be devoted to a study of measurement of ultraviolet radiation in the Lyman-alpha region of the solar spectrum and environmental measurements relative to satellite temperatures and collisions between the satellite and micrometeoritic particles.²

Solar Lyman-alpha radiation will be measured by means of a highly specialized type of ionization chamber sensitive only in the desired region of the solar spectrum. Solar radiation always contains energy in the Lyman-alpha region, with marked increases occurring during periods of solar flares. The satellite solar Lyman-alpha experiment proposes to study both the Lyman-alpha radiation from the quiescent sun and the peak values associated with solar flares.

Since the proposed orbit for the earth satellite will cover nearly two thirds of the earth's surface, the cost of a sufficient number of recording stations to provide continuous observation would be prohibitive. Primary ground recording stations will be installed along roughly a north-south line extending down the east coast of the United States and the west coast of South America. This chain of recording stations will provide approximately a one-per-orbit observation of the telemetered satellite signals. Meager information regarding the correlation of Lyman-alpha radiation with observed solar flares will be provided by a telemetry memory unit in the satellite. The memory unit will store data on the peak or maximum value of solar Lyman-alpha radiation in each orbit, for continuous transmission during the succeeding orbit. This information will be recorded by primary recording stations and will be valuable when correlated with visually-observed solar flares.

In addition, the telemetry system will be transmitting data on instantaneous values for study of radiation from a quiescent sun. The occurrence of a solar flare during the brief interval when the satellite is passing over one of the primary recording stations, where the signals would be recorded with precision timing markers, would be desirable indeed. Unfortunately, the possibility that this will happen is quite remote. An adequate number of amateur observers, properly distributed, could make certain the recording of solar Lyman-alpha radiation as a function of time during a solar flare. Of all the satellite experiments, it is here that the amateur observer has the greatest potential contribution. The amateur observer who can have (1) a solar flare occur while (2) the satellite is passing overhead viewing the sun while (3) he is making a usable telemetering recording, would be most welcome!

² The Lyman-alpha experiment is under the direction of H. Friedman of the Naval Research Laboratory; the portion of the instrumentation concerned with environmental measurements is under the direction of H. E. LaGow, also of the Naval Research Laboratory.

One other measurement is required to complete data for the solar Lyman-alpha experiment; viz., a determination of the aspect of the satellite with respect to the sun. Aspect information is determined by study of signals supplied by silicon solar aspect cells located on the equator of the satellite.

Other Experiments

Satellite temperatures will be measured by means of three thermistors located (1) in the internal instrument package, (2) on the satellite outer shell near the equator, and (3) on the satellite outer shell near one pole.

The remainder of scientific experiments in this satellite design are those devoted to collisions between the satellite and micrometeoritic particles. Three and possibly four types of experiments will be performed. The first type will use small erosion gauges attached to the outer surface of the satellite. These consist of thin film resistors deposited on glass, and by monitoring the resistance of these gauges it is possible to detect wearing away of the resistive elements due to collision with small particles. A cadmium sulfide detector, consisting of a photo-resistive element covered by an opaque material, may be substituted for one of these erosion gauges. When exposed to sunlight the resistance of this element will be a function of the amount of opaque material which has been removed from the sensitive element by collision with small particles.

Impacts with particles sufficiently large to penetrate the outer shell will be studied by monitoring the differential pressure between two pressurized zones. By fixing the pressure in these two zones at slightly different initial values it is possible for the single differential pressure measurement to indicate puncture of either or both zones.

The final meteor experiment uses a group of sensitive microphones attached to the skin of the satellite as detecting elements. Signals from these microphones drive special counting circuitry associated with the telemetry system to continuously transmit data showing the cumulative number of collisions.

In addition to the telemetry channels required for transmitting the above data, other channels will be used to monitor battery voltages and provide calibration and identification signals.

Signal Codes

The telemetry encoder system produced for this satellite design transmits a series of high-frequency audio bursts in which intelligence is carried in the burst frequency, the time duration of the burst, and the duration of the interval between bursts. Burst frequencies lie in the region between 5 kc. and 12.5 kc. Burst durations and blank intervals can vary over a range of 4 to 30 milliseconds, although the dynamic ranges of many intervals are restricted to permit proper availability of telemetry time for the solar Lyman-alpha experiment. Each frame or scan of all input signals contains sixteen bursts and spaces between bursts, thus providing 48 poten-

Table I

**Telemetry Channel Assignments
Lyman-Alpha Environmental Satellite**

Burst No.	High Frequency Burst		Burst Duration		Interval Between Bursts	
	Channel	Function	Channel	Function	Channel	Function
1	A	Instan. Lyman-alpha	A1	Polar erosion A.	A2	Battery volts
2	B	Solar aspect	B1	Differ. pressure	B2	Short calibrate
3	A	Instan. Lyman-alpha	A1	Polar erosion A	A2	Battery volts
4	B	Solar aspect	B1	Differ. pressure	B2	Short calibrate
5	A	Instan. Lyman-alpha	A1	Polar erosion A	A2	Battery volts
6	B	Solar aspect	B1	Differ. pressure	B2	Short calibrate
7	C	Meteor count, units	C1	Long calibrate	C2	Battery volts
8	D	Meteor counts, tens	D1	Package temperature	D2	Polar skin temperature
9	A	Instan. Lyman-alpha	A1	Polar erosion A	A2	Battery volts
10	B	Solar aspect	B1	Differ. pressure	B2	Short calibrate
11	A	Instan. Lyman-alpha	A1	Polar erosion A	A2	Battery volts
12	B	Solar aspect	B1	Differ. pressure	B2	Short calibrate
13	A	Instan. Lyman-alpha	A1	Polar erosion A	A2	Battery volts
14	B	Solar aspect	B1	Differ. pressure	B2	Short calibrate
15	E	Meteor count, hundreds	E1	Polar erosion B	E2	Equator skin temperature
16	F	Peak Lyman-alpha	F1	Equator erosion	F2	Cadmium sulfide cell

tial information channels even though only 17 different scientific data signals are to be transmitted.

The currently planned telemetry channel assignments are shown in Table I. There is a frequent repetition of Channels A and B, presenting solar Lyman-alpha and solar aspect signals. This frequent repetition, together with the use of a high-frequency burst display which permits a continuously-variable frequency to follow instantaneous changes, provides the necessary information from the input devices. Technical considerations dictate a similar repetition of the associated time interval channels A1, A2, B1, and B2.

The general character of a set of calibration curves for a typical telemetry encoder is shown in Fig. 1. Each telemetering system must receive extensive individual calibration, so the curves are not to be considered adequate for data interpretation. They do, however, present sufficient information to enable an amateur observer to determine which records he has made could be of potential interest to the scientist whose equipment is installed in the satellite. It should be noted that the cadmium sulfide cell meteor detector may not be flown, in which case it will be replaced by a surface erosion gauge similar to those included in channels E1 and F1. Present status of the possible cadmium sulfide cell experiment does not permit presentation of approximate calibration at this time. If used, this information will be presented as the burst spacing on the F2 channel.

B. TELEMETRY SYSTEM TO BE USED WITH THE COSMIC-RAY AND METEOR SATELLITE

Due to a recently announced change in the

U. S. Satellite program, the cosmic-ray experiment developed by the State University of Iowa³ will be launched by a vehicle developed by the U. S. Army. At the time of this writing two different sets of instruments or "payloads" are being prepared. One set measures cosmic rays, meteoric density, and several temperatures on the satellite. The other payload includes the same measurements but also involves a tape recorder and ground interrogation system. When the satellite is launched an announcement will be made as to which payload is involved.

Cosmic Ray Discussion

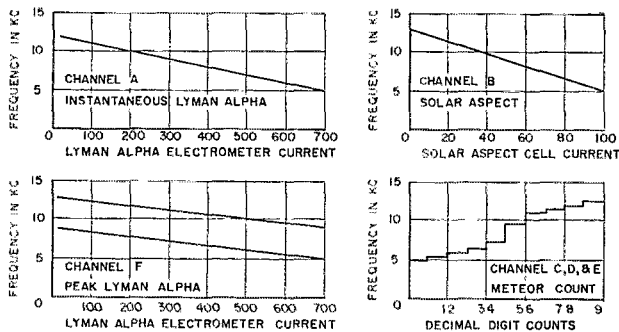
The measurement of cosmic-ray intensity outside the atmosphere of the earth and over a wide range of latitude is important to learning more both about these particles and about the planet Earth. The theory of the SUI cosmic-ray experiment has been discussed elsewhere⁴ but will be summarized here for the sake of completeness.

A single satellite-borne Geiger counter measuring the total omnidirectional cosmic-ray intensity will make possible the study of the arrival of the primary cosmic radiation on a comprehensive geographical and temporal basis for the first time. A storage system, which essentially stores the average counting rate for short periods of time, is included. The time required for one orbit can be split into, say, fifty segments and the average intensity for each segment can be assigned with a statistical uncertainty of less than 3.5 per cent. It can be split into different numbers of segments

³ This work is being carried out under the direction of James A. Van Allen and George H. Ludwig, State University of Iowa.

⁴ J. A. Van Allen, "Cosmic Ray Observations in Earth Satellites," in *Scientific Uses of Earth Satellites*, University of Michigan Press, Ann Arbor, Mich.; 1956, pp. 171-187.

HIGH FREQUENCY BURSTS: APPROXIMATE CALIBRATION



TIME INTERVAL CHANNELS: APPROXIMATE CALIBRATION

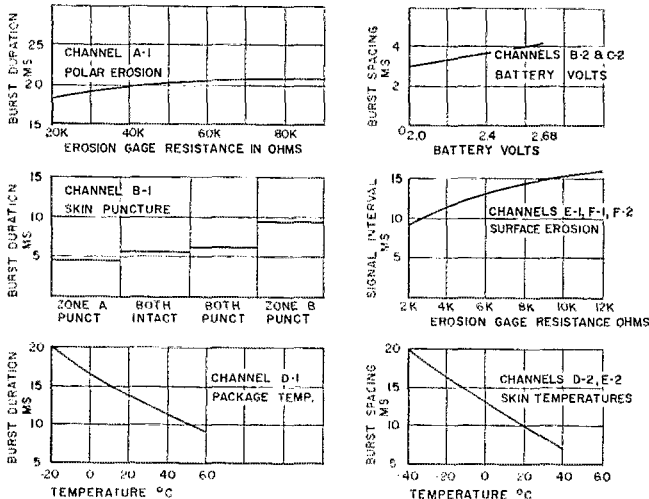


Fig. 1—Approximate telemeter calibrations. These are representative only; actual instruments will have individual calibrations for each satellite.

with correspondingly reduced or increased uncertainties.

The data to be obtained from such a system can be interpreted with respect to (a) determination of the effective geomagnetic field; (b) study of time variations of intensity, and their correlation with solar and magnetic observations, and with the intensity of secondaries observed at ground stations; and (c) the magnetic rigidity spectrum of the primary radiation.

Measurements of Meteoric Matter

Two instruments are being included in the instrumentation for the Cosmic-ray satellite to make two types of measurements of small meteoric particles. The first instrument is an impact microphone, which will respond to actual impacts of small particles hitting the satellite shell anywhere on its surface. This measurement gives indications of the numbers of particles within a certain momentum range.

The other instrument is composed of several erosion gauges. Some of these are grid-like struc-

tures electrically connected in parallel. If one of the grid wires is hit by a particle physically large enough to break the wire, the over-all resistance of the string will change in a step-wise manner. Also included in the set of gauges is one composed of a very thin film of resistive material. The total resistance of this gauge will change slowly as the material is removed by the "sandblasting" action of cosmic dust, traveling with a very high relative velocity. The gauges for the measurement of meteoric material were developed and provided by the Air Force Cambridge Research Center.

Radio Equipment

The radio transmission and telemetering system is being produced and assembled at the Jet Propulsion Laboratory of the California Institute of Technology. The two payloads mentioned at the start of this section will each contain two transmitters, one of which will operate on the primary tracking frequency of 108.000 megacycles, and the other on the subsidiary frequency 108.030 megacycles. The first payload will contain two transmitters which will operate continuously and will each carry four continuous simultaneous channels of telemetering. One transmitter will radiate approximately 60 milliwatts of power on 108.030 megacycles. This transmitter will carry a battery supply which should enable it to remain operative for approximately two weeks. The telemetering will be carried in the form of amplitude modulation in standard RDB telemetering Channels 2 through 5 (518 to 1320 c.p.s.). The frequency of the lowest channel—the one beginning at 518 c.p.s.—may be shifted to some frequency above 2600 c.p.s. in order to insure compatibility with the primary Minitrack tracking network. Four channels of information will be carried on the four telemetering bands. This transmitter will use a turnstile antenna.

The other transmitter will radiate approximately 10 milliwatts of power on 108.000 megacycles. It will have a battery supply which should enable it to operate for approximately two months. This transmitter will also carry four channels of information on the same RDB telemetering frequencies—in the form, however, of small-deviation phase modulation. The antenna for this transmitter will be formed by electrically splitting the satellite payload shell and driving the two pieces, thus generating a linearly polarized signal.

Although eight different telemetering channels have been mentioned, two of these will be used in duplicate, hence seven types of information will be carried. The higher-power transmitter will carry two temperature measurements. Channel 2 (518-602 c.p.s.) will carry a measurement of the temperature of the outside of the payload case somewhere near the aft end. Channel 3 (675-785 c.p.s.) will carry a measurement of the temperature of the interior of the transmitter. Channel 4 (888-1032 c.p.s.) will carry information derived from an impact microphone measuring the collision frequency with small meteors. Channel 5 (1202-1398 c.p.s.) will carry cosmic ray information and is of the most interest so far as telemetry reception from other parts of the world is concerned.

Form of Information

The information on the four channels carried by the low-power transmitter will be in the form of phase modulation and will be recoverable by equipment of the type represented by the JPL Microlock system.⁵ Amateur radio stations possessing this type of equipment should be able to receive this telemetry without difficulty. It may also be possible for others to receive the telemetry on this channel using more conventional radio receivers either with a discriminator or by the use of slope detection on the side of the intermediate-frequency amplifier response curve. The low-power transmitter will carry two temperature measurements, a measurement of the change of resistance of the erosion gauges mentioned above, and the cosmic-ray measurement.

Telemetry Recording

It is most desirable that any telemetry received from either of these transmitters be recorded on magnetic tape. If this is possible, it is further desirable that some sort of standard frequency be placed on the tape, as well as indications of precise time. The 60-cycle line frequency may be used as a standard frequency if it is accurately controlled. Alternatively, a 400-cycle tuning fork or similar device could be used. Time can be put on the tape in the form of WWV ticks (the 440-cycle note from WWV would also be a suitable

frequency reference to check the speed of the magnetic tape); however, the 600-c.p.s. tone and voice on WWV could interfere with telemetering tones.

If a tape recorder is not available, information could be recorded manually by using a suitable band-pass filter for telemetering Channel 5. The information on Channel 5 is a measure of the instantaneous ionization caused by cosmic radiation. The instrumentation consists of a Geiger-Mueller counter tube operating into a scale-of-32 circuit. The output of the last scaler circuit controls the frequency of the telemetering sub-carrier oscillator. The tone of the oscillator will change each time a new count goes into the last circuit of the scaler. The tone will shift back and forth every time 16 total counts have been received. This is expected to happen on the order of once per second. If a band-pass filter is used to separate the Channel 5 tone from the other channels, the number of events taking place over a given time span can be counted by ear.

The information from the impact microphone will be carried in a similar manner, the output of the microphone going into a scale-of-two circuit. The Channel 4 subcarrier oscillator on the higher-power transmitter will be connected to the scale-of-two circuit in such a way that the tone changes each time a count is received. Impacts are expected on the order of once every few seconds, hence these could also be counted manually by the use of a proper band-pass filter. A simple filter for these two channels is shown in Fig. 2. It could easily be constructed and attached to the output of a receiver for the purpose of sorting out one or both of these telemetering channels.

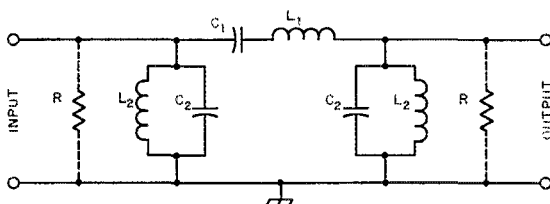
It is preferable from the standpoint of the experimenter and the cognizant agency that, if possible, the telemetering be recorded in as complete a form as possible on magnetic tape. However, tapes should not be sent before being requested.

The second satellite payload will also contain two transmitters. One transmitter will radiate approximately ten milliwatts of power, and operating on 108,000 megacycles will be used as the primary tracking source. The first transmitter will carry the four channels of information listed above for the low-power transmitter. This satel-

(Continued on page 160)

⁵ H. L. Richter, "Microlock," *QST*, December, 1957.

Fig. 2—Simple band-pass filter for separating out one telemetering channel. Values of inductance and capacitance depend on input and output impedances, indicated by R. A design value of 1000 ohms is suggested; this will be satisfactory for headphone use.



	C_1	C_2
Channel 4	$\frac{12.5 \mu\text{f.}}{R}$	$\frac{1105 \mu\text{f.}}{R}$
Channel 5	$\frac{9.28 \mu\text{f.}}{R}$	$\frac{812 \mu\text{f.}}{R}$
	L_1	L_2
Channel 4	2.21R mh.	0.025R mh.
Channel 5	1.62R mh.	0.018R mh.

For his interest in the United States Navy and Naval Communications,

he it known that

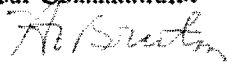
is hereby designated as

Honorary Naval Communicator

H. C. BRUTON

Rear Admiral, U. S. Navy

Director, Naval Communications



The Director of Naval Communications, in further recognition of the service rendered by the Radio Amateurs of Greater Syracuse, has designated the following members of the RAGS committee as Honorary Naval Communicators: Mrs. Trewey W. Pearson, K2QXI; Mr. Edward D. Eachus, K2DUY; Mr. John M. Jeffords, W2WS; Mr. Robert E. Ostrowski, W2QAR; Mr. Raymond G. Schmitt, W2ABV; and Mr. Paul P. Blum, W2KCR. Each of the committee has received a membership card similar to that pictured above, together with a signed letter of appreciation from Rear Admiral Bruton, USN, W4IH.

The following word is in from W6OPX and W6QYT on the November Smokepuff firings. Shot number two which was fired at 0930 November 19 produced only disappointing results. A radar at 23 Mc. received an echo for only ten seconds, but an ionosphere recorder at White Sands had a 12 Mc. reflection for thirty minutes. No reports of successful cloud reception by amateurs were received. Shot number three was fired at 0555 on November 26 and produced a spectacular visible glowing sodium column, but the radars detected nothing and there were no ham results. The Air Force again thanks all those who participated and reports that much valuable data has already been accumulated. Further tests are scheduled for March or April.

The Sunday afternoon technical net of MARS USAF continues to meet at 1400 on 3295, 7540, 7635 and 15,715 kc. Much of the January sessions will be devoted to printed circuits.

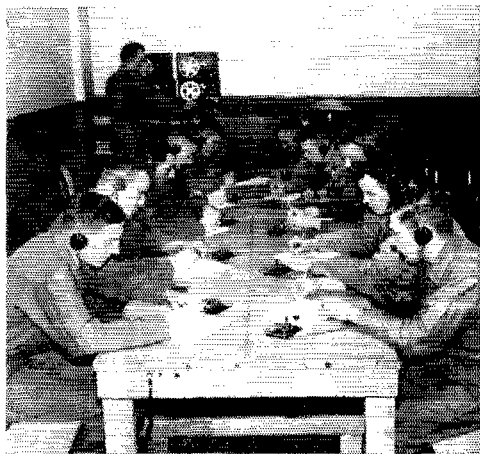
On a Paris trip K2CUI learned that both F9DM and F9MD are uniformed policemen on the Paris Force.

Consecutive QSOs for W7TPE — W4EKO and W1EKO, both operating mobile.

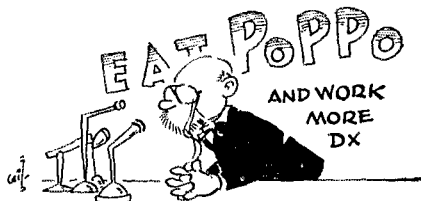
The *Ham Register*, edited by W3VKD, lists over 8000 amateurs throughout the world, giving

names, addresses, interests and achievements. It is an interesting volume to browse in, and has been published in a clear, readable type with a minimum of typographical bulls. But, except for those minor errors which will creep into any publication of this size, W3VKD has done a remarkable job. Not only are the biographies arranged in the usual numerical, alphabetical sequence, but there is a cross index in the back which enables the traveling ham to find out quickly who the active amateurs are in any given town. The *Ham Register* represents a whale of a lot of work on the part of W3VKD and company.

W1JIS, 80 years young himself, wants to reactivate the Old Men's Radio Club, which he originally started in 1938. Those interested and who are at least 50 years old (*that isn't old!* — Ed.) should write to W1JIS, Route 1, Gardiner, Maine.



The Tenn-Tucky Amateur Radio Club at Fort Campbell, Kentucky, is conducting classes for would-be amateurs at the post, and the word we have is that the facilities are open to all. Those interested contact the post signal officer, Maj. G. T. Pierce. One of the classes is pictured above.



"BOYS AND GIRLS - WE INTERRUPT THIS PROGRAM TO BRING YOU A SPECIAL BULLETIN - JUNIOR SPACE CADETS HAVE JUST INVADED THE EARTH SATELLITE."

FOR one short moment he watched, unable to move to the switch. Tiny white sparks bounced off the filaments of the 866's. Funny. You could see them even through the dense blue glow of the rectifiers.

The sparks got bigger. Flakes of oxide peeled off. He moved to throw the primary switch. Even as he did, the growling power transformer stopped complaining, the filaments sagged, fell to the bottom of the envelope.

It was too late.

He could envision the hurtling Kintups III some 500 miles overhead, vectoring in on Satellite II. But there was no more that he could do now. He couldn't even call to tell them he had failed.

Occurrence in Alpha Sub 1

BY WILBERT R. HILBRINK,* WSKKO

Perhaps Eduard could do it. Eduard's station at Papeete had alerted the other groups—the Marquesas, the Tuamotu, Rapa. And him, of course, on Tubuai. But they were all down, now, except Eduard. Eduard had counted on him because he had the most reliable primary power in that southern cluster of French Oceania islands.

Now, because a filter capacitor had chosen just this time to demonstrate that dielectrics aren't unfailing, he was powerless.

It had all begun just 24 hours before. . . .

Negotiations at the UN appeared to have resolved the whole thing. The United States, in debate with representatives of the Interspatial Reservations Committee, had presented an eloquent argument. The U. S. contended that the proposed launching of Satellite II into Alpha Sub I orbit constituted no infringement on prior occupants. There had been protests; the most notable was that of the Sovio representative who stomped, with unseemly diplomatic pique, from the chambers.

However, Satellite II was duly made ready for launching. The press detailed, with adequate editorializing, an appraisal of Satellite II's potentialities, significance, and cost.

*180 West South St., Worthington Ohio

But what the press did not recount was the clandestine session of foreign delegates with a U. S. representative following the adjournment of the formal U. N. conclave. The press did not leak one word of that smoldering 12-hour svict of argument, counter argument, quasi-threat and counter-threat because the press didn't know what had happened behind those locked doors.

However, three agencies—in addition to that group which was the project team on Satellite II—were advised.

One was a certain Pacific-based command which had two specially equipped ships (disguised as repair vessels but actually laden to the topmast with communications gear) carrying on surveillance in a designated triangular area.

The second was the Canadian government which was apprised that its part in the affair was that of the essential role of decoy to thwart security leaks.

The third was the French ambassador, who, through appropriate channels, communicated certain aspects of the matter to the government at Tahiti.

All three of these parties to the confidence accepted with the utmost gravity and concern the trust which had been placed in them. But of the three, the one who received his obligation with the most enthusiasm was one Eduard Douert, aide to the Tahitian plenipotentiary. For it was to Douert—during the annual fever-induced indisposition of the governor—that the matter was entrusted.

Douert's enthusiasm stemmed from both his personality and his hobby. It was his personality which contributed intensity; it was his hobby which contributed technical knowledge.

For Eduard Douert's hobby was amateur radio. Which was most fortunate; for the instructions he was to act upon in the name of the governor called upon him to make use of all communications facilities within the island group.

And Eduard Douert, although the most loyal of civil officials, was practical. Therefore he knew that when the francs were on the table, he would have to rely on the devotion of his fellow amateurs. (It is tribute to Eduard Douert's honesty that his reliance on his ham colleagues was not based entirely on sentiment; for he was all too familiar with the inadequacies of the government communications facilities.)

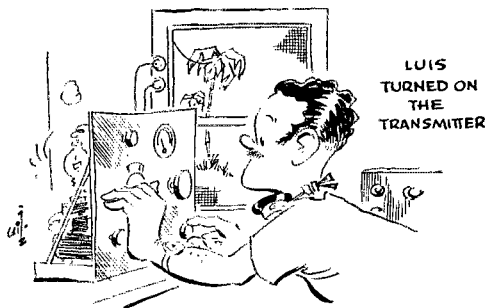
Douert knew well every amateur in this scattered covey of tropical isles called French Oceania. They were few enough, and hungry enough for news of the other islands that they had organized the Palm Tree Net which convened via radiophone twice each week. He could recite with precision their equipment inventory, their power, their operating preferences—and their skills. And knowing all this he carefully chose three and to them dispatched by government courier the essence of the commission they would be called upon to respond to within the next 24 hours. . . .

When Luis Bonadventure received word from Eduard Douert, he frowned. He read again

Eduard's succinct dispatch. Then he walked to the palm-thatched shack behind his villa. He started the gasoline power unit, flipped on the receiver switch. As he reflectively gazed at the transmitter he recalled that only two days before he and Eduard had QSO'ed. His signal, Eduard said then, was good. Perhaps there was a little hum on the carrier, but it wasn't bad.

Not bad, thought Luis. But the T-55 in the final was getting very old. Ah, so; this one had done well till now. Certainly it would last a little longer.

He turned on the transmitter, switched to e.w. position, and pushed the key. The loading was too light and he tightened up on the link.



It was at that moment that Luis knew he should have been satisfied with a plate reading of 130 mils. It was at that moment that Luis Bonadventure, FO8BL on Tubuai, was taught the first of a series of lessons on the perversity of inanimate objects.

Because, for some reason not evident, the needle violently slammed over to the pin, the T55 plate reddened, and its filament parted.

He kicked off the power and for a moment was unrestrainedly profane. It was his interval of relief. But even as he realized how futile his outburst was, he already was trying to recall what tubes were lying in the junk box.

They were few and mostly receiving types, he saw, as he laid them out on the floor. Among them were a 6F6 (marked "low" on the adhesive tape rolled 'round its base); some 6J5's, a 46, a 45 — and, hold! — a 210.

The 210. It might do it — with tender loving care — less plate voltage, easy on the current, and a lot of luck.

Luis glanced at the clock. It was almost time for Eduard to call. He swung the receiver down to 7295. A few Hawaiians and a W6 bracketed the frequency; Eduard's husky signal would easily drive through. As he plugged in the soldering iron, Eduard called:

"FO8BZ calling the Oceania Palm Tree Net. FO8BZ standing by for alphabetical check-in."

The others called in; Don, FO8BA; and Charles, FO8BF, at Rapa, with his metallic-sounding single-button mike. Then silence, as they waited for him.

He worked rapidly, quickly "tacked" in the changed plate lead wiring for the 210. Eduard

called him again, then began transmitting modified instructions to these *confidants* of the Palm Tree Net. Even as Eduard finished and stood by for confirmation, Luis had switched to the low voltage tap on his power transformer, trimmed the neutralization, and backed off the antenna coupling. He called in, with only 50 mils showing on the plate milliammeter.

Eduard came right back. "FO8BL, this is FO8BZ. I read you, Luis, but you're not quite up to usual strength. Did you get the word?"

Luis acknowledged, quickly explained, and signed. There would be another schedule in an hour. He must conserve the remaining life of the ancient 210. For while transmitting he had noticed the tell tale blue glow in its envelope and knew he could not expect long life from this tube.

He put the gasoline generator into fast idle and picked up a magazine. It would be a long, humid Saturday.

Six thousand miles away there was a roar on a launching pad somewhere in the United States and Satellite II, ensconced in its primary vehicle, began its flight toward Orbit Alpha Sub 1.

Luis dropped his magazine. He re-read Eduard's dispatch:

"Kintups III and Satellite II are expected to pass over the Oceania group Saturday after 1300 hours, Pacific Standard Time. The two satellites will be on intersecting orbits and may come critically close to collision courses while over this area. These space bodies are being monitored and the United States Government has taken steps to destroy its Satellite II should a collision seem likely.

"We have been asked to back up their self-destruction transmissions on a secondary frequency which lies just above the 7 megacycle amateur band. Your help is asked.

"You will be told the frequency in ample time to tune your transmitters. Transmissions must be e.w. Begin transmissions 15 minutes after Condition Zero is announced over the Palm Tree Net. Send V's at the rate of about two per second. We will begin our net schedules at 1300.

"Please understand that grave international consequences could follow should a collision occur between the two satellites."

That was all. Luis knew Eduard well. His short dispatch was understated, typical of Eduard when he was unusually affected.

The clock ticked on. Luis idly leafed through the magazine. Then, through the slight race of thunderstorm static came Eduard's call:

"Palm Tree Net, frequency is 7402. Synchronize clocks to 1430 — now. Repeat, frequency 7402 kilocycles, time now 1430. Please acknowledge."

FO8BA came back. But there was no word from Charles. Luis reported in, and Eduard closed the schedule with the words:

"We've lost Charles. Must be that power unit of his. Please stand by for possible transmissions every 15 minutes."

Yes, it must be Charles' old gasoline generator, Luis mused. Charles often had belabored it, overhauled it, and made repeated lash-up repairs. He

was thankful that his power unit here, if nothing else, was in top condition. Well, there were three of them left in the net now.

Luis rose from the chair, put the old tubes back in the junk box. He slid it back under the shelf on which the old self-excited 50-watter sat gathering dust. He ought to really clean up the place and get rid of some of that old gear, he thought. Time to thoroughly renovate, take inventory, do some re-building. Why, he hadn't used that old tuned-plate, tuned-grid transmitter since before the war. But he hated to part with it. It was sort of a memento, a reminder of those days when on 40 meters he could —

"Palm Tree Net, Condition Zero. Condition Zero, Condition Zero. Time now 1437, repeat 1437. Transmit in 15 minutes. Acknowledge, over." The only hint of excitement in Eduard's voice was in his speech rate which was just a little faster than normal.

No one came back. Luis realized that only he and Eduard were left. Eduard came on again, calling Condition Zero.

Luis threw the transmit switch: "FO8BZ, o. k., Condition Zero, time now 1438 plus."

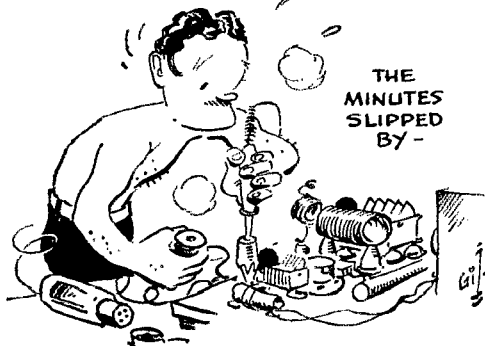
He stood by and waited. Ten seconds. Fifteen. Twenty. He tried again. As he talked Luis saw the plate meter reading sinking down. He glanced at the final; the blue film in the tube was now a heavier violet. The tube had gone soft. The plate meter read only 10 mils!

"FO8BL, this is FO8BZ. You are very, very weak. Please try to meet Condition Zero in 13 minutes. Only you and I are left. Out."

Luis did not even stop to indulge in a string of invective. He must work fast. Why he hadn't thought earlier of the old 211 in the t.p.t.g. rig, he didn't know. But he wouldn't have time to unlash the 50-watt socket and install it in place of the 210. But there was a way he could get a strong signal on the right frequency: the Goyder lock circuit!

He pulled the old breadboard mounted 50-watter from the shelf and sat it on the operating table. Let's see, need 10 volts for the filament, key leads, tie the v.f.o. output link over the grid coil of the 211.

The minutes slipped by as he cut and stripped wires, waiting for the soldering iron to smoke. Only four minutes remained as he soldered the new filament leads to the 10-volt tap on the transformer. He turned on the switch.



The brilliance of the 211 came as a surprise; he hadn't remembered it being that bright.

Luis tuned the v.f.o. and receiver to 7402. His tuning loop indicator showed r.f. in the grid coil of the 211. Only two minutes left. He pressed the key, turned the tank capacitor of the 211 and heard the signal swish into lock on the v.f.o. frequency. He swung the antenna coupling link into the plate coil and heard the signal flatten out to a blatting buzz as it blocked out the receiver. Maybe time for one more step: switch back to the high voltage tap on the plate transformer.

As he completed the switching, Luis saw that it was 30 seconds until The Time. He sat down, made a log entry, and began to send V's just as the clock turned 1452 hours.

As he continued his V's, he tuned his receiver to one of his weaker beat frequencies in order to monitor his signal. It seemed stable enough; but it had that slightly modulated, resonant sound that was so characteristic of the old self-excited oscillator. Some tubes were different from others in the modulation they produced, he recalled, thinking of the old days when the Hartley and the t.p.t.g. and the Colpitts were all the rage. In that era he used to try to identify the tube type at the other end of the QSO by the nature of the note, which wasn't much of a recognition test, really, because it depended on so many things like antenna loading and grid leak and how much the rig vibrated as a guy hit the key, and how much over rating he was running the bottle and how much filter he had in the power supply —

The power supply thumped. For a short moment he watched, unable to grab the switch. Sparks danced off the filaments of the 866's and suddenly the growling of the transformer stopped. The rectifiers had given up to a shorted filter capacitor.

Eduard had counted on him. But then, Eduard, too, was on the air. And Eduard's strong signal would be steady as a rock — clean, pure d. c. with no trace of ripple. Luis' improvised rig would be no match for it; but Eduard had depended on him and he had failed.

He could envision the two satellites overhead on collision course. Luis sighed; the clock showed that he had been able to transmit V's for only one and one-half minutes. . . .

The United States government agency responsible for the technical aspects of the Satellite II program transmitted a copy of its report to the State Department. It was studied there with great interest by the technical adviser to State, who circled in red certain paragraphs and recommended to his chief that these be dispatched to the representative of the government of France.

The channels of diplomatic communication frequently are devious and slow. But it is notable that this *memoire* was given the highest priority and it reached Tahiti a very few hours after dispatch.

Subsequently it was placed in the hands of Eduard Douert with the governor's instructions that he, Douert, take such action as was neces-

sary to convey the official attitude of the government to the parties concerned.

Doucrt was one of the parties concerned and after he had made known to His Excellency the facts of the whole matter, with that gentleman's full accord he set about completing some commercial errands before leaving for Tubuai in the governor's aircraft.

Thus it was that Eduard Doucrt walked into Luis Bonadventure's ham shack on Tubuai on Tuesday, just three days after that Saturday when Condition Zero had virtually sabotaged Luis' amateur station.

Eduard entered carrying a very large brown box and a dispatch case; Luis greeted him with a wave of a hot soldering iron and in explanation pointed to his rig spread out on the workbench.

"Luis, what happened? Your last phone transmission before Condition Zero. It was so weak. And yet we heard you — the monitors at the government station — sending V's on the correct frequency. So strong, too, and then, they tell me, pfft! You are gone."

"I will tell you, Eduard, it was an afternoon to drive a man mad. But first, what happened to the satellites?"

Eduard's eyes sparkled. "I'll tell you in due time." He sat down and said, "Tell me what happened to you."

So Luis unfolded his tale of woe. When he had finished, Eduard handed Luis the dispatch he was carrying. "Read this."

And Luis read:

"The United States government has informed this office at Papeete that its Satellite II program has been completed.

"This satellite came dangerously close to collision with Kintups III in the French Oceania area, and Condition Zero was put into effect to destroy Satellite II before such a collision could take place. However, self-destruction of Satellite II did not occur. . . ."

Luis stopped. "We failed, Eduard, we failed!"

"Read on," Eduard said gravely. Luis continued:

"But collision fortunately did not occur, either, and the satellite made a successful re-entry into the earth's atmosphere and has been recovered by the Project administrators.

"Internal examination of the recovered satellite showed that only one of the three self-destruction circuits had been activated. This should have been enough to bring about destruction. This particular circuit which was activated was that tuned to receive radio waves on 7402 kilocycles. That the satellite did not destroy itself on activation of this circuit was caused by failure of internal detonating devices. . . ."

"Then we *did* do our job," Luis exclaimed.

"You did the job," rejoined Eduard.

"But Luis, we were both transmitting V's. And my signal was a little rough. I told you what I had on the air."

"Read on," Eduard ordered. And Luis read on:

"Further examination of the 7402 kilocycle receiver circuit shows that certain components nec-

essary to c.w. reception, had failed. Thus it can be reasonably sure that this receiving circuit was triggered by a modulated transmission, probably m.c.w. either deliberately caused or brought about incidentally by a variety of causes inherent in the transmitter or its power supply. . . ."

Luis paused. Eduard said pointedly. "The monitors tell me that your note was somewhat modulated, Luis."

Luis read the final paragraph:

"This government on behalf of the United States government wishes to express its gratitude to you for so successfully meeting this obligation which you voluntarily assumed. . . ."

Eduard saw that Luis was flustered. "My friend, we should try some of your excellent wine." Appreciating the recess, Luis left, returning in a moment with the rosé and two glasses. As he pulled the cork, Eduard said severely:

"But it is not all good news, my friend. The monitors at the Bureau Telegraphique also tell me you were on phone early Sunday morning with a rough carrier and badly frequency modulating. They say they will file a report. What of this?"

Luis reddened. "It's true, Eduard. I was so let down when the power supply blew up. Later that night I fired up the old t.p.t.g. 211, using the v.f.o.-driver supply. And Eduard, I used loop modulation, with a carbon mike, like in the old days!"

Eduard said nothing but opened the package he had brought.

"We knew you needed some new filter capacitors. And you were so weak on Saturday I thought some new tubes might help." And he began placing on the table, one by one, the parts and tubes that would give new life to FO8BL.

Luis poured the wine, handed a glass to Eduard.

"I am deeply appreciative, my friend. But the violation — will they suspend my license?"

Eduard sniffed the vintage. "Luis," he said, "the governor can influence strongly the Bureau Telegraphique. And I, do not forget, can strongly influence the governor!"

He lifted his glass: "Soixante-treize," he toasted.

"Seventy-three," replied Luis.

And they laughed and drank the wine.



Annual A.R.R.L. Novice Roundup Competition

February 1 through February 16

GET those pencils sharpened and complete that piece of gear you've been working on because away we go for the seventh annual NR contest!

Novices in all parts of the U. S. and its possessions will again compete for top laurels. Rules and participation are simple. Non-Novices QSO Novices only, rendering their QSO number and section. Novices QSO either non-Novices or Novices, exchanging the same information. The maximum allowable time is 40 hours, in which all operating, listening and logging is included. You don't have to worry about sack-time, homework, dating and the winter prom, because that time doesn't count!

Scoring

No special tutor or mathematician is needed to obtain your final score. Just add the total number of your Roundup QSOs to the highest w.p.m. from your CP certificate and multiply the total of these two by the number of different ARRL sections (see page 6) worked during the contest. What! no CP award? Then check page 82 of this QST for the dates and details of CP runs. Although a Code Proficiency Endorsement Sticker isn't mandatory, the extra points that can be obtained by having one may mean the difference between coming in first or second in your section.

The 80- 40- 15- and 2-meter bands will get a real workout as usual, and it will do well for the Novice to check the frequencies just above and below the 3700-3750 kc., 7150-7200 kc., 21,100-21,250 kc., and 145-147 Mc. frequency segments. This has proven quite effective in the past

ROUNDUP PERIOD

Starts	Ends
Feb. 1	Feb. 16
6:00 P.M.	9:00 P.M.
Local Time	Local Time

in eliminating some non-Novice QRM in the Novice portion of the bands.

How To Participate

Let's imagine KN4OVG in Alabama calls CQ NR and is answered by KN2UYZ in New Jersey. A correctly negotiated QSO will look like this:

CQ NR CQ NR CQ NR DE KN4OVG
KN4OVG KN4OVG K KN4OVG KN4OVG
DE KN2UYZ KN2UYZ KN2UYZ AR
KN2UYZ DE KN4OVG R HR NR 3 ALA BK
KN4OVG DE KN2UYZ R HR NR 6 NNJ BK
KN2UYZ DE KN4OVG R TNX ES 73 SK
DE KN4OVG

Short, effective and another point added to your score.

Be sure to read the rules carefully, check your gear, and send in to the ARRL Communications Department for convenient log forms. Sorry, Sputnik QSOs will not be counted as valid contacts. Good luck and CU in the NR!

Rules

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

2) *Time:* All contacts must be made during the contest time indicated elsewhere in this announcement. Time may be divided as desired but must not exceed 40 hours total.

3) *QSOs:* Contacts must include certain information sent in the form as shown in the example. QSOs must take place on the 80- 40- 15- or 2-meter bands. Crossband contacts are not permitted. C.w. to phone, e.w. to e.w., phone to phone, phone to e.w. contacts are permitted. Valid points can be scored by contacting stations not working in the contest, upon acceptance of your number and section and receipt of a number and section.

(Continued on page 168)

STATION KN4OVG — SUMMARY OF CONTACTS NOVICE ROUNDUP

Band	Time on or off air	Date, Time of Contact	My NR	My Section	His NR Rcvd	His Call	His Section	Number of each new Section as worked
80	1801	Feb. 2 1807	1	Ala.	1	KN2UYZ	N. J.	1
		1820	2	"	1	KN1AFC	Conn.	2
	1902	1850	3	"	9	W1FGE	Conn.	7
40	1915	1920	4	"	6	KN4OUV	Ga.	3
		1930	5	"	5	KN5UAY	La.	4
	2020	2005	6	"	11	W1RBN	N. H.	5
15	1200	Feb. 3 1215	7	"	8	KN9GCW	Ill.	6
		1232	8	"	12	W7SUJ	Ariz.	7
		1240	9	"	4	W1NJM	Conn.	7
		1258	10	"	4	KN5ELWK	Tex.	8

Total operating time: 3 hours 18 min.
Bands used: 80, 40 and 15

No. contacts: 10
CP credit: 10
No. sections: 8

Claimed score: 10 contacts plus 10 CP = 20 X 8 (sections) = 160
I have observed all competition rules as well as all regulations established for amateur radio in my country. My report is true and correct to the best of my knowledge.

Signature:
Address:

Sample log form that must be used by all contestants.



Hints and Kinks

For the Experimenters



SERIES-PARALLEL SWITCHING CIRCUIT FOR POWER TRANSFORMER PRIMARIES

THE USE of a d.p.d.t. toggle switch to obtain full or reduce plate voltage from dual-primary types of power supplies may not have occurred to the newly-initiated ham. The writer used the idea with a surplus transformer having dual primaries, and more recently with two identical low-voltage plate transformers of single primary design.

Fig. 1 shows how the d.p.d.t. toggle switch, S_1 , is wired to provide either series or parallel

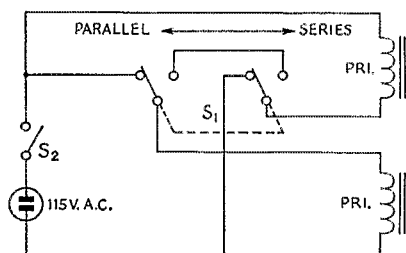


Fig. 1.—Diagram of the series-parallel switching circuit for plate power transformers. The d.p.d.t. control switch S_1 is shown in the parallel-connection position. S_2 is a conventional on-off switch.

operation of the primary windings. To avoid complication in the diagram the secondary circuit is not shown. If two transformers are used in the circuit, the secondary windings should be joined together to form a center tap and then connected to a typical full-wave rectifier system.

—Lyle S. Moyer, VE5LW

Editor's Note: A typical full-wave rectifier circuit will be found in the Power Supply chapter of *The Radio Amateur's Handbook*. The full-wave center-tap rectifier section of the *Handbook* also advises concerning polarity and ratings which must be observed when two transformers are connected in series to provide a center-tapped secondary winding.

AN AUTOMATIC "TIMER" FOR THE 10-MINUTE STATION BREAK

SECTION 12.82 of the FCC rules governing amateur radio is quite specific about the need for identifying an amateur radio station by the transmission of its call sign at least every ten minutes or as soon thereafter as possible. Unfortunately, even the most conscientious operator may inadvertently violate this regulation if he gets tied up in an interesting QSO or a lively

moving round-table such as takes place in the s.s.b. circles.

One obvious solution of the problem is the use of an automatic operating aid that either "sounds off" or "flashes" at ten-minute intervals. Recently, both W5JPM and W5MAW figured out a way of building a simple *ten-minute timer* around an electric alarm clock.

Several models of the General Electric and Telechron "boudoir" electric alarm clocks have a time-setting knurled brass knob that makes six revolutions in each hour. In other words, the knob makes one complete revolution every ten minutes. It is no trick at all to solder a lug or arm to the knob and then use this projection to actuate a Microswitch. The switch may be mounted on the rear of the clock and can be wired to control either a ten-minute flasher, a bell or a buzzer.

It is suggested the mechanical layout provide for warning *on-the-hour* and at ten-minute intervals thereafter. Then, if we all synchronize our clocks with the aid of WWV, we won't all be identifying at different times in the same QSO.

Nice thing about the modification is that it does not affect the clock value and the alarm feature is still usable.

—Jack E. Cox, W5JPM

John S. Jenkins, jr., W5MAW

Editor's Note: It doesn't take much imagination to realize that W5JPM and W5MAW have come up with an idea that may solve the "Conelrad" problem for some of the gang. After all, as long as you remember to check the broadcast band every ten minutes, you're in business as far as Conelrad compliance is concerned.

6BE6 PREAMPLIFIER FOR BOTH HI- AND LO-Z MICROPHONES

PREAMPLIFIERS constructed here in the past have always employed either two high-gain tubes or a dual-triode in order that both crystal and dynamic (low-output type) microphones could be used.

Recently, while working out design details for a completely new amplifier, the thought occurred that one of the popular r.f. mixer tubes might operate satisfactorily in a *single-tube triple-purpose* circuit having provision for both crystal and dynamic-mike input and, at the same time ability to serve as the mixer.

To test the theory, a type 6BE6 pentagrid converter tube was tested in the circuit shown as Fig. 2. After settling on the component values listed, the arrangement actually exceeded my fondest hopes. By connecting the dynamic-microphone transformer to grid No. 1 of the tube, and the crystal mike to grid No. 3, not only did a

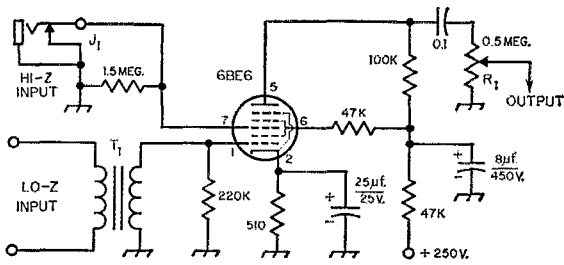


Fig. 2—KH6OR uses this preamplifier-mixer circuit with both crystal and dynamic microphones. R_1 is the gain control for the amplifier stages following the 6BE6. T_1 is a dynamic-microphone-to-grid transformer. All resistors except R_1 are $\frac{1}{2}$ -watt composition. Capacitors marked with polarity are electrolytic.

rather neat mixer result, but the over-all gain of the amplifier remained essentially constant regardless of which microphone was used. Apparently, the difference of approximately 20 db. in gain that the No. 1 grid arrangement has over the grid No. 3 circuit compensates for the difference in microphone output levels.

It is reasonably certain that the idea is not completely new, but it is one that I have never seen in print. Perhaps the circuit won't find too much application in ham-band equipment, but it may appeal to amateurs interested in hi fi, recording, etc.

— Fred L. Mason, KH6OR

SPlicing 300-OHM LINE

TUBULAR 300-ohm transmission line can best be spliced by using the method illustrated in Fig. 3. The joint so produced is both electrically and mechanically strong and does not adversely

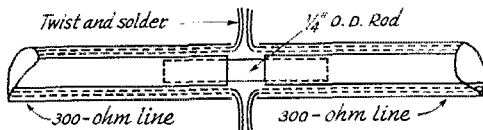


Fig. 3—W5DAI suggests this method of splicing tubular 300-ohm transmission line.

affect the r.f. qualities of the line. Measurements made at 100 Mc. on a line so spliced show negligible loss or line discontinuity.

To make the splice, first expose approximately one inch of each conductor by cutting away the insulation. Make a clean cut at right angles to the cable when removing the sections of insulation that bond the conductors together. Next, insert a three-inch length of $\frac{1}{4}$ -inch o.d. insulating rod about half way into one of the cables. Now slide the second piece of cable over the other end of the rod until it butts against the first cable. Twist the conductors together as required and apply solder. The joints may now be clipped down to a length of $\frac{1}{2}$ inch or so and then bent over and laid flush against the long sides of the line. A layer or two of good tape covered with a coating of varnish or plastic spray will protect the joint against weather.

Polystyrene rod is the best material for the plug which provides mechanical strength for the splice. Of course, since the amount of solid dielectric is physically small, it will do no great harm to use bakelite rod in place of the polystyrene material.

— W5DAI

Sections of flat 300-ohm Twin-Lead may be securely bonded together by using the joint shown in Fig. 4. Fig. 4A shows how a tab of insulation is left protruding from the end of

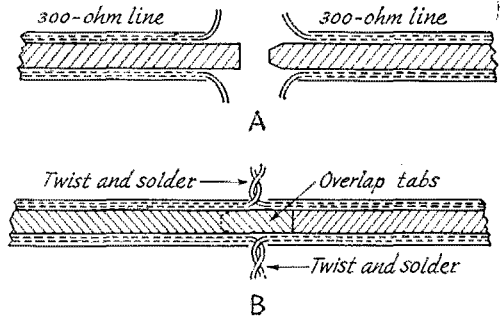


Fig. 4—Sketch showing the "W9BPS" method of splicing 300-ohm Twin-Lead. A shows how the sections of line are prepared for the splice. The overlapping tabs in B may be permanently bonded together as explained in the text.

each cable after the insulation surrounding the conductors has been removed. These tabs are allowed to overlap as in Fig. 4B when the two cables are brought together for joining and soldering of the conductors. Additional strength at the splice may be obtained by fusing the tabs together with the aid of a hot soldering iron, or by cementing the tabs together. Ordinary paper staples would provide another means of joining the tabs for mechanical strength. Insulating tape covered with a weatherproofing material will keep the splice in good shape.

— Harry Fanckboner, W9BPS

RE "NEW APPROACH TO MOBILE CONVERTER CONSTRUCTION"

In the interest of safety, it is advisable to make one minor modification to the mobile converter described in *QST* for November, 1957. It would be better practice to have the male Amphenol plugs mounted on the plug-in coil boxes rather than on the converter chassis. This will prevent B plus and ground from appearing on exposed pins should a box be inadvertently removed before the control switch is turned to the off position.

— Warren H. Ash, K2JBO

Editor's Note: In spite of last-minute efforts, we did not show a correct 12-volt heater circuit for the mobile converter referred to above. Pins 4 and 5 of V_2 should be connected together and tied to S_{IG} , and Pin 9 of the tube should be connected to Pin 4 of V_1 .



From Somera to Samoa

DXpedition to the South Pacific

BY TED HENRY,* W6UOU

The landscape seen from the operating position of W6UOU/KS6. That's Pago harbor, with Rainmaker Mountain in the background.

Our home station is on Somera Road high on the Santa Monica mountains overlooking Los Angeles, Santa Monica and the Pacific Ocean. From there to Pago-Pago, American Samoa, and back again is a long, long way; about 60 hours actual flying time, or to put it another way, about half-way around the world.

I suppose the dream of operating from a distant, exotic location lurks in the minds of most hams, and we made this dream come true. Samoa is without question one of the most remote and primitive of all American possessions. In this respect it suited our purpose to perfection. It was our aim to dramatize, in the most effective manner possible, the great advances of the last ten years in the science of voice communication. To do this we proposed to fly to the most remote spot we could find carrying our transmitter and receiver with us in a single suitcase.

It seemed to us then, and in retrospect it seems even more forcibly true, that this ability of modern man to carry his "world-wide voice" with him easily and inconspicuously is a concept to fire the imagination of all men everywhere. As we all know, of course, amateurs have made unique contributions to this modern miracle of communications.

To achieve our purpose we chose the newly announced Collins KWM-1 s.s.b. transceiver. This equipment satisfied our requirement for portability and, as subsequent events proved, easily provided world-wide communication.

On August 4, with a great deal of planning and preparation behind us, my wife Meredith and I, along with four suitcases, took off by PAA on what we hoped would constitute the "new look" in DXpeditions. Some five thousand miles later we were in Fiji. Through the good offices of Greg, VR2BC, we had received official permission to operate our station under his call. Jack

Reagan, VR2AZ, who works for the New Zealand CAA at Nadi, kindly invited us into his home to use his antenna. The 15-meter band opens to the States about 3:00 p.m. Fiji time, so Greg took us on a wild and bumpy ride through the town of Nadi and the adjacent countryside. When Meredith begged him to stop so she could take movies of the natives and their villages, he replied by speeding up and shouting over his shoulder that she could tell all future audiences that she had the "hiccups" when she was taking these shots.

As a result of Greg's wild driving, we were back home by 2:30 p.m. and ready to go on the air. We fired up immediately on 15-meter side band, contacting W1AUR, W4MXI, W6ONP, KH6AR, and W6HS/MM aboard the USS *Monterey* for the first five QSOs. From that moment on until 20 meters folded up at about 10:00 p.m. we kept the rig going continuously making 146 QSOs on both 15 and 20 meters. We were ably assisted by Trev Grantham, VR2BA. At midnight in the Fiji Mocambo Hotel as we struggled to get all the bits and pieces of radio gear properly packed back in their suitcase, we knew for sure that we were on a DXpedition.

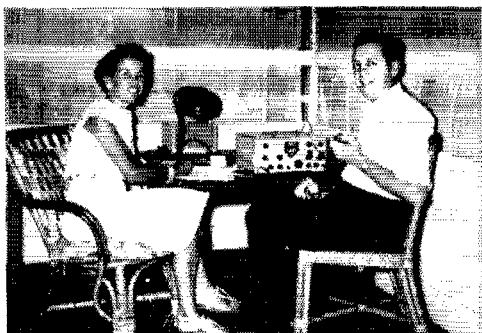
The following morning, Thursday, August 8, our PAA DC-4 left Nadi at 7:00 a.m. for the last five-hour leg of our trip to Tafuna Airport, American Samoa. It was a brilliant, sparkling day, ideal for a flight above the South Pacific. Dozens of tropical islands were visible eastward through the Fiji group, and one bright-hued coral reef followed another — a truly remarkable flight which was noted not only for its great beauty, but one which gave us the unusual opportunity to view the remote and legendary "Tin Can" Island. This island is so far removed from the regular traffic routes that not even the plane crew had seen it before.

We arrived at Tafuna Airport exactly on schedule and were more than slightly startled to see what appeared to be a major part of the

*P.O. Box 64398, Los Angeles 64, Calif.

entire native population assembled at the airport, which is located some seven miles from the village of Pago-Pago. It was quickly explained to us that such a gathering was quite routine. The plane arrives only some eight times per year so its arrival is a gala occasion. A wild taxi ride deposited us at the Rainmaker Hotel just outside Pago-Pago, and a few sketchy explanations of the purpose of our trip quickly secured the necessary permission from Mary Pritchard, the hotel manager, so that we were able to put W6UOU/KS6 on the air immediately right from the screened porch outside our hotel room.

We had not definitely planned that we would be able to get on the air on the afternoon of our arrival. We had, however, made tentative schedules on the assumption that it might be possible. So, flushed with the excitement of arrival, we



Above: W6UOU and his DXpedition radio equipment. The suitcase contains the KWM-1 transmitter receiver and a.c. power supply.

Left: With OM Ted at the transmitter and XYL Meredith at the log, QSOs were speeded up and all calls promptly logged. As the result of Meredith's tireless efforts, all QSLs for the entire trip have already been sent out.

Below: left to right, VR2BA, W6UOU, and VR2AZ—at Nadi International Airport in Fiji. VR2BC was also present at this impromptu hamfest, but missed getting into the picture.

quickly strung a half-wave dipole under the overhanging eaves of the corrugated tin roof of the hotel. At no point was the antenna more than 10 feet off the ground and it paralleled, along its entire length, within three feet of the porch screen. We hoped against hope that it would at least permit us to hear and be heard — no matter how faintly. The final wire was connected just three minutes before schedule time which was 0300 GMT, or 4:00 P.M. Samoan time. Wonder of wonders, and for the thrill of a lifetime, the first station we heard and contacted, exactly on schedule to the minute, was our own home station, W6UOU, in Los Angeles. After that contact, bedlam broke out. One moment the band was quiet and relatively uncongested, the next moment it was alive with a totally unbelievable number of stations all calling one station — and that one station was ours. The sensation is impossible to describe. It can only be experienced. But take my word, it is at the same moment both frightening and exhilarating. No other experience in ham radio has quite duplicated for me that first flush of excitement which came with the realization that the months of planning, the weeks of preparation, the days of flying and the last hours of anxious waiting had been successfully culminated in this moment.

In quick succession our first contacts were W6UOU, W6UPP, K6DDO, W6OZO, K6KJV and W6ZRZ. During the first day's operation from 4:00 P.M. to 12:00 midnight, 176 contacts



were made on 15 and 20 meter s.s.b. and c.w. The first contacts in each of their particular call areas and countries on that first day were W1BCR, K2GFQ, W3JNN, W4THZ, W5LHP, W6UPP, W7KVU, W8BKP, W9WHM and W0ARA. These were supplemented by ZL1BY, VK3AEE, KH6BCX, VE3RE, CN8MM, GM3CIX and HS1A for the first contacts with their countries. It should be stated here and now, however, that from our point of view a DXpedition is no fit opportunity for working foreign countries. With hundreds of W stations

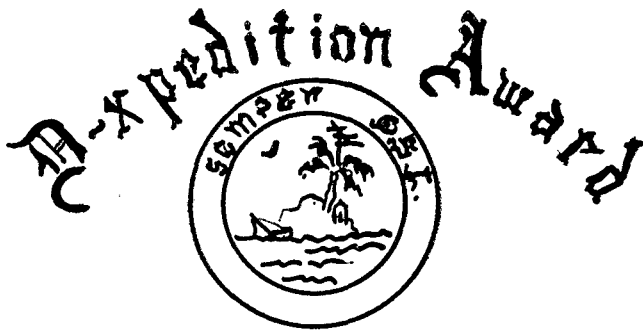
calling all the time, the foreign contacts had to be sandwiched in during the few minutes that could be begged off from Ws. During our fourteen days on the island we completed 1300 two-way contacts with 44 states and 53 countries. Our every waking moment was dominated by radio.

One of the really unexpected bonuses of the trip was our ability to be of service to those residents of the island who had received us with hospitality and kindness. We discovered that there are no commercial voice circuits operating from Samoa to the States. To the great astonishment of all, we offered to furnish fone patch service to friends and relatives in the States. As a result not one day passed during our visit that we did not run numerous patches.

Most calls were to parents, children or friends whose voices had not been heard in years. Many tears of joy were shed and excitement was unbounded. Ham radio in general and W6UOU in particular made many new friends during those days in Samoa.

With sight-seeing, souvenir hunting, dinner invitations, DXing and phone patching, our two weeks were gone almost in a flash and we were retracing our way back to the States. A four day stop-over in Fiji was characterized by the hospitality we had come to expect from the VR2 gang, and in particular by that of Greg, VR2BC, and his charming wife, Yolande.

Another four-day stop-over in Honolulu produced additional unexpected trip bonuses. A full day spent with Jim Orrick, KH6AQ, introduced us to the unsuspected wonders of Ewa



Ted Henry is hereby granted

very special recognition by the Honolulu Single Sideband Gang for voluntarily submitting to the fiendishly unbelievable rigours of operating SSB from one of those NEW COUNTRIES. Let it be clearly stated here that the ferocity of the onslaught by the single sideband DX chasers has never been equaled or even faintly approached by any other group of humans.

Honolulu

August 29, 1957

Sugar Plantation and mill. A specially called dinner meeting of the Honolulu Side Band Group gave us the opportunity to meet Jim Keefer, KH6KS, his wife Hazel, KH6AFC, John Sanders, KH6RU, Ken Bryan, KH6AR, Larry Trombly, KH6BCX, Sam Label, KH6AED, and many others, and gave us all a really good laugh when we were presented with the special DX Award reproduced above.

Finally, exactly four weeks to the day from departure, we were back home in Los Angeles. It was a perfect trip under ideal conditions — providing just about every satisfaction that amateur radio is capable of affording. No doubt there will be other trips for us in the future but none could ever quite live up to this first "Dream DXpedition!"

Want a Moon QSL?

SEPTEMBER QST (page 31) mentioned that a high-power 108-Mc. transmitter was being planned for bouncing signals off the moon, with the object of providing a satellite signal for calibrating Minitrack antennas. Procurement problems caused some delay in getting into operation, but the big (50-kw.) transmitter got its first workout on the evening of December 3. We understand that it put a good signal into NRL's Blossom Point, Md., tracking station via the moon. The moon-reflected signal also was heard at WICUT and possibly by other amateurs who had the necessary receiving equipment and heard the special bulletin put out by WIAW early that evening.

Transmission schedules are highly tentative but, subject to probable change, the periods January 4 to 16 and February 28 to March 12 have been picked. The transmissions will consist

of a continuous unmodulated carrier, interrupted for one minute beginning exactly on the hour and half hour. The transmitter will not necessarily be on the air the whole time the moon is visible on these dates. WIAW will carry special bulletins on the transmissions whenever last-minute information becomes available.

The transmitter is located at the U. S. Army Signal Engineering Laboratories in Fort Monmouth, N. J., and works into a 60-foot "dish." SEL is interested in getting reports from amateurs on the moon-reflected signals and plans to get up a moon-bounce QSL card to verify reception. Reports should be sent to ARRI, West Hartford, Conn., not to SEL, and should include exact times, strength of signal, and any peculiarities such as type and depth of fading.

Another good reason for getting a receiver on 108!

Happenings of the Month

ELECTION RESULTS

In the autumn elections to fill posts on the ARRL Board, five incumbent directors have been returned to office in membership balloting. Inasmuch as three present directors earlier were declared re-elected by virtue of no opposition, for the first time in our recollection we find no change in the personnel on the League's Board of Directors as a result of election processes. In the vice-director field, three present officials were similarly returned to office by membership balloting, while in three other divisions new men were chosen for the posts.

Gilbert L. Crossley, W3YA/W3DKN remains director of the Atlantic Division, having received 2192 votes to 1385 for his opponent, **Henry A. Blodgett, W2UTH**. Vice-director **Charles O. Badgett, W3LVF**, was returned to that office with 2258 votes compared to 1291 for **Warren K. Hamilton, W2FE**.

The Dakota Division has a new vice-director taking office the first of the year: **Charles G. Compton, W9BUO**, who garnered 370 votes to 285 for the incumbent, **Forrest Bryant, W9FDS**. A senior research engineer for the Minnesota Mining & Manufacturing Co. (of Scotch tape fame), **W9BUO** is president of the St. Paul Radio Club, OPS, was treasurer of the 1957 division convention, and is active in AREC work.

Victor Canfield, W5BSR, was returned to the Delta Division directorship, winning over **Harry C. Simpson, W4SCF**, 680 votes to 538.

The Great Lakes Division gave a thumping 2575 votes to **John H. Brabb, W8SPF**, who retains the directorship; **Clyde C. Richelieu, W8JS**, received 715. In the vice-director race, where the incumbent, **W8EYE**, was not a candidate, the division picked **Dana E. Cartwright, W8UPB**, with 2255 votes compared to 1032 for his opponent, **John E. Siringer, W8AJW**. A plant engineer for the Stearns & Foster Co., "Carty" has been a director assistant for some years, and is well known in the field of emergency communications: trustee of Red Cross station **W8VVL**, radio consultant to the Ohio civil defense communications committee, chief of alert warning and communications, Ohio Valley c.d. authority, and — naturally — SEC of Ohio.

Robert W. Denniston, W0NWV, was returned to office as director of the Midwest Division, tallying 882 votes compared with 660 for **James E. McKim, W0MVG**.

Pacific Division director **Harry M. Engwicht, W6HC**, won handily over **Archie Waring, W6ACN**, 1280 votes to 865. **Ronald G. Martin, W6ZF**, becomes the new vice-director, with 1451 votes to 672 for the incumbent, **Harold L. Lucero, W6JDN**. A right-of-way agent for the Pacific Telephone & Telegraph Co., **Ronnie** is a

former SCM and has considerable experience as a director assistant as well as in club work, having been vice-president of the Oakland Radio Club and currently holding the post of vice-president of the McClellan Amateur Radio Society. A Lieut.-Colonel, USAFR, he is very active in MARS, as net control for one voice net and alternate for a c.w. net.

Thomas M. Moss, W4HYW, is still the vice-director choice of the Southeastern Division, having received 1100 votes compared with 327 for **Harvey J. Bramlett, jr., W4PIM**.

In a close race, Canada gave 515 votes to **William R. Savage, VE6EO**, to retain him as vice-director; **Sydney T. Jones, VE6MJ**, received 464.

EXAMINATION SCHEDULE

THE Federal Communications Commission will give Extra and General Class amateur examinations during the first half of 1958 on the following schedule. Remember this list when you need to know when and where examinations will occur. Where exact dates or places are not shown below, information may be obtained, as the date approaches, from the Engineer-in-Charge of the district. *Even stated dates are tentative and should be verified with the Engineer as the date approaches.* No examinations are given on legal holidays. All examinations begin promptly at 9 A.M. except as noted.

Albuquerque, N. M.: April 5 at 8:00 A.M.
Anchorage, Alaska, 53 U. S. Post Office Bldg.: By appointment.
Atlanta, Georgia, 718 Atlanta National Bldg., 50 Whitehall St., S.W.: Tuesday and Friday at 8:30 A.M.
Bakersfield, Calif.: Sometime in May.
Baltimore 2, Md., 400 McCawley Bldg.: Monday and Friday, 8:30-10:00 A.M. and by appointment.
Bingor, Me.: May 14.
Beaumont, Texas, 301 P. O. Bldg.: By appointment only.
Billings, Montana: sometime in April.
Birmingham, Ala.: March 5, June 4.
Boise, Idaho: Sometime in April.
Boston, Mass., 1600 Customhouse: Wednesday through Friday 9:00 A.M. to 10 A.M.
Buffalo, N. Y., 328 P. O. Bldg.: 1st and 3rd Fridays.
Charleston, W. Va.: Sometime in March and June.
Chicago, Ill. 826 U. S. Courthouse: Friday.
Cincinnati, Ohio: Sometime in February and May.
Cleveland, Ohio: Sometime in March and June.
Columbus, Ohio: Sometime in January and April.
Corpus Christi, Texas: March 6, June 5.
Dallas, Texas, 500 U. S. Terminal Annex Bldg.: Tuesday.
Davenport, Iowa: Sometime in January and April.
Denver, Colo., 521 New Customhouse: 1st and 2nd Thursdays, 8 A.M.
Des Moines, Iowa: Sometime in January and April.
Detroit, Mich., 1029 Federal Bldg.: Wednesday and Friday.
El Paso, Texas: June 18.
Fort Wayne, Ind.: Sometime in February and May.
Fresno, Calif.: Sometime in March and June.
Grand Rapids, Mich.: Sometime in January and April.
Hartford, Conn.: March 12.
Honolulu, T. H., 502 Federal Bldg.: Monday through Friday.

Houston, Texas, 326 U. S. Appraisers Bldg.: Tuesday and Friday.

Indianapolis, Ind.: Sometime in February and May.

Jackson, Miss.: June 4.

Jacksonville, Fla.: April 26.

Juneau, Alaska, 6 Shattuck Bldg.: By appointment.

Kansas City, Mo., 3100 Federal Office Bldg.: Friday, 8:30 A.M.

Klamath Falls, Ore.: Sometime in May.

Knoxville, Tenn.: March 19, June 18.

Little Rock, Ark.: February 5, May 7, 1:00 P.M.

Los Angeles, Calif., 1431 Federal Bldg.: 312 No. Spring St.: Wednesday, 9:00 A.M. and 1:00 P.M.

Louisville, Kentucky: Sometime in May.

Marquette, Mich.: May 7, 10 A.M.

Memphis, Tenn.: January 9, April 3.

Miami, Fla., 312 Federal Bldg.: Thursday.

Milwaukee, Wis.: Sometime in January and April.

Mobile, Ala., 419 U. S. Courthouse and Customhouse: Wednesday by appointment.

Nashville, Tenn.: February 6, May 8.

New Orleans, La., 608 Federal Bldg., 600 South St.: Monday through Wednesday; code tests Monday at 8:30 A.M. and 1:00 P.M.

New York, N. Y., 748 Federal Bldg., 641 Washington St.: Tuesday through Friday.

Norfolk, Va., 402 Federal Bldg.: Monday through Friday except Friday only when code test required.

Oklahoma City, Okla.: January 15, April 16.

Omaha, Nebr.: Sometime in January and April.

Philadelphia, Pa., 1005 New U. S. Customhouse: Monday through Wednesday, code tests 8:30-10:00 A.M.

Phoenix, Ariz.: Sometime in January and April.

Pittsburgh, Pa.: Sometime in February and May.

Portland, Maine: April 8.

Portland, Ore., 507 U. S. Courthouse: Friday, 8:30 A.M.

Rapid City, S. D.: May 24, 8 A.M.

Roanoke, Va.: April 5.

St. Louis, Mo.: Sometime in February and May.

St. Paul, Minn., 208 Federal Courts Bldg.: Friday, 8:45 A.M.

Salt Lake City, Utah: March 14, June 13, 1:00 P.M.

San Antonio, Texas: February 6, May 8.

San Diego, Calif., 15-C U. S. Customhouse: Wednesday, by appointment.

San Francisco, Calif., 323-A Customhouse: Friday.

San Juan, P. R., 323 Federal Bldg.: Friday.

Savannah, Ga., 214 P. O. Bldg.: By appointment.

Seneca, N. Y.: March 12-13, June 11-12, 9 A.M. and 1 P.M.

Seattle, Wash., 802 Federal Office Bldg.: Friday.

Sioux Falls, S. D.: March 11, June 10, 10 A.M.

Spokane, Wash.: Sometime in April.

Syracuse, N. Y.: Sometime in January and April.

Tampa, Fla., 410 P. O. Bldg.: By appointment.

Tucson, Ariz.: Sometime in April.

Tulsa, Okla.: February 12, May 14.

Washington, D. C., 718 Jackson Place, N.W.: Tuesday and Friday, 8:30 A.M. to 5 P.M. Code tests 9:30 A.M. and 1 P.M.

Wichita, Kansas: Sometime in March.

Williamsport, Pa.: Sometime in March and June.

Wilmington, N. C.: June 7.

Winston-Salem, N. C.: February 1, May 3.

NOTE: Only General Class and Amateur Extra Class license examinations are given at FCC offices and examining points listed above. All examinations for Novice, Technician and Conditional Class licenses are conducted by volunteer supervisors.

PORTABLE RULES FILING

In September¹, FCC proposed several changes in the amateur rules to relax requirements for notification in advance of operating away from the home location. As the proposed changes appeared of benefit to amateur operation, the Executive Committee obtained from the Board, by mail, an endorsement of its plan to make a favorable comment on behalf of the League. The brief filed with FCC is published herewith.

¹ November, 1957, *QST*, p.68.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington 25, D. C.

In the Matter of
Amendment of Part 12 of the
Commission's Rules Governing the
Amateur Radio Service, Sections
12.90, 12.91 and 12.93, in regard to
operation away from authorized
locations

Docket No. 12160

COMMENTS OF THE AMERICAN RADIO RELAY LEAGUE, INC.

Pursuant to Paragraph 7 in the Notice of Proposed Rule Making in Docket 12160, the American Radio Relay League, Inc., submits these comments on behalf of more than 60,000 U. S. amateur radio operators who are members of the League.

1. The League concurs in the proposal to add a new section 12.90 and amend sections 12.91 and 12.93.

2. The proposed rules governing temporary, portable and mobile operation of amateur radio stations at locations other than specified in the license will relieve both the Commission and individual licensees from the handling of multiple notices which merely repeat information already accessible to the Commission. At the same time, the proposals will act to provide the Commission with all the information it would need in such instances properly to carry out its responsibilities.

3. In summary, the League believes that this rule making is in consonance with established custom and policy and will be of benefit to the amateur service.

AMERICAN RADIO RELAY LEAGUE, INC.

By PAUL M. SEGAL

QUAYLE B. SMITH

Its Attorneys

A. L. BUDLONG

General Manager

November 22, 1957

25-890 MC. FILING

The Federal Communications Commission is currently conducting a study of frequency usage in the 25-890 portion of the spectrum. The League has filed comment in behalf of the amateur service, which is reproduced herewith:

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington 25, D. C.

In the Matter of
Statutory Inquiry into the Allocation
of Frequencies to the Various Non-
Governmental Service in the Radio
Spectrum between 25 mcs and
890 mcs.

Docket No. 11997

RESPONSE OF THE AMERICAN RADIO RELAY LEAGUE, INC.

The American Radio Relay League, Inc., national membership association of some 60,000 FCC-licensed amateur radio operators, files this statement on behalf of the amateur radio service.

The League requests the Commission to continue present assignments to the amateur radio service in the portion of the spectrum under consideration. Specifically, these bands are:

26.96 — 27.23 Mc.
28.00 — 29.70 Mc.
50 — 54 Mc.
144 — 148 Mc.
220 — 225 Mc.
420 — 450 Mc.

For many years it has been a fundamental policy of the United States to foster experimentation and development in the radio art by scientifically-inclined private citizens. Under this policy amateur radio, one of the oldest radio services, has grown to become also one of the largest ad-

ministered by this Commission. At present, some 100,000 individuals possess amateur radio operator and station licenses.

Allocation of frequencies to the amateur service has traditionally been on the basis of small bands in more-or-less harmonic relationship. The theory underlying this practice is that each octave of the spectrum offers possibilities of exploring propagation modes unlike those associated with the harmonically-related frequencies. Similarly, the techniques of generating and utilizing harmonically-related frequencies may differ markedly from one octave to the next.

The wisdom of this allocation policy has been demonstrated many times over. The amateur is an experimenter and his contributions to the technique of radio have been manifold. When the amateur was first restricted to the territory above 1500 kilocycles (in 1913), he astonished the world by devising apparatus and methods to communicate at considerable distances on these frequencies. The discovery of the practical value of short waves and their opening for government and commercial work, in a diversity of services embracing the world, was essentially an amateur accomplishment. The first published explanation of the ionospheric transmission of high frequencies was by an amateur. The first exposition and demonstration of the extended ranges obtained on very high frequencies by virtue of the bending of waves in the lower atmosphere was by amateurs. Amateurs were the first to develop simple and reliable equipment for operation in the v.h.f. region, first to occupy this territory in large numbers, and first to record and evaluate its fundamental characteristics.

Contributions to the Art

It is appropriate to record here for the consideration of the Commission, in support of the affirmation that its allocations policy for the amateur service is a wise one, a number of contributions to the technique accomplished by amateurs, or currently in process, utilizing frequencies which are the subject of this proceeding.

The ability of the amateur to make worthwhile contributions to scientific knowledge has been recognized from almost the earliest days of radio communication. Because of the universal and uninhibited nature of amateur endeavor, experimentation in the v.h.f. range has turned up numerous interesting and useful facts about wave propagation that might have been discovered only many years later by scientific research methods.

Moving into the amateur band at 56 Mc. (shortly after special amateur authorizations were made in 1924) many years before commercial or military use of such frequencies was even visualized, amateurs almost at once began to find hitherto unsuspected properties for long distance communication. Several anomalies that made v.h.f. signals receivable far beyond the horizon were discovered in the 1930s, though recognition of the significance of this work was slow in coming, outside the amateur fraternity.

Air-Mass Bending

Began in 1934, a comprehensive investigation of the effects of varying weather conditions on the propagation of v.h.f. waves was undertaken by amateurs. This project, carried out on 56 and 112 Mc. entirely by amateur methods, has been called one of the truly outstanding examples of original research in any scientific field. In this work, air-mass boundary bending of v.h.f. waves was discovered, and a theory was formulated to explain it. These basic but then revolutionary ideas laid the ground work for all later progress in the field of tropospheric propagation of v.h.f. signals.

Sporadic-E Propagation

In 1935, amateurs working in the 56-Mc. band were amazed to hear signals coming in from distances of 600 to 1200 miles, occasionally. Nothing in previous v.h.f. experience or theory could account for these mysterious occurrences. The strange phenomenon indicated that at least some of the frequencies above 30 Mc. had possibilities for long distance communication and, therefore, a previously unsuspected potential for interference between stations separated by distances greater than line-of-sight. (In amateur testimony for the 1936 FCC hearings, the League pointed out this and other forms of propagation as a potential hazard for proposed allocations planning in this portion of the spectrum, especially for television assignments.) This factor was to loom large in military and commercial plans for utilization of the 50-Mc. region many years later.

This form of long-distance propagation is now known to be the result of dense but sporadic ionization in the E region of the ionosphere. What causes this ionization is still far from completely understood but amateur observations in great volume have been and are being used to learn more about it.

Auroral Reflections

In 1937, again on 56 Mc., amateurs discovered that during periods of marked magnetic disturbances signals could occasionally be heard over much greater than normal distances if directional antenna arrays at both ends of the path were aimed north, rather than toward each other. When this occurred at night, amateurs soon found that it was associated with aurora borealis displays. But that it also happened in daylight showed, for the first time, that the aurora is also a daylight phenomenon. In those days very little was known of the true nature of the "northern lights" but it is a source of some pride to amateur radio that amateur observations have been a major factor in learning more about them. Cornell University, long a center of auroral research, has made extensive use of amateur observations in studying the aurora.

Amateur work on frequencies higher than the 56-Mc. band was not sufficiently advanced in the prewar period to make it possible to determine the upper frequency limit for auroral propagation, but it was rather generally thought that it would be somewhat below 100 Mc. From 1948 on, amateurs working on 144 Mc. were able to observe reflections from the aurora, and today auroral communication on this frequency is almost as common as on the 50-Mc. band. Experiments with auroral communication on 220 Mc. were successful first in 1951, and for several years the amateur 220-Mc. band was the highest frequency to be used successfully for auroral work.

Auroral observations on all three amateur v.h.f. bands occupy an important place in the ARRL-IGY Propagation Research Project, to be described in more detail later.

Early 50-Mc. Work

Resumption of activity after World War II found amateurs working in a new band, at 50 to 54 Mc. in place of the former assignment at 56 to 60. This was a fortunate change from a propagation point of view, for it brought amateurs more precisely into the borderline territory between long-distance and short-distance frequencies than they had been heretofore. A new solar activity cycle was building up, and with it came a wholly new opportunity for interesting work.

Predictions of the maximum usable frequency for worldwide communication did not appear favorable for 50-Mc., but amateurs, undiscouraged, went ahead anyway with repeated tests over long paths. In November, 1946, a 50-Mc. contact was made between the United States and Great Britain. This was then the highest frequency ever used for transatlantic communication. Work between this country and South America, and between Northern Europe and South Africa followed shortly after. In the peak years of that solar cycle and the current one, amateur 50-Mc. work was extended to paths of up to 12,000 miles in length, almost exactly halfway around the world.

Trans-Equatorial Scatter

In many instances 50-Mc. communication has occurred over paths where predictions indicated that it should not have been possible. Work between Mexico City and Argentina, for example, was carried on at night, as early as the fall of 1947. The predicted maximum usable frequency for this path was often as low as 25 Mc. when 50 Mc. was being used successfully. Subsequent investigations triggered off by these amateur exploits have shown that an ionospheric condition, as yet far from fully explained, appears on some transequatorial paths. Called "transequatorial scatter," this phenomenon is currently receiving intense scientific attention. Amateur observations continue to be a major factor in this investigation.

Meteor Reflections

In 1953, amateurs working on 144 Mc. heard snatches of signal from distances many times the normal working range on that frequency. Suspecting that these flashes of signal were reflections from meteor trails in the ionosphere, they embarked on a two-year program of daily testing and recording. The results of their work showed, for the first time, that frequencies of this order can be returned to earth by reflection from meteor trails. This knowledge is now being

put to work in a number of ways, not the least being what promises to be a means of reliable long-distance communication with a high degree of secrecy — a prime military objective.

I G Y Propagation Study

In 1955, when plans were being laid for United States participation in the International Geophysical Year, it was recognized that amateur radio observations could serve highly useful ends in the I G Y programs for studying natural phenomena. The amateur radio service is unique in its ability to provide such projects with a quantity of readily available observation posts, with skilled operators; and it is the only means by which such projects can be undertaken successfully, for the expense of setting up observation stations especially for the purpose would be prohibitive. Accordingly, a large amateur program was planned by the American Radio Relay League under the auspices of the National Academy of Science, and it is now operating. Amateur observers all over the world, some 1200 in number, are giving freely of their time to collect thousands of individual observations in all the amateur v.h.f. bands. These observations will be used to shed new light on many of the phenomena previously discussed. The program represents what is undoubtedly the most significant use yet made of amateurs in a scientific undertaking. The work has the interest and encouragement of many top men of science and of numerous scientific agencies.

Other Projects

Amateurs have responded to requests of government agencies and private research institutions for additional assistance in various propagation and radio-tracking studies. Most of these are also in connection with the International Geophysical Year. One, dubbed Operation Smokepuff, now in progress in the southwestern part of the United States, involves the firing of a rocket into the ionosphere to release a cloud of nitric oxide gas. Amateur stations in the area, forewarned by radio, then will attempt to establish two-way communication over paths of unusual distances by obtaining reflections of their transmitting signals from this artificial ionized mass.

Another, while not involving amateur transmitting, nevertheless takes advantage of amateur skills acquired through v.h.f. activity and experience. It is a request by the Naval Research Laboratory for as many amateur groups as possible to set up 108-Mc. "Minitrack" or similar receiving installations for obtaining measurement data through which the orbit of the forthcoming U. S. earth satellite might be quickly computed.

When the Soviets recently launched their successful satellite, it was found to be transmitting on 20 and 40 Megacycles, much too far removed from the established U. S. tracking frequency of 108-Mc. for such equipment to be of use. At the request of the Naval Research Laboratory, the American Radio Relay League promptly alerted the nation's amateurs to monitor the frequencies. A large portion of intercept reports and recordings flowing into NRL came from individual amateur observations during the first several days of the satellite's life, while the official tracking equipment was being suitably modified. The number of useful intercept reports would have been greatly reduced had there not been a body of trained volunteers such as amateur radio provided, skilled in v.h.f. techniques by operation in bands included in the subject of this proceeding.

The Radio Amateur Civil Emergency Service

It is important to note that, of the six amateur bands under consideration in the present proceeding, four include also assignments for the Radio Amateur Emergency Service (RACES). These segments are in the 28-, 50-, 144- and 220-Megacycle bands. They comprise the frequencies which have been assigned by this Commission, after clearance by the military, as those which would be used by authorized amateur stations in maintaining essential communications in the event of civil disaster or war. The extent to which these segments have been and are being used for civil-defense amateur purposes constitute an important aspect of amateur occupancy.

Data obtained from the Federal Civil Defense Administration indicate that as of October, 1957, some 950 RACES communications plans were on file with that agency. Most of these are at the local or "community" level, at which the greatest use is made of RACES frequencies in that part

of the spectrum under consideration. Some 250 of these plans have been filed since January 1, 1957, indicating a heavy continuing increase in communications needs for the public service of civil defense.

When RACES was authorized by this Commission, it soon became apparent that the frequencies made available were sufficiently limited as to require extremely careful planning for their use. Accordingly, a nation-wide amateur organization known as the United States Civil Defense Amateur Radio Alliance was formed and has set up a comprehensive frequency assignment plan embracing all segments of the amateur bands earmarked for RACES purposes. The plan is used extensively by most of the thirty or more states now officially members of USCDARA. This plan provides 38 channels in the 28-Mc. segments, 40 channels in the 50-Mc. segments, 34 channels in the 144-Mc. segments, and 64 channels in the 220-Mc. amateur band, arranged for geographical assignments within each state to minimize the possibility of adjacent-channel interference.

That such careful study of the RACES frequencies and planning for their use was considered necessary is in itself an indication of the extent of occupancy of RACES stations. It is certain there will be increased occupancy in the future as more communities and states adopt civil-defense communications plans. At present, some heavily-populated areas are already experiencing a shortage of available channels in some of the RACES segments in the amateur bands. Obviously, in the present state of world tension, it is essential that adequate frequency space be provided for civil-defense communications.

We turn now to brief, individual comment on each of the six bands allocated to the amateur service in the portion of the spectrum under consideration.

26.96-27.23 Mc.

The band 26.96-27.23 Mc. is currently the subject of a proceeding in Dockets 11994 *et al.*, and inasmuch as the League's viewpoints are fully expressed in our comment therein, we assume there is no need to repeat them here.

28-29.7 Mc.

Prior to World War II, the amateur band in this portion of the spectrum was 28,000-30,000 kilocycles. Postwar, the allocation has been reduced to 28,000-29,700 kc. This allocation was confirmed at the 1947 International Radio Conference, the table showing 28,000-29,700 kc. available to the amateur radio service on a worldwide, exclusive, basis.

The amateur 28-Mc. band carries a heavy load of communications. When these frequencies will provide skywave communications, the band is full to overflowing with amateur signals from all over the world. During portions of the cycle when only the groundwave is usable, considerable domestic short-haul communication takes place.

The band is the first in the amateur family, going up the frequency scale, where a mobile antenna can be made to operate with any appreciable efficiency. As a result there is an intense amount of mobile communication in this band — much of it, appropriately, tied in with emergency and civil-defense communications plans under the Radio Amateur Civil Emergency Service. We estimate that there are at least 20,000 amateurs in the United States and its possessions equipped to operate vehicular mobile in the 28-Mc. band.

50 to 54 Mc.

As had been mentioned previously, this band is almost ideally situated in the spectrum for the amateur with particular interest in propagation studies. It is high enough in frequency so that it has most of the desirable characteristics of the other and higher v.h.f. bands, yet it is low enough so that practically all long-distance phenomena that are present on lower frequencies show up here at least now and then.

Equipment for amateur work in this band is relatively simple, and the assignment is well adapted to the needs of the beginner. Especially since the Commission opened the band to Technician Class licensees in April, 1955, occupancy of the band has multiplied many fold, and indications are that it is still growing rapidly. Interest in 50-Mc. work is now at its highest pitch in all the history of v.h.f. work by amateurs.

The 50-Mc. band occupies a place of first importance in the ARRL IGY Propagation Research Project. About 1000 amateurs are now reporting 50-Mc. reception and two-way communication in five different propagation categories:

sporadic-E propagation, auroral propagation, transequatorial scatter, meteor scatter and F2-layer propagation. This work is being performed under a nonprofit contract with the Air Force Cambridge Research Center, for the duration of the International Geophysical Year. Data gathered are evaluated by skilled amateurs on the ARRL-IGY Staff, and then placed on punch cards in such form that the information can be correlated with observations gathered in related fields of IGY endeavor.

The 50-Mc. band, in addition to its long-distance properties, also provides almost unequalled facilities for reliable work over essentially local distances. Its ability to provide consistent interference-free communication up to 100 miles or so with moderate power and readily-available equipment makes it highly useful for amateur emergency communication. It occupies a place of importance in practically every Radio Amateur Civil Emergency Service plan now on file with FCC, and it is almost certain to be a part of most future plans for emergency communication of all kinds.

For routine amateur communication, whether organized into networks or merely carried on between stations at random, the 50-Mc. band is rapidly increasing in importance. There is 50-Mc. activity in just about every corner of the United States and Canada, and in densely-populated areas such as New York, Chicago, or Los Angeles hundreds of stations use the band regularly. Because of its growing popularity the 50-Mc. band can help in relieving the growing congestion in lower-frequency amateur bands by accommodating the overflow, at least where short-range communication is concerned.

144 to 148 Mc.

Like the 50-Mc. band, this is a postwar assignment, a change from the original band at 112 to 116 Mc. Immediately after World War II it became a popular v.h.f. band, largely because of the availability of many surplus transmitters and receivers at moderate prices. The war-surplus gear has long since ceased to be a major factor in 144-Mc. activity, but use of the band continues at a high level.

Operating ranges, both reliable and under unusual conditions, have been extended markedly in recent years. Using continuously-improved equipment, larger antennas, and better operating techniques, amateurs have extended the reliable operating coverage of the 144-Mc. band from a few miles to several hundred miles. Exploitation of the various forms of anomalous propagation has extended the distance record for two-way communication on 144 Mc. from about 300 miles, where it stood during the first few months the band was in use, progressively to 550, 850, 1200, 1400 and recently to 2500 miles. Even ten years ago, the most enthusiastic v.h.f. operator would have hardly dared to predict that the limit of two-way communication on 144 Mc. would ever exceed 500 miles or so, yet today such a distance is almost commonplace.

Amateur work in this range by means of auroral reflection and by meteor scatter has been of considerable scientific interest. Auroral propagation on 144 Mc. is an important part of the ARRL-IGY already discussed.

Tropospheric propagation possibilities were given a new horizon on July 8, 1957, when an amateur in the Los Angeles area contacted another on the Island of Oahu on 144 Mc. This 2540-mile path exceeded by some 25 percent the greatest distance over which signals of a frequency this high had ever been received.

Ambitious and scientifically-inclined amateurs have been successful in bouncing their 144 Mc. signals off the moon, a feat once thought to be well beyond the capabilities of an amateur-type station. While this mode of propagation has yet to be used for two-way communication, it offers intriguing possibilities. It seems a fair prediction that the difficulties of lunar communication will someday be successfully solved, enabling 144-Mc. workers to engage in communication over near world-wide distances.

Beginners also occupy an important place in the 144-Mc. picture. This desirable situation results in some measure from the advent of the Novice Class license and since it is the only frequency band in which a Novice may use voice under present regulations, the band has seen large numbers of new amateurs making their start here. The knowledge, recently acquired, that the 144-Mc. band can be used in most any section of the country successfully, provided sufficiently good equipment and antennas are used, has added to its popularity. It is used almost everywhere in the United States, and the number of active stations is probably not greatly different from the 50-Mc. band, though the geo-

graphical distribution is not necessarily similar.

The band is excellent for short-range communication of any kind, especially where mobile stations are involved. The antenna required for mobile work, a simple 19-inch whip, is so readily installed that "going mobile" need involve only a few minutes work in most instances. Mobile operation on 144-Mc. looms large in the civil defense and other emergency planning of many communities throughout the country. In some areas, in fact, assignment of channels under RACES communications plans is already close to the saturation point.

220 to 225 Mc.

The amateur assignments from 220-Mc. up are still in the developmental stages, though general use of the 220-Mc. band is coming along well. Having characteristics essentially the same as the 144-Mc. band, but being open to use by Technician Class licensees, it is the scene of much new activity. Particularly in densely-populated areas, the 220-Mc. band is rapidly assuming the status of a communications band, where only a few years ago it was regarded as almost exclusively experimental territory.

The widest spread of frequency available for RACES use, the 220-Mc. band is being included in many plans for that vital service. For this work it enjoys much the same advantages as 144-Mc.: freedom from interference and reliability of local coverage, with low power and simple antenna installations.

Use of the band by a considerable number of amateurs, operating regularly under varying conditions, is demonstrating that the band is capable of supplying very similar coverage to that enjoyed on 144-Mc. With the added impetus of the Technician Class licensees, many of them now looking for additional territory to work in after having made a start on 50-Mc., the 220-Mc. band is destined to grow in popularity and value to the amateur service.

420 to 450 Mc.

With the jump from 220 to 420 Mc. the amateur service makes a clean break from the communications to the experimental territory. Transmitters, receivers and antennas used in the 420-Mc. band are often quite different from those employed on any lower amateur frequency, yet the techniques and equipment are well within the capabilities of the amateur constructor.

If there is a place in all of amateur radio for the use of the very simplest equipment, the 420-Mc. band is that. As now set up, the band is wide enough so that the one or two-tube transmitter and the simple wideband receiver may be used successfully for local work. Use of such gear is often the stepping stone to more advanced techniques, and the simple-equipment approach still has considerable appeal for the experimentally-minded beginner.

The 420-Mc. band is the lowest frequency at which amateurs have a band wide enough for the use of television transmission, and there is considerable interest in amateur TV around the country. Some 200 to 400 amateurs currently have TV equipment ready for use, or are working on it. Their approach to this phase of amateur work is largely experimental at present, the use of television not yet being made a part of normal amateur communications to any great extent.

The propagation aspects of the 420-Mc. band hold considerable interest for amateurs who have already exploited the DX possibilities of the v.h.f. bands. Tropospheric propagation, particularly in this band, and it seems reasonable to assume that some very long distances may soon be covered by the use of this medium. There is much interest in the possibility of auroral reflection at this frequency; though no success has yet been achieved there is some optimism that auroral communication at 420-Mc. may soon be an accomplished fact.

The number of amateurs using the 420-Mc. band, or capable of doing so, is hard to assess, but evidence gathered from ARRL operating activities and the reports of amateurs indicates increasing interest. It is perhaps the best territory currently open to the experimentally-minded beginner, and it is gradually taking over a role as a communications band as well. Equipment for effective use of the band is more readily constructed, and at more moderate cost, than for the higher frequencies, and the communications possi-

(Continued on page 160)

YL News and Views

BY ELEANOR WILSON,* W1QON

Reflections of a Converted XYL

BY MARIANNE KEARNEY¹,
W7WFO (XYL OF W7WFP)

"And how did *you* happen to get interested in amateur radio?" is a question often fired at me by other (usually unlicensed) XYLs and is usually followed by a dead silence during which I probe for a reasonable answer, wondering if next they will floor me with "And *why* do you climb mountains?" As it came about, Ty, the OM, suddenly decided to study for a novice ticket, and when the OM takes up a new interest in life, the XYL goes along with it (OR ELSE!).

The first phase in this new interest took the form of what might be termed "The Literature-Left-Lying-Around-the-House-Period," during which time radio magazines began to accumulate, and the general idea seemed to be that I was expected to read "The License Manual" and "How to Become a Radio Amateur" in place of fiction. The theory, I agreed, was not bad reading, but it took not a little browbeating on the OM's part to get me to tackle the code. And even after our tickets arrived (after getting lost in the mail for 4½ months), it took further "tactics" to get the lesser half to pound out that first "CQ." As luck would have it, my initial contact was another XYL, so I was, for better or for worse, launched into a brand new hobby as a ham operator.

The advent of our new hobby complicated our already complicated existence with new problems. To our array of skis, sleeping bags, rucksacks, ice axes, climbing rope, bicycles, ice skates, kyaks, life preservers, jungle hammocks and parkas, piled in our long-suffering folks' bulging basement storeroom, was added, of all things, a ham radio station. So now our camping boxes, beachcomber's boxes and skiing paraphernalia are interspersed with odd radio parts and surplus items of all kinds. Maybe we should go into the junk business!

It would be fine to "go all out" for a new hobby if somehow we could automatically dispense with all of our old hobbies and outdoor interests. Instead complications have set in. Now when we go to the mountains to ski, we're



"My OM spends his spare time trying to figure out how to combine skiing, mountaineering, and ham radio."

prepared to "ham" too. An emergency box of antenna wire rides along with the skis, shovel and chains in the rear of our station wagon, as well as a BC654A which we use as a mobile rig. Since it manages to use up half the front floorboards, everyone who looks at the monster says the same thing, "Good thing your wife is a ham, Ty!"

Cheerfully, or not so cheerfully, I help the chief antenna raiser put up his famous half wave or off-center-fed Hertz. And I have seen that half wave go up in many locations, attached to such things as a tree atop a sand dune, fir trees, telephone poles, flagpoles, sagebrush atop a gravel pit, and even a snowstake. The snowstake came into play one day on Mount Hood when we pulled into a parking lot next to a six foot snowbank and ran an antenna out the car window. (Our reports are much better when we use a half wave instead of the car whip.) Our signal boomed out into the clear cold mountain air and all was well until a rotary snow plow appeared, slicing neatly into the snowbank. Nervously we sat watching it approach closer, wondering whether

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¹Rt. 5, Box 282F, Vancouver, Wash.

to dash out and attempt to explain "operation fixed portable" going on in the parking lot: instead we waited until the plow was about to snap our "lifeline," then rushed out grabbing the lead-in down just in time.



"Hamming at Mount Hood has disadvantages."

I now detect the brewing of another brain-storm. Every time we drive up to Mount Hood

and that challenging 11,245 foot white peak looms into the deep blue mountain air, I know what the OM is thinking as he eyes that shining summit speculatively. He's dreaming about a two meter signal going off the top and conjuring up some elaborate plans, mostly meaning that the XYL is going along as porter to help backpack radio gear up to the top. I let myself in for schemes like this, having acquired the dubious reputation of being the kind of climber who will help backpack anything and everything up to the tops of the Pacific Northwest mountains — so what could be more routine than a mountain-climbing radio expedition?

While on the subject of portable operations, we keep our ham friends guessing as to where W7WFP/7 will turn up next, and some of them can never quite get our home QTH straightened out, there being two of them. The XYL shack is fashionably located in a clothes closet in our 25-foot house trailer, while the OM usually operates from the afore-said bulging basement storeroom of his folks' house. The other day we were in a three-way QSO, and when the third party couldn't quite fathom why we were at different QTHs, he politely backed out of the QSO, apologizing for thinking us a man-wife team.

Don't be surprised if we turn up next year as /MM from the kayak or /BM (bicycle mobile) from who knows where? I've followed all of my OM's hobbies so far, but I just hope he doesn't take up — flying!

ATTENTION ALL YLs AND OMs!

Reserve now on your calendar four big dates in March for the annual YL-OM contest: March 1 and 2 for the phone section and March 15 and 16 for the c.w. section. Full details next month.

\$33.00 QUESTION

Just between us girls what *do* we talk about on the air anyway — when we're not handling traffic, participating in nets, or engaged in anything other than strictly ragchew? Children, houses, radio gear, dogs, DX, food, fashion, world events — perhaps even men? A survey is in order.

Leave it to the girls in Texas to operate mobile in their own unique fashion. Six members of the Women Ham Operators of Texas took turns operating a Collins 32V-2 and an SX-71 while rolling along the streets of Dallas in the annual Labor Day Parade. Adorning the float are K5BNB and W5SYL, standing, and seated, W5WXY, K5GRF, and W5KEC with K5BNH on the chair, and in case your bifocals aren't handy, the sign reads: "Women Ham Operators of Texas—We give a WHOOT about the Welfare of our State, City and Everywhere Come Tornado, Hurricane, Flood or Fire To aid in such is our Desire —Join Civil Defense." WHOOT members were also in charge of registration during Ham Day activities at the State Fair.





You are hereby invited to aid in our private little Bend Your Ear and Report What You Hear project conjured up for the week of January 25 thru February 1. The requirements are elementary. All you have to do is tune around the bands during the appointed period, zero in on two or more YLs engaged in a QSO, jot down the subjects you hear discussed, (calls, names, QTHs, revealing descriptions not necessary — we're not planning to embarrass anyone), tally up your categories (you are allowed an infinite number), and send them along to us. We'll review them and publish the findings, which may not prove much other than emphasize the fact already established that we are the female of the species, ham or not. Again, the dates of BYRRWYH are Jan. 25-Feb. 1.

Needless admonishment: You can't listen all of the time for how is another YL going to report what *you* talk about if you don't get on the air yourself?

Presently Fran Miller of Ardmore, Oklahoma, is better known as Mrs. Ardmore of 1957 and finalist in the Oklahoma state finals of the national Mrs. America Contest than she is as W5SNL perhaps. But the situation is only



temporary, says Fran, who concluded during the height of the glamour and excitement of the contest that she would rather be back in her little ham shack anyway. According to the harrage of newspaper publicity about Fran though, she made a fine showing in the finals (among the top ten), and the requirements were not undemanding. Sewing without patterns, cooking a complete four-course family meal in an hour, with perfect table setting, baking an old-fashioned cake without using a mix or an electric mixer, ironing a white shirt without a wrinkle, writing a theme within a limited time, giving extemporaneous speeches before a large audience and assorted TV cameras and microphones — enough to make any YL conclude she would stick to radio contests only!

Fran and her OM Ernie, W5SNM, have been hams since 1950. They have two children, fourteen and fifteen years old. Fran says that before she became a ham she belonged to several bridge clubs and spent considerable time playing bridge, but now she would take a contact on 40 c.w. to a grand slam any afternoon.

On August 30 Maxine Willis, W6UHA, of Los Angeles,

On November 9th forty-six licensed YLs from Texas, Oklahoma, and New Mexico met in Dallas to celebrate the third anniversary of the Texas YL Round-Up Net. Guest speakers for the occasion, which was hosted by the Dallas Women Ham Operators of Texas club, were the four YLs shown in the photo: left to right, Publicity Chairman, W5YRT; President and NCS K5BNQ; Vice President and Alternate NCS W5KEC; and Secretary-Treasurer W5LGY. All 77 members of the TYLRUN know that the 7235 and 3880 on the transmitting tube centerpiece, done by K5GRF, represent the frequencies of the club's two Thursday morning nets.

entertained visiting royalty in her home — Prince Talal, HZITA, and his wife, Princess Mona, of Saudi Arabia. Maxine interestingly describes their visit in her own words.

"On the week end of August 30 and 31, while many lucky YLs were enjoying the national ARRL convention festivities in Chicago, W6UHA was feeling as forlorn as Cinderella missing the ball, when who should come to call but a real Prince accompanied by his beautiful XYL. On Friday afternoon of that week end we entertained at a luncheon Prince Talal, HZITA, and Princess Mona of Saudi Arabia. The party included Khalil Rawwaf and Ahmed Boukhari, 2nd op, at HZITA, Midge Rommel, K6BUS, Lorraine Freeberg, W6AKE, and my mother, Mrs. Marie Emmons. Ed. W6TS, my OM, dashed home from his studio long enough to meet our guests and take color pictures.

Prince Talal and Ahmed operated the station most of the afternoon and enjoyed QSOs with Ethel, VE3DTW, Cyril, VE3TW, and VE3AIU, also with KL7RU and K6ZHB. All members of the group spoke excellent English, and their accounts of life in Saudi Arabia were most interesting. As YLs we could not help admiring Princess Mona's youthful beauty and lovely Dior gown. I think that she and the Prince were homesick for their young son, Walid, who was only three months old when they started their trip.

After their visit with us, the Prince's party took the helicopter to Disneyland and thoroughly enjoyed an evening in that land of fantasy. A few days later Prince Talal's secretary, Nabil Ladki, and Ahmed toured MGAI with me, and, of course, we had to visit Ted Henry's Radio Store, also the outstanding station of Bill Guimont, W6YMD. Ahmed spent one pleasant morning with Helene Leonard and operated W6MBD, W6QOC. On Thursday, Sept. 4, the group departed for San Francisco, and we said goodbye a little sadly at International Airport.

My first QSO with Prince Talal took place in 1952. Now once again we have resumed the early morning QSOs with HZITA on twenty meters. At one point during his visit I told the Prince that if I could have found a flag from Saudi Arabia, it would have been flying on the Rohn tower. Pointing to my rotary beam he graciously replied that the same flag was already flying above both of our homes! As he and Ahmed discussed their close friendship with W2BDS, Mike, W5EFC, Bill, and others, I could not help thinking of the unlimited opportunities we amateurs have for promoting international goodwill. To each of us is given that rare possession — a magic carpet!"

Princess Mona cuts a confectionery QSL card for her husband Prince Talal, HZITA. Left to right are Princess Talal, Mrs. Marie Emmons, Lorraine, W6AKE, Maxine, W6UHA, and Midge K6BUS. (The Prince was the photographer.)



The World Above 50 Mc.

1215-1300 2300-2450 3300-3500 5650-5925 10,000-10500 21000-22000 30,000-3

CONDUCTED BY EDWARD P. TILTON,* WHDQ

ARE YOU on 6 these days? Did you get on yesterday, last week, or last month? Or even in the past year? If so, you may not understand how 50-Mc. graybeards like your present correspondent feel when they survey the 6-meter picture, 1958 style.

In a few months it will be 25 years since the call in this department's byline was first heard on 5 meters. Your conductor was attracted to the world above 56 Mc. because it seemed that here was ham radio with a future, rather than a past or present. Since practically nothing had been done, surely many new and interesting experiences awaited any ham who applied himself to the task of making these frequencies pay off. At least he wouldn't be going over ground that had been travelled countless times by others.

But if *QST* had printed, in its first issue of 1933, a condensed report of what has happened in the 25 years since then, and called it a forecast of things to come, the author would have been forced to remain anonymous, for he would have been laughed off the pages of *QST* forever. Nobody in his wildest flights of fancy would have predicted what these 25 years have actually produced, not only on 50 Mc., but on every higher band open to amateurs.

In 1933 it was gospel that the only way to work more than a few miles on any frequency above 30 Mc. or so was to climb a mountain, so that the visual and radio horizons would be more than those few miles away. Now see what has happened, even in the month since we last met a *QST* deadline, let alone in the past 25 years. To cite personal experience for a moment, just as an example: during November, WHDQ worked Norway, Sweden and Ireland for the first time on 50 Mc. We added a continent that we'd all but given up any idea of catching, when we worked CT3AE, Madeira Islands (Africa) the morning of Nov. 14. On the afternoon of the 16th we heard signals from Alaska for the first time, and the next day worked KL7AZI for our first Alaskan on 6. In a wild and woolly session with the W6s on Nov. 11, several of them blasted away at WHDQ simultaneously, to say that KH6UK was calling. We haven't managed a QSO yet, as we write, but if a W1 can be heard in Hawaii once, can a contact be far behind?

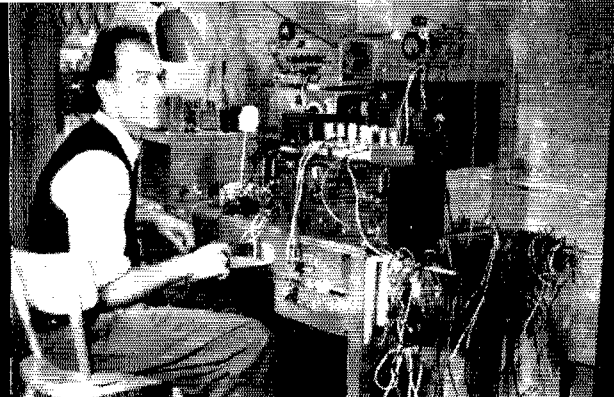
If you just recently got your ticket perhaps you'll not quite grasp what these things mean to a fellow who came up from a day when hearing a 5-meter signal from Northampton, 18 miles from the first WHDQ location in Springfield,



1 W0ZJB	8 W0INI	15 W0WKB	22 W5SFW
2 W0BJV	9 WHDQ	16 W6SMJ	23 W6ORE
3 W0CJS	10 W5MJD	17 W0OGW	24 W9ALU
4 W5AJS	11 W2IDZ	18 W7ERA	25 W8CMS
5 W9ZHL	12 WILL	19 W3OKU	26 W0MVG
6 W9OCA	13 W0DZM	20 W6TMI	27 W6CNM
7 W6OB	14 W0HVW	21 K6EDX	28 W1VNH
			29 W0OLY

W1CLS 47	W4EQR 45	W6ANN 45	W8JCI 42
W1CGY 46	W4AZC 45	W6NDP 45	W9MPH 42
W1LSN 46	W4LNG 45	K6CTC 44	W8SWH 42
W1AEP 46	W4CPZ 45	W6ICG 43	K9EID 41
W1POS 45	W4FLW 45	K0HYI 43	W9EPT 41
W1RPU 44	K4HOB 44	W8ABN 43	W9IMG 40
W1SUZ 44	W4Q8N 44	W8NTI 42	W9KLR 37
W1KHL 42	W4RFR 42	W6LWS 41	
W1EIP 42	W4MS 42	W6CAN 40	W8QIN 17
W1TKO 40	K4DNG 41	K6BRQ 40	W8NFM 47
W1MPM 39	W40XC 41	K6BRG 40	W7PKX 47
W1SPX 36	W4ZBQ 41	W6BWG 40	W8KYF 47
W1UHE 35	K4GYZ 41	W6OJF 31	K6CQG 47
W1CLH 35	W4PNR 40		W8ZTW 47
W1FMK 34	W4AYV 38	W7FFE 48	W8JOL 46
W1LGE 33	W4IUJ 38	W7HEA 47	W8USQ 45
W1PVZ 32	W4YRM 38	W7BQN 47	W8PKY 45
W1PTT 31	W4HJK 37	W7DYD 47	W8PFP 45
W1WAS 31	W4AKX 36	W7ACD 46	W8QVZ 45
	W4GJO 35	W7PDJ 46	W8OPZ 44
	W4ZD 35	W7FNX 45	W8YJF 44
W2MEU 47	K4AGM 35	W7JRG 44	W8URQ 44
W2RGV 47	W4M1 35	W7BOC 42	W8JHS 43
K2JNS 46	W4H7G 34	W7JPA 42	W8PTI 43
W2AMJ 46	W4RLG 34	W7PIV 41	W8WNU 42
W2BYM 46		W7CAM 40	K0DXS 42
W2FHJ 45	W5VY 48	W7MKW 40	K8CKR 41
W2SHV 44	W5LFO 47	W7YJE 38	W8PKD 41
K2TTP 43	W5G9Q 46	W7QDJ 34	K8AKJ 40
K2ITQ 43	W5PSC 45	W7UFB 33	W8YZZ 38
K2CBA 42	W5ONS 45		W8ZKD 37
K2AXQ 42	W5JLY 45	W8OJN 46	W8VIX 36
W2GYV 40	W5ML 44	W8SQJ 46	K8BPM 35
K2HPN 39	W5EZX 43	W8HXT 46	K8CLJ 35
W2ORA 39	W5VY 43	W8NQD 45	W8LJR 35
W2QVH 38	W5PXN 43	W8UZ 45	
K2HRB 37	W5JME 42	W8RFP 45	VE3AET 46
K2LFW 37	W5CZF 41	W8LPD 44	VE1FF 38
K2YWH 34	W5FAL 41	W8HR 44	VE3AB 37
	W5HEZ 41	W8PDP 43	VE3BBX 33
W3TIF 47	W5BXA 41	K8ACC 43	VE1QY 32
W3KKN 45	K5ABW 40	K8CIC 42	VE1PQ 31
W3KMY 14	W5EZX 38	W8EYH 42	VE2AOM 31
W3RUE 42	W5EUQ 38	W8YLS 41	VE3DER 31
W3NKM 41	K5ABW 38	W8INQ 40	VE3BHQ 30
W3MQU 41	W5EFP 38	W8PCK 38	XE1GE 27
W3MXW 41	K5CYK 38	W8NOH 34	COZZX 24
W30TC 40	W5PRK 38		VE3JL 22
W3FPH 40	W5NSJ 36	W9BRN 48	VE1WJ 21
W3LFC 40	W5WZ 33	W9ZHB 48	CO6WV 21
W3AMO 36	K5AJW 33	W9QUV 48	VE4HS 20
W3TDF 36	W5ZUT 33	W9VZP 47	E1ZW 20
W3JBA 24	W5WYB 32	W9RQM 47	L9UMA 16
W3UQJ 32	W5ZVF 31	W9QKM 47	PZ1AE 15
	W5LPM 26	W9JFP 47	CO2WL 10
W4EQM 47	W6WNN 48	W9DSP 46	KL7VT 9
W4UCH 47	W6UXN 48	W9AAG 46	J1A1UH 5
W4PBH 46	W6BAZ 47	W9UNA 45	VQ2PL 5
K4DJ0 46			
W4UMF 46	W6BJI 46	W9MHP 43	

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



Paul Gerstl, SM5CHH (above), and Tom Blevins, W4UMF (right), both look happy, and well they may. Their QSO Oct. 26 was the first between Europe and North America on 50 Mc. during the current solar cycle, and the first transatlantic 50-Mc. DX ever worked from Sweden.



Mass., was considered so far beyond the realm of possibility that other inhabitants of the band in that day refused to believe that it had happened!

And the writer's personal exploits are but a bit of the history that has been made in the past 30 days. Firsts have broken out all over; not a few of them feats that would have been written off as impossible, even a few months ago. How did W6BAZ, Santa Rosa, Cal., feel on the morning of Nov. 10, when, in the midst of several S9-plus KH6 signals he dug out ZS3G, of Windhoek, Southwest Africa? This was the first African contact on 6 from anywhere in Western U.S.A., but scores of them were made in the next few days.

How about EI2W, near Dublin, Ireland, and K6GDI, Fresno, Cal., when they pulled off the first Europe-to-W6 QSO in v.h.f. history Nov. 5? Or that same K6GDI, when he worked Japan a few days later, and realized that what is almost certainly the first 50-Mc. WAC had at last been achieved?

The two fellows pictured here have reason to smile happily, too. W4UMF and SM5CHH made the first 50-Mc. contact between Sweden and the Western Hemisphere, and the first Europe-to-American two-way of the current sunspot cycle.

W4IKK, Signal Mountain, Tenn., has a record that may not stand long. He has worked KH6UK, KH6PP and KH6NS, and is (up to this writing) the farthest east of any American who has worked into Hawaii on 6. W9DSP, Chippewa Falls and W9VZP, Delevan, Wis., and W9YOI, Lake Forest, Ill., hold the same honor with respect to Asia. They all worked into Japan Nov. 16. And W9DSP knocked off Europe (G4LX), Africa (ZE1JN, ZE2JV), and several

KL7s that day, to boot!

As we stand atop the peak of the hottest solar cycle on record, nothing seems impossible, yet only two months back we were being editorially cautious about predicting that very much in the way of 50-Mc. DX would break this year! Hams working on 6 are currently piling up evidence that, in almost every corner of the world, maximum usable frequencies are running far higher than expected. Solar activity is currently topping anything in the 200-year recorded history of sunspot observation. This means not only unprecedented DX opportunities for 6-meter men; it means auroras of tremendous intensity and wide geographical distribution, for new 144-, 220- and possibly even 420-Mc. horizons. There may be all sorts of other presently little-known side effects, which could include tropospheric propagation, the likes of which we have never seen before.

We who are fortunate enough to be part of it, through our work in the world above 50 Mc., are living through experiences that may never, in the lifetime of any reader of these pages, be coming our way again. Make the most of them while you can!

How's DX?

Our principal news section this month might well follow the terse style of its contemporary a few pages away (not YL News and Views), except that there would be no band breakdown. Anyone on 6 recently knows what band we're talking about. With the leaders up over 20 countries worked, some of their catches definitely not in the easy category on any band, we may yet be drawing the attention of W9BRD's customers. There's a large pile of reports, both in your conductor's mail and at our PRP office, so here's the November record, stripped of narrative style.

11,1—M.u.f., W1 to Europe, over 52 Mc. by 0730 EST, EI2W worked K2CBA W1HOY W4UCH K2DLB

W2RGV K2PYG W8SSD W8HXT W3RUE W8SSF
W8CMS K2MNB W3OMY W8DJE. SAI5CHH worked
W3LCC W2RGV. VE1PQ worked LA7Y LA9T SMI5CHH.
CTICO, Lisbon, Portugal, heard WH1DQ GKE W3BRU.

11-2 — M.u.f. over 52 Mc. at 0715 EST. LA9T worked
VE1PQ W1CLH W1CLS W1FTX W1GKE W1HDQ
W1HOY W18TZ W1QCC/VE1 W2BDL W2IDZ W2ZKE
W2BYM W2LOY W2RGV K2HPN W2ITP W2ITQ
W3PMG W3HFY. LA7Y worked VE1PQ W1QCC/VE1.
E12W worked W9DSP K0AKJ VE3ARU. SMI5CHH
worked W2BDL W1CLS W2Z?? VE1PQ W2IDZ. SWL
Bootman, London, heard VE1PQ ZF WL VE3DFW
W1QXX GKE LBF YDZ HDQ QCC VE1 UAR QIG
FOS BWJ RFU WAS QRJ ZAW HOY VEY HYO EUJ
VNO DEI K1BFK AFT ANF BHR CCI W2LCB ALL
WZR IDZ K2RTJ VAW CBA DGB PRK W3GXL UBI
VAM AET OJU LCC BJU FWM JNC W4LNB KNY
HYV W8SQU RAY CMS K8DFN W9DSP VZP W0OGW
K0AKJ. W9DSP worked G3COJ (G3UD) and G4LX cross-
band and E12W 2-way. W4DWY had partial QSO with
F8SAP crossband. CTICO heard WH1DQ QXX W2BDL
W3UBH W4LNB. VE1ZR worked SMI5SL. W0SMJ
worked G4LX crossband.

11-3 — M.u.f., W1 to Europe, over 50 Mc. at 0645 EST.
SM17ZN heard by WH1DQ. K5HTH, Amarillo, Tex., heard
VE1s. CTICO heard VE1EF WH1DQ O1E GKE UAR
QCC VE1 FMK K2ITP ISP ITQ LTW W2UTH BDL
W3MXW VMH OJO W4GCG UCH. JAs worked from
West Coast.

11-4 — M.u.f., W1 to Europe, over 50 Mc. at 0645 EST.
E12W worked K2CBA W1HOY VE1PQ W1GKJ W1YQI
W1TUT K1CAR W8SSD W1CLS W4LNB. LA7Y worked
W5VY W4MQV RAMU LNB FBL IKK UFY K4JGO
IVD W4ZZ W51EO SFW PDE W0IBL 1435 to 1605
GMT. VE1HT worked stations in Amarillo, Tex.,
and vicinity, only about 2000 miles. W8CMS worked KL7CDT.
W4EHV worked LA5YE; heard SM17ZN LA9T LA7Y
CT3AE. K9EEK worked KL7CDT. W5PDE worked
SM16BT, the SM's first 50-Mc. DX. (2BVN worked
W6NLZ crossband and heard W6ABN. K9ABQ worked
KL7CDT.

11-5 — M.u.f. to Europe over 50 Mc. by 0653 EST.
SM17ZN worked W4AY NWB LNB IKK K4JGO JJO
ITQ W8LPD. W4ZZ worked LA9T 7Y. W9ALU and
W9ARN heard SM17ZN. K0JNH heard SM17ZN LA7Y.
W0IBL heard same and LA5YE. W5PDE worked LA7Y
and heard SM17ZN LA5YE SM16BT. W4EHV worked
LA5YE. K8CIC worked KL7CDT. KL7AUV worked
JA6JY and JA4AH. KL7CDS worked JA6JY. E12W
worked K6GDI (first Europe-W6 50-Mc. QSO). W51EO
worked LA7Y; heard SM17ZN. K5JXK heard SM17ZN.

11-6 — M.u.f. to Europe over 50 Mc. by 0730 EST.
W9DSP worked PA0FMI G5BD (G2DPY crossband).
W7ACD worked KH6PP NS. K8CIC worked KL7CDT.
W5AJG and W51EO worked LA9T.

11-7 — Sporadic-E opening, north-south, 0800-0945
EST. KL7AUV worked JA5BU 6PJ. No European open-
ing.

11-8 — M.u.f. low to Europe in early morning. W0IBL
worked KH6NS. No European opening.

11-9 — M.u.f. to Europe over 51 Mc. at 0725 EST,
but dropped back after 0730. Rose over 50 Mc. again
before noon.

11-10 — M.u.f. to Europe below 48 Mc. all morning
at WH1DQ. CN2AO, Taugier, heard ZS3G W6HCG
BAZ W5VY. W6BAZ worked ZS3G, both beamed on
Hawaii. Long way around? W6B7J AFC K6GDI AMIT
LLF worked ZE2JE. Japan and Hawaii worked from
West Coast. W0JLR and K0LSL heard KH6s.

11-11 — M.u.f. to Europe over 50 Mc. at 0720 EST.
W1LGE and VE1PQ heard CT3AE, who was worked by
W2BDL and W30JU. W4IKK worked KH6UK NS PP;
best W.DX yet worked by KH6. KH6s heard by K0KSL
W0QDIH W9DSP. W0FKY worked KH6UK NS VQ2PL.
KH6UK worked WH1DQ VQ2PL. W4UMF heard VQ4?
KL7CDG worked KH6UK PP. K9ABQ worked KH6UK.
KH6s heard by W9ZHL DSP and many W0 6 and 7. JAs
worked by West Coast. W6NLZ worked VQ2PL. CN2AO
heard K2HPN W1FOS IGP VE1PQ OD.

11-12 — M.u.f. to Europe passed 50 Mc. at 0730 EST.
E12W worked many Ws. W6FZA BAZ AJF BJ1 K6RNQ
ERG W7ILL worked ZS3G. W4IKK heard W7RUZ
W6NLZ with aurora-like sig. No reception of either station
from east or west. ZE2JV and ZE2JE worked by W6s.

11/13 — M.u.f. over 50 Mc. at 0715 EST. E12W worked

many Ws. W4MS heard SM17ZN 6BTT. SM17ZN worked
W4CQP FBL EHV UUF HOB EQR K4HQA IVD KAF
K5CRF W1GKJ. VE1s worked Amarillo, El Paso and
Phoenix. KL7 AH AUV CDG CDS CHV worked Japan.
K6GDI worked JA2QR for what is believed to be the
first 50-Mc. WAC.

2-METER STANDINGS

U.S.			U.S.		
States	Areas	Miles	States	Areas	Miles
W1REZ	23	8	W5NDE	3	520
W1FZJ	21	6	W5FEK	8	580
W1KCS	21	7	W5VY	7	1200
W1RFU	21	7	W6NLZ	9	2540
W1AZK	21	6	W6NDG	8	1330
W1HDQ	20	6	W6WSQ	5	1380
W1AJE	20	6	W6AJE	5	640
W1OAX	19	6	W6RRZ	4	360
W1MMN	18	6	W6PJA	1	1390
W1IYZ	17	6	W6ZL	3	22
W1U1Z	17	5	W6BAZ	3	400
W1LON	16	5	W6AMU	3	388
W1KHL	16	5	W6ORS	2	365
W1AFO	16	5	W6LSB	2	360
W2CXY	34	8	W7VMP	11	5
W2NLY	33	8	W7LEL	6	3
W2ORL	33	8	W7ZGA	6	3
W2AZL	29	8	W7LHL	4	2
K2GQL	25	7	W7JJP	4	2
W2BLV	23	7	W7YZU	3	2
K2IEJ	23	7	W8KAY	36	8
W2SMX	22	6	W8XXV	39	8
W2AMJ	21	6	W8LOF	30	8
W2KIE	20	6	W8RMH	29	8
W2DWJ	21	6	W8SPT	28	8
K2CEH	21	8	W8RW	27	8
K2IXJ	21	6	W8SEG	26	7
W2OPQ	21	6	W8JWV	25	8
W2AOC	20	7	W8LPC	25	8
W2PAU	20	6	W8LD	25	8
W2CBB	20	6	W8DX	25	8
W2UTH	19	7	W8EHW	24	8
W2AZP	19	7	W8WRN	24	8
W2RGV	19	6	W8BAX	23	8
W2LHL	18	7	W8SVI	23	8
W2LWI	17	6	W8LCY	18	7
W2SHI	16	6	W8EP	18	7
W2PCQ	16	5	W8ZCV	17	7
W3RUE	29	8	W8RW	17	7
W3BGT	28	8	W9KLR	36	8
W3TDP	27	8	W9WOC	32	8
W3GKP	27	7	W9REI	27	8
W3SQA	26	6	W9ZHL	27	8
W3IBH	23	7	W9UCH	27	8
W3FPH	21	8	W9FVJ	26	8
W3KCA	21	7	W9BQJ	26	8
W3LNA	20	7	W9ZLL	25	8
W3LZL	20	7	W9GAB	24	7
W3KWL	19	7	W9EHN	24	7
W3NKM	19	8	W9BPV	23	7
W3BNC	18	7	W9UED	22	7
W4HHK	33	9	W9KPS	21	7
W4HJQ	30	8	W9PBP	20	8
W4AO	29	8	W9MUD	19	7
W4UMF	26	8	W9LF	19	6
W4LTU	24	8	W9ALU	18	7
W4MKJ	24	8	W9JGA	18	6
W4JJC	22	6	W9MBI	16	7
W4BQM	20	6	W9DDG	16	7
W4OLK	19	6	W9JTY	16	7
W4TLV	18	7	W9LEE	15	6
W4JFV	18	7	W9DSP	15	6
W4KZL	18	6	W0IID	27	7
W4FLA	17	7	W0GUD	25	7
W4WNH	17	7	W0DOK	25	8
W4CLY	15	5	W0SMJ	20	7
W2BHS/4	14	7	W0TGC	20	7
W4ZBU	14	5	W0INL	20	6
W4AIB	14	5	W0UOP	18	6
W4CIB	13	5	W0ONQ	17	6
W4SOP	13	5	W0USQ	14	6
W4CPZ	12	5	W0OAC	14	5
W4UDQ	11	5	W0RYG	14	5
W4MDA	11	5	W0MVG	13	5
W4FKC	10	4	W0TJF	13	4
W4LNG	9	4	W9ZJB	11	4
W4GIS	9	2	VE3DIR	26	8
W5RCI	30	9	VE3ALB	26	8
W5DFU	25	9	VE3BQN	17	7
W5AJG	20	8	VE3DER	16	7
W5JWL	18	6	VE3BPB	13	6
W5HEH	15	7	VE2AOK	12	5
W5MMW	14	5	VE3AQF	11	7
W5FSC	12	5	VE1QY	11	4
W5ABN	12	5	VE7EJ	2	1
W5FZ	11	4	KE6UK	1	2
W5QJL	10	5			
W5CVW	10	5			
W5SWV	10	3			
W5ML	9	3			

11/14 — CT3AE worked W3KMY W10OP HDQ ELP. M.u.f. to Europe below 50 Mc. at this time, 0730 to 0900, but above 50 thereafter.

11/15 — M.u.f. to Europe above 50 Mc. at 0800 EST. KL7AUV worked KH6UK. JAs heard.

11/16 — M.u.f. to Europe over 51 Mc. at 0710, dropping back by 0730, rising above 50 Mc. again at 0830 EST. W7GRA worked EI2W and VE1s. KL7CDG worked 50 stations in 14 states in W1 4 5 8 9 6. KL7CDG worked 47 stations in 20 states and all call areas except W6. KL7AH worked 30 stations. KL7CDS 2. W9V7P worked JASCS BU AO KL7AH AUV. W9VOI worked JASBU. First JAs worked this far east. W9DSP worked G4LX (cross-band) and ZE1JN 2JV KL7CDG AUV AII CDS JASCS FY 7GB 2AQ ER. W6BAZ worked W1CLS with aurora-like character. (Back-scatter plus aurora?) W9HFB worked JASBU.

11/17 — M.u.f. to Europe reached 50 Mc. about 0800 EST. Many crossband contacts over nearly all U.S.A. G6DH heard W5WEH BXA W6NJZ BAZ. W0LJR IXF IC worked EI2W. W6BAZ worked EI2W for WAC. Also worked KL7CEX, Nome, Alaska. KL7AUV made 45 contacts in all call areas except W1. KL7CDG worked 87 stations in all but W7. KL7AH worked 47 in all but W1. KL7CDS worked 32. KL7AZI worked large number of Ws, including W1PHR HDQ. KL7s readable at W1HDQ until 1800 EST (1 hour after dark).

11/18 — M.u.f. to Europe up to 50 Mc. at 0820 EST.

11/19 — M.u.f. to Europe up to 50 Mc. at 0800 EST. W7GRA worked EI2W KL7CDG AH.

11/20 — M.u.f. to Europe reached 50 Mc. at 0745 EST.

11/21 — M.u.f. to Europe over 50 Mc. at 0705 EST.

The band was open to Europe for several hours practically every day from Oct. 25 on, and countless crossband contacts were made with France, Holland, Finland and the various G prefixes. Nothing has yet been heard from Poland, though we had assurance some months back that several 50-Mc. stations were ready to go in that country. Scattered reports have been heard of a Swiss station on 50 Mc., but no positive evidence to date. Transcontinental openings were a daily matter, so they are not included in the above tabulation.

Some choice ones reported to be on 6, but not yet worked that we know of, include FT2US, Eritrea (K5KDN), with 250 watts and a curtain array, and KR6AF (W5SWV), Okinawa, on 50.7 Mc. with high power and rhombics beamed on U.S.A. Daily may also be worked on 28.6-Mc. s.s.b. On 6 he is using his own call, KR6DS, operating for 15-minute periods on the hour at 1800, 1900, 2000 and 2100 EST. Another prospect is SM8AQT LA/P, who will be on 50.03 Mc. from Spitzbergen. Arrangements for this work were made by SM5KW, who also operated there on lower bands recently.

CT1CO, Lisbon, Portugal, has received quite a batch of tubes as the result of an appeal in the *PRR News*, but is having trouble with Cntoms, as we write. He heard many stations daily from Oct. 31 on. See tabulation above. Another Portugal observer, Murilo Lopes, at the Radio Free Europe Site in Benavente, Portugal, has heard scores of W1, 2, 3, 4, and 8 signals on 50 Mc., beginning Oct. 24. He also picked up TV signals on U, S. Channel 2, though the picture quality has not been sufficient for identification as yet.

If you're still looking for Alaska, tune up the band a way and try KL7MS-AZI. Woody and June work on about 50.86, and they tune around that frequency, too. They have QRM from a v.h.f. repeater on the low edge, so piling on the kilowatts on 50.00 will not raise them!

Late word from VE8MC, Mould Bay, N.W.T., says that 50-Mc. sigs are being heard there. VE8NC and VE8OW, will soon be on. At 85 degrees north, they should provide some interesting observations!

Though they were moved out of the 50-Mc. region some time back, New Zealand amateurs once more have temporary use of parts of the band. Effective Nov. 1, ZLs may work between 50.0 and 52.35, and 52.65 and 54.0 Mc. In addition, special authorization will be issued to qualified amateurs to run up to 1 kw. on 144 Mc.

Note that the 50-Mc. WAS box has another bold-face listing this month. Bill Parker, W0LY got his 48 cards in to us Nov. 8, and received 50-Mc. Award No. 29. Note to 50-Mc. WAS aspirants: cards for WAS awards often arrive by the armful in a single day. If yours are for 50 Mc., be sure that a covering note to that effect is included with them.

Operating Savvy Needed

Just about any v.h.f. man who can copy the code will agree that much more DX could be worked if more fellows would use c.w. regularly for calling. However, most of the c.w. operation is concentrated at the low edge of the band, and is consequently often subject to QRM, especially when the band is open. This applies to both 50 and 144 Mc., and it could also pertain to any higher band.

On 50 Mc. there is some logic to the low-edge crowding, in that the low end may be open when the high end isn't. This applies only during F2 DX sessions, however, and even then it is not nearly so important as many believe. The rest of the time it is purely a matter of ingrained operating habits. There is little doubt, for instance, that scatter skeds could be kept just as effectively on 51 or 52 Mc., or higher, as on 50.001 Mc.

With this in mind, a small group of 50-Mc. men in the Cleveland area, headed by W8KBL, are organizing an effort to keep skeds between 51 and 51.5 Mc., using c.w. only. Members will monitor 51 to 51.5 Mc., each beam in a different direction, so as to catch calls from any point. Letters announcing the plan have been mailed to all parts of the country, and specific skeds will be kept with interested parties.

During recent trancontinental F2 openings signal levels have reached phenomenal proportions. Even the 2-watters receive 9-plus-40 reports at times. The fellows who are running high power and big arrays simply paralyze the receivers 2500 miles away. Under such conditions, operation on 6 becomes a good deal like working in a city that has a thousand active stations all on the air at once. When everything from San Diego to Sointulla comes in S9-plus at the same time, we have QRM such as we have never heard before. This calls for measures other than putting on ever more power on the low end, or stacking another 6-element array over the present one.

First of all, it calls for getting off those surplus-crystal frequencies. Why spend hundreds of dollars for station equipment, and then use a 25-cent crystal, instead of a \$2.50 one, if the latter will give you a clear channel? And it will, 9 times out of 10, if it is not one of those every-25-ke. multiples that are so attractive at 6 for a buck. Second, it calls for operating sense. When you call CQ, or sign with another station, make frequent mention of the frequency you are tuning, so that fellows far from that spot will not call needlessly. Make this "tuning from the high end down," or "from 50.5 Mc. up" fairly often, to encourage other operators to put in their higher crystals.

All the tried-and-true operating principles that have been recommended for lower frequencies now need to be brought into play in v.h.f. work. And most of all, we need a closer check on the operating condition of our transmitters. The day of "the more modulation the better, up to 300 per cent" is now passed. When stations across the continent come in far stronger than the locals, there is no room for the kind of over-modulation splatter that has been so common in v.h.f. work all these years. Let's do a little house-cleaning; it's overdue!

The 2-meter band could stand more occupancy in its upper half, too, and here's an outfit that is attempting to do something about it. The Amateur V.H.F. Institute of New York is awarding a certificate to any 2-meter operator who works 25 or more stations on frequencies above 146 Mc. The applicant does not have to be operating above 146 Mc. himself, though it is to be preferred, in following through on the spirit of the award. QSLs are not required for confirmation, but the Institute reserves the right to call for the log of the applicant.

Applications for the award should be sent to Marvin Stern, W2AOC, 9701 Shore Road, Brooklyn, N. Y. List the calls of the stations, their operating frequencies, and the time and date of contacts.

Reducing TVI from the 522

W2SJX recently came by an SCR-522, which he planned to put to work on 144 Mc. as an exciter. One look at Channel 2, when the 522 was running, changed his mind, however. The various harmonics of the 8-Mc. crystal did a real job on nearby TV receivers. Otherwise the 522 was too good to pass up, so an overtone oscillator modification of the 522 was tried. The circuit shown in Fig. 1 uses most of the parts that are in the original unit, and even eliminates some.

Essentially it is the so-called "Robert Dollar" circuit,

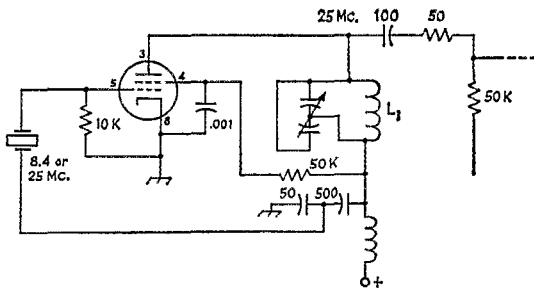


Fig. 1—Schematic diagram of the overtone-oscillator conversion for an SCR-522 by W2SJX. Plate coil has 12 turns No. 14, 1/2-inch diameter. Length is adjusted to allow the circuit to resonate with the tuning capacitor in the unit. Original 8-Mc. crystals are used, but with this circuit they oscillate on their third overtones, 24 Mc. and up.

except that a tetrode tube is used. The crystal oscillates on its third overtone, so multiples of the fundamental are eliminated. Only multiples of 24 Mc. appear in the output, and these are down enough so that they do not cause any real trouble.

In the original circuit the oscillator runs 8 to 16 Mc., with the following stage operating as a tripler to 48. Here the second stage doubles, and in doing so it works more efficiently, and adequate drive for the 832 tripler is more readily obtained. Interference on Channel 2 on two TV sets, one a color receiver, is now completely cleared up. With the 8-Mc. oscillator the picture was all but obliterated on both.

Orionids and Leonids Provide 144-Mc. Contacts

W4LTU is at it again—or still! Beginning Nov. 13, Walt kept skeds with W1RFU, Wilbraham, Mass. Signals were heard each way that day and again on the 14th. The 15th provided 4 long overdrive bursts, two of them about 40 seconds long, and complete information was exchanged, for the first Florida—Massachusetts 144-Mc. QSO. This was on the peak of the Leonids show of mid-November.

The Orionids, Oct. 18–23, were disappointing, though W4LTU did get some reception on skeds with W8BJI, W1M1N and W1RFU. As we write, skeds for the Gemini's, chief wintertime meteor shower, are being lined up.

An Orionids QSO is reported by W5AJG, Dallas; two of them in, in fact, both with W4ZXL, Greensboro, N. C. These were made Oct. 20 and 21, on skeds that had been running since the 18th. W5AJG also kept Orionids skeds with W2CXY (just a few pings), W8RM11 (several good sequences, but no QSO), and W7LHL (no results). The same shower moved W6DNG, Compton, Cal., up a notch in the states standings. Bill made it with W5SNX, Slaton, Texas, on an 0330-0430 sked.

V.H.F. Sweepstakes Jan. 4–5

Here comes the big one again—the 11th Annual V.H.F. Sweepstakes, Jan. 4 and 5. A new scoring system (see announcement in Dec. *QST*) will reduce the section-multiplier advantage of operators and clubs in areas of dense population and small ARRL Sections. Here's a chance for clubs all over the country to have a real shot at the gavel award, and for all of us to have a big week end. Let's make it the best yet!

OES Notes

W1QCC/VE1, Pictou, N. S.—Using s.s.b. regularly on 50 Mc. Made first two-way 50-Mc. s.s.b. VE1-W6 QSO with W6NLZ Oct. 20. W6ABN worked shortly after, also 2-way s.s.b. Rig is homebuilt phasing job, running 600 watts AB2 to 4-125s. Have worked into Europe cross-band with s.s.b., first QSO being with G3COJ, Nov. 5. Have 70-Mc. converter ready for transatlantic checks.

W1HDQ, Canton, Conn.—Six-meter DX to wider area and for longer periods than ever before observed. High spots include CT3AE, first Africa QSO, Nov. 14, and KL7AZI, first Alaska, Nov. 17. Band open to Europe about 5 hours daily, to West Coast as much as 3 1/2 hours, and to Alaska 2 1/2 hours. KL7AZI and KL7MS knocking them off rapidly on 50.86 Mc, demonstrating that low-end pileup is not inevitable in F2 DX work. A.I.u.f. to Europe running up to more than 53.25 Mc. (BBC Channel 3 sound) frequently.

W3GKP, Spencerville, Md.—Measuring Doppler shift of satellite frequency, using 4-Mc. crystal with harmonic on 20,004 kc. Note with b.f.o. off is matched on scope with calibrated audio oscillator. One close pass gives enough information in a 5-minute period to permit computation of speed, time of closest approach, and range to point of closest approach.

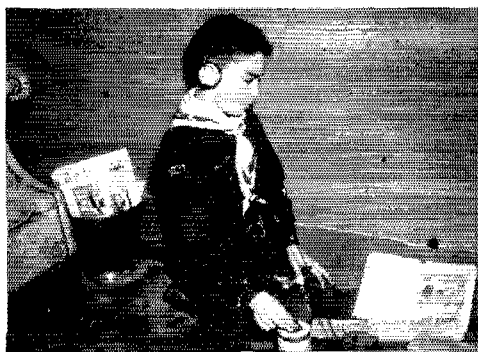
K5DCQ, Irving, Texas—Worked K0DWC/airborne mobile on 50 Mc. Nov. 3. He was still audible in Dallas area when over Kansas City.

K5HUW, Pascagoula, Miss.—Now on 50 Mc. with 150 watts phone or c.w. and 5-over-5 array. High-power amplifier with 4X250Bs under construction. Will be glad to keep skeds with anyone needing Mississippi on 6. Also interested in organizing statewide net on 50 Mc.

W9KLR, Bensenville, Ind.—Meteor scatter skeds with well-equipped stations show evidence that ionospheric scatter is possible on 144 Mc., if high power and large antennas are used. Such scatter is reported to be down 35 db. on 144 Mc. compared to 50 Mc. If 6-meter stations with 100 watts and 10-db. antennas can work via ionospheric scatter, 144-Mc. stations with efficient kilowatt rigs and 20-db. antennas are close to making up the 35-db. deficit. W5VWU, Albuquerque, N. Mex., reports ionospheric-scatter type reception of W9KLR during recent meteor skeds.

W0MOX, Lawrence, Kan.—Running meteor-scatter skeds with W2NLY. Many bursts, but no QSO yet. Anyone else interested in Kansas via meteor scatter? Address: 114 Pawnee Ave.

Strays



Nine-year old Richard Saunders is shown here working toward a Cub Scout Gold Arrow Point, one of the requirements being the construction of a one-tube receiver. What makes this outstanding is that the tube (a WD-11) and newspaper instructions are the same ones that Richard's father used over 30 years ago. (Photo courtesy W2GND at Boys Life).

A.R.R.L. COUNTRIES LIST • Official List for 1958 ARRL DX Contest

AC3.....	Sikkim	KB6....	Baker, Howland & American Phoenix Island	VP2.....	Leeward Islands
AC4.....	Tibet	KC4.....	(See CE9)	VP2.....	Windward Islands
AC5.....	Bhutan	KC4.....	Navassa Island	VP3.....	British Guiana
AP2.....	Pakistan	KC6.....	Eastern Caroline Islands	VP4.....	Trinidad & Tobago
BV, (C8)	Formosa	KC6.....	Western Caroline Islands	VP5.....	Cayman Islands
C (unofficial)	China	KG1.....	(See OX)	VP5.....	Jamaica
C3.....	(See BV)	KG1.....	Guantanamo Bay	VP6.....	Turks & Caicos Islands
C9.....	Manchuria	KG6.....	Mariana Islands	VP6.....	Barbados
CE.....	Chile	KG6I.....	(See KA0)	VP7.....	Bahama Islands
CE9, KC4, LU-Z, VK0,	Antarctica	KH6.....	Hawaiian Islands	VP8.....	(See CE9)
VP8, ZL5, etc.		KJ6.....	Johnston Island	VP8, LU-Z.....	South Georgia
CE0.....	Easter Island	KL7.....	Alaska	VP8, LU-Z.....	South Orkney Islands
CM, CO.....	Cuba	KM6.....	Midway Islands	VP8, LU-Z.....	South Sandwich Islands
CN2.....	Tangier Zone	KP4.....	Puerto Rico	VP8, LU-Z.....	South Shetland Islands
CN8.....	French Morocco	KP6.....	Palmyra Group, Jarvis Island	VP9.....	Bermuda Islands
CP.....	Bolivia	KR6, RYKUYU ISLANDS (e.g., Okinawa)		VQ1.....	Zanzibar
CR4.....	Cape Verde Islands	KS4.....	Swan Island	VQ2.....	Northern Rhodesia
CR5.....	Portuguese Guinea	KS6.....	American Samoa	VQ3.....	Tanganyika Territory
CR5.....	Principe, Sao Thome	KV1.....	Virgin Islands	VQ1.....	Kenya
CR6.....	Angola	KW6.....	Wake Island	VQ5.....	Uganda
CR7.....	Mozambique	KX6.....	Marshall Islands	VQ6.....	British Somaliland
CR8.....	Goa (Portuguese India)	KZ5.....	Canal Zone	VQ8.....	Chagos Islands
CR9.....	Macao	LA.....	Jan Mayen	VQ8.....	Mauritius
CR10.....	Portuguese Timor	LA.....	Norway	VQ8.....	Rodriguez Island
CT1.....	Portugal	LA.....	Svalbard	VQ9.....	Seychelles
CT2.....	Azores	LU.....	Argentina	VRI.....	British Phoenix Islands
CT3.....	Madeira Islands	LU-Z.....	(See CE9, VPR)	VRI.....	Gilbert & Ellice Islands
CX.....	Uruguay	LX.....	Luxembourg	VR2.....	Fiji Islands
DJ, DL, DM.....	Germany	LZ.....	Bulgaria	VR3.....	Fanning & Christmas Islands
EA.....	Philippine Islands	M1.....	San Marino	VR4.....	Solomon Islands
EA.....	Spain	MP4.....	Bahrain Island	VR5.....	Tonga Islands
EA6.....	Balearic Islands	MP4.....	Kuwait	VR6.....	Pitcairn Island
EA8.....	Canary Islands	MP4.....	Qatar	VS1.....	Singapore
EA9.....	Ifni	MP4.....	Trucial Oman	VS2.....	Peru
EA9.....	Rio de Oro	OA.....	Lebanon	VS4.....	Sarawak
EA9.....	Spanish Morocco	OD5.....	Austria	VS5.....	Bruni
EA9.....	Spanish Guinea	OE.....	Finland	VS6.....	Hong Kong
EI.....	Republic of Ireland	OH.....	Aland Islands	VS9.....	Aden & Socotra
EL.....	Liberia	OH0.....	Czechoslovakia	VS9.....	Maldives Islands
ET2.....	Eritrea	ON4.....	Belgium	VS9.....	Sultanate of Oman
ET3.....	Ethiopia	OQ5, 0.....	Belgian Congo	VU2.....	India
F.....	France	OX, KG1.....	Greenland	VU4.....	Laccadive Islands
FA.....	Algeria	OY.....	Faeroes	VU5.....	Andaman and Nicobar Islands
FB8, Amsterdam & St. Paul Islands		OZ.....	Denmark	W.....	(See K)
FB8, Comoro Islands		PA0, P11.....	Netherlands	XE, XF.....	Mexico
FB8, Kerguelen Islands		PJ2.....	Netherlands West Indies	XE4.....	Revilla Gigedo
FB8, Madagascar		PJ2M.....	Sint Maarten	XW8.....	Laos
FB8, Tromelin Island		PX.....	Andorra	XZ2.....	Burma
FC (unofficial).....	Corsica	PY.....	Brazil	YA.....	Afghanistan
FD.....	Fogo	PZ1.....	Netherlands Guiana	YI.....	Iraq
FE8.....	French Cameroons	SL, SM.....	Poland	YJ.....	(See FU8)
FE8.....	French West Africa	SP.....	Sudan	YK.....	Syria
FG7.....	Guadeloupe	ST2.....	Egypt	YN, YN0.....	Nicaragua
FK8.....	New Caledonia	SU.....	Crete	YO.....	Roumania
FL8.....	French Somaliland	SV.....	Dodecanese	YS.....	Salvador
FM7.....	Martinique	SV.....	Greece	YU.....	Yugoslavia
FO8.....	Clipperton Island	TA.....	Turkey	YV0.....	Venezuela
FO8.....	French Oceania	TF.....	Iceland	ZA.....	Aves Islands
FP8, St. Pierre & Miquelon Islands		TG.....	Guatemala	ZB1.....	Malta
FQ8.....	French Equatorial Africa	TI.....	Costa Rica	ZB2.....	Gibraltar
FR7.....	Reunion Island	TI9.....	Coros Island	ZC3.....	Christmas Islands
FS7.....	Saint Martin	UA1, 2, 3, 4, 6.....	European Russian Socialist Federated Soviet Republic	ZC4.....	Cyprus
FUB, YJ1.....	New Hebrides	UA1.....	Franz Josef Land	ZC5.....	British North Borneo
FWS.....	Wallis & Futuna Islands	UA9, 0.....	Asiatic Russian S.F.S.R.	ZC6.....	Palestine
FY7.....	French Guiana & Inini	UA0.....	Wrangel Island	ZD1.....	Sierra Leone
G.....	England	UB5.....	Ukraine	ZD2.....	Nigeria
GC.....	Channel Islands	UC2.....	White Russian Soviet Socialist Republic	ZD3.....	Gambia
GD.....	Isle of Man	UD6.....	Azerbaijan	ZD4.....	Ghana
GI.....	Northern Ireland	UF6.....	Georgia	ZD6.....	Nyasaland
GM.....	Scotland	UG6.....	Armenia	ZD7.....	St. Helena
GW.....	Wales	UH8.....	Turkoman	ZD8.....	Ascension Island
HA.....	Hungary	UI8.....	Uzbek	ZD9.....	Tristan da Cunha & Gough Islands
HB.....	Switzerland	UJ8.....	Tadzhik	ZE.....	Southern Rhodesia
HC.....	Ecuador	UL7.....	Kazakh	ZK1.....	Cook Islands
HC8.....	Galapagos Islands	UM8.....	Kirghiz	ZK2.....	Niue
HE.....	Liechtenstein	UN1.....	Karelo-Finnish Republic	ZL.....	Kermadec Islands
HH.....	Haiti	UO5.....	Moldavia	ZL.....	New Zealand
HI.....	Dominican Republic	UP2.....	Lithuania	ZL5.....	(See CE9)
HK.....	Colombia	UQ2.....	Latvia	ZM6.....	British Samoa
HK0.....	Archipelago of San Andres and Providencia	UR2.....	Estonia	ZM7.....	Tokelau (Union) Islands
HL.....	Korea	VE, VO.....	Vietnam	ZP.....	Paraguay
HP.....	Panama	VK.....	Australia (including Tasmania)	ZS1, 2, 4, 5, 6.....	Union of South Africa
HR.....	Honduras	VK0.....	(See CE9)	ZS2.....	Prince Edward & Marion Islands
HS.....	Thailand	VK0.....	Heard Island	ZS3.....	Southwest Africa
HV.....	Canada	VK0.....	Macquarie Island	ZS7.....	Swaziland
HZ.....	Saudi Arabia	VK9.....	Cocos Island	ZS8.....	Basutoland
I, IT1.....	Italy	VK9.....	Nauru Island	ZS9.....	Bechuanaland
I5.....	Italian Somaliland	VK9.....	Norfolk Island	3A.....	Monaco
IS1.....	Sardinia	VK9.....	Papua Territory	3V8.....	Tunisia
JA, KA.....	Japan	VO.....	(See VE)	4B7.....	Ceylon
JT1.....	Mongolia	VQ9.....	Territory of New Guinea	4V1.....	Yemen
JY.....	Jordan	VQ9.....	Territory of New Guinea	4X4.....	Israel
JZ0.....	Netherlands New Guinea	VP1.....	British Honduras	5A.....	Libya
K, W.....	United States of America				Aldabra Islands
KA.....	(See JA)				Nepal
KA0, KG6I, Bonin & Volcano Islands					

How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

Oww:

Alvis Readinquist arose at the crack of noon, opened the shack window an inch or two, threw out his chest, coughed feebly and collapsed into his operating chair. *What* a night. Out with the locals at Tobin's till four (HNY, you know!), then home with the 14-Mc. rat race till the morning Asians and Africans dropped out. It's 1958! . . .

. . . His receiver was still on. Its usually menacing escutcheon seemed to frame a friendly glow. Al raised his throbbing head and scanned the band. Twenty was loaded, of course. Yet somehow things sounded — well, *different*. Signals seemed cleaner, keying more precise, and a few of the Big Boys were strangely less loud. Mystified, he swung back toward the low end. Hey, almost *no* testers! Just two guys obviously checking new beams — absolutely no one fiddling with his bug, nobody chanting “one-two-three-four, who-are-we-for.” One fellow even requested another to stand by for a moment while he investigated his clicks on a dummy load. And not a single swisher to be heard!

But Al gritted and prepared to wince, for he knew he was now overdue to hit a pile-up. Sure enough (wow!) a wrangle over UR4ME on Wrangel. Hmmm — *no* tail-end charlies. Everybody was calling in neat 1X1s or 1X2s and nobody hung in close enough to QRM the UR4. The gang really made 'em short, too; nothing like TNX DROB FOR NEW COUNTRY UR MY FIRST UR4 AS NEVER WKD WRANGEL B4 UR RST 589 RST 589 589 HR IN PUNXSUTAWNEY PUNXSUTAWNEY PENNSYLVANIA PENNSYLVANIA ES NAME HR IS HIGGINBOTHAM HIGGINBOTHAM ES WL SURE QSL QSL PSE PSE QSL QSL NW WONT KEEP U DROB HW NW. No, indeed. All transmissions purred along in a DXpeditionary TNX OM RST 468C 468C IN PA PA 73 pattern. Whoa! RST 468C? The dope! thought Al. Doesn't he want a QSL?

Curiously enough, the whole mob apparently was striving for accurate reports. One Midwest conservative out on the edge of skip actually sent a fearless RST 347CK. Two more chirp reports caused UR4ME to retune for a few seconds, becoming nearly T9X and much easier to hold in the slot. *This* is the most, mused Al, the very most! He flipped on his h.v. and prepared to enter the lists, suddenly realizing that he had, for the first time in his life, studied the operating style of a desired rare DX station before wildly chiming in.

Then, out of a clear blue ionosphere, he heard

UR4ME pull a switcheroo. The DROM asked a W1 voice enthusiast, PSE PSE LET ME LISTEN FOR UR FONE. Oh, *no!* Please, please, not that! But get this: The W1 bounced right back with NOT NOW OM TOO MANY WANT U RIGHT HERE. Al could scarcely believe his ears. Truly, the millennium!

So Alvis joined this courteous and congenial fishing party. However, through force of long habit, he drummed out a zero-beat 7X11 barrage. Poor Al — the roof fell in. Thirty thousand screaming signals swamped his own groaning gallow, burst through each headphone in a sizzling flash, and pierced to the very center of his imploding skull. *Inferno!* . . .

. . . Alas, 'twas only the NYL stepping on his snoring face as she assailed his vertebrae with broom and fist. Alvis Readinquist painfully retreated to the cellar where, amid his file of old QSTs, he meditated mournfully on stark reality and all the ills of the world.

What:

Alvis thinks *he* has troubles. How will JT1AA ever work the Mongolian People's Republic? And how can Jeeves ever QSO that new CT2 island with the doggone thing disappearing, reappearing and disappearing all the time? An underwater DXpedition? . . . Time to remind you that in the following reports of recent DX activity frequencies (in number of kc. above the lower band-limit) appear within parentheses, times without. *E.g.*, (9) = 14,009 kc. if the paragraph treats 20-meter work. Times are GMT using the nearest whole-hour figure such as 7 for 0720, 0 for 2349. Space considerations decree that each DX-station suffix appear but once per band paragraph. The all-band long-haul boom is under full steam — let's go! . . .

IO phone, current furious fad of the gay international set, is having the time of its life. We'll call upon the zeroes to start the “How's” Bandwagon a-rollin', namely



*4822 West Berteau Avenue, Chicago 41, Ill.



LX1DC keeps Luxembourg readily available on 21- and 28-Mc. phone. Bob spins a two-element rotary on 15 meters and a three-element affair on 10, these fed with 100 capable watts.

W0RTV: GD3UB 16, H18BE 23, LX1AI 17, SV0WP (W3JTC at the mike) 16, UB5UW 15-16, VR2BC 22-23, K0BYN: CN8AB, KX6AF, VPISD, VQ2DC, W9YFF, EA8CF, IS1ZDT, KG1G of the Bonins, OQ5s AO RU, UC2KAB, 5A3TO, LX 5V YQ2, K9ATZ: CN8GX, GC2RS, H7LS, HP2ON, SM1BSA for WASM credit, VP8BI, VR2DB, 5A1TM, KX6 OQ SV, W8GZZ: CR4AD, CT3AN, FQ8AF, SP3PL for 109/99 record on 28-Mc. phone, W1BY: KG1CB, W6BB (W6QAC miking): HE9LAA (430), ZL, W6ZZ: KGI VKs, W5MZZ: heard or worked CR5SP of Sao Thome, EA9BK, HL8KT, IS1PR, OQ0DC, OY1R, MP4KAC, SVs 1EA 0FR, SP8CK, UA1BE, UB5FG, W03WL, ZC4IP, ZDs 1EO 4CH 6JL 6RM, registers strong animadversion to QR1M from those working cross-band to 50 Mc. W5UNF/5: caught the Marshalls with his Elmac mobile, W4GCB: reached No. 111 thanks to CR7VE, ZS8I, P8, W4YQB: HA5PD, H17LMQ, KR6RB, KW6CB, TG9RB, UA1CK, VP5WS, VQ2AC, ZS3F, 9S4BN, Korea, made it 106/76 with 140 watts on 10, K4HN4: ZS6s in number, K4LEX: KA8RA (600), W3AZD: collected 100 countries on 10 phone in less than a year including CN2WH, CT2AT, EA9AZ, FA3JY, F88AP, FQ7XE, KA2KS, KG4AC, KV4QG, LX1HM, OD5BA, TP2WCK, TG9AD, VP5 5CP 9L, VOs 3GC 4FF, YQ3VA, ZB1AJX, ZDs 1PW 4CD/m, ZS3F, 4X4FG, FQ8 HL SV UB5 ZSS, W3ZKH: several of W8AZD's catches plus Hs 7LMG 8RM, SV0WQ, UA1GF (250), YQ2KAB, YU3JN, ZK1BS (390), CT3 FF8 FQ8 HL SF ZSS, Bonins, now 134/100 on 28-Mc. voice, W2VZ: CRs 6CS (435), 7LU (410), DU1VVS (410), KR6AF's s.s.b. (650), SV1AB (430), ZC4PW (498), CT3 HE LX MP4 OY KX6, K20LG/m: takes exception to our November mobile-DX disappearance because of OE1FF, OH2OV, PJ2CC, ZS1JD, 5A1TT, follow mobileers DL1BX/m and IJ0BZ/m, GC LX 0F NU, has 32 on-wheels countries, needs only Asia for rolling WAC, K2UFT: HC5CL, KG4AL, K2YFE: CN8HM, W4DEC/MIM in the equatorial Atlantic, avers that many DX stations are to be found above 29 Mc., and that DX stations fed up with W/K QR1M from 28.500 c/m. upward should tune eleven meters and so state (see p. 65, Nov. '56 QST), W1AF (K9AB on the vocal): CN2BN 17, HA5GM 12, HC2AF 19, LX1DC 21, OQ5BK 18, WQ3AC 20, YU1AG 15, 4X4FV 18, HP 181 UA1 ZC4, W1ARR: K36BU (750) 1, KX6, W1DFY: GD3GMH's s.s.b., KV4BI 17-18, TG9US, VP1OY, VP5BL, VQ5CJ 14-15 for 100/70, W1EXU: CR9AK, Jas 1CO 4AH 6AK 9BE, Kas 2AL 2DW 2EB 2MA 71H 8JT, KB6BF (800) 0, KG6AGO, KR6BR, MP4KAS, TP5TF, UA1KBB, UR2BU (530) 15, VK6RH, ZC6UNJ, 4X4FK, many of those aforementioned, hears HZ1AB, PJ2MC on side band occasionally, may try the mode himself, W1GOU: reached 165 confirmed on 10 A3 via AP5T (449) 12, MP4BBL (480) 12-13, VP8CC, VQ4RF, VR2BD, ZD3BFC, W7LBO: CN8FH, KL7JDO, TG9AD (580) 1, W6BYK/KM6 (620) 3, AP2BP (400) 18, FB8BV and CR7BB also draw heavy fire. Eleven tagged along on ten's coattails and we find at K2YFE: KP4AEB, K6SXA: K16LI, K17s AZI, AZN JDO, V4HD, ZL1MQ, ZS5YJ, KW6, W8GTZ: CX3BH, KW6 VK for 19/12 on 27 Mc, KL7JDO: KW6CA (228) 23.

10 c.w. digzings divulge high-grade ore according to assays by W0RTV: FA8JO 16, HA5DH 15, KW6CA 23, OY1R 17, SP6EG 15, UA1BE 15, UB5KAL 14, UC2AX 15, VQ2RG 22, VU2EJ 14, ZS3AG 14 for 102/67, urges DX stations to make wiser use of ten's 1700 kc. K0BYN: OA4FA, W9FTL: IT1AI, JA3AB, KA8RA, SPs 2AP 3DG, UAs 3HI 9GF, YOs 3ZA 8M1s, 3V8AB, 4X4XI, W9MAK: CE9AF, G3BTA's ubiquitous 4-watter, GC3HFE, SP, K9ATZ: VU2, OE3ED, more Euros, now 98/51, K9HCP: European hatful, W8GKB: YO2KAB (75), ZC4IP (80), W1BY: KL7JDO, SMs, W8XK: GC3LXK, GD1VH and ZC5AL made it 93/72 on 28-Mc. c.w., plus CR7s BN DQ, F88TF, HA5DH, JA5 LCA 3AB 3LK 7AD, KA2RE, KX6AF, SP6XA, UA01A, UC2AF, CN2 KW6 ZC5 984,

hears one HL3W creating commotion, plans 3-el. driven array per W3AM's July 1950 QST spread, K6JSD: JA KL7, K6TAA: KP6AL, W3HGP: FA910, HA8WZ, JA3CS, SV0WS, UA1DZ, UB5s FG 1W, VK9XK, 4X4DR, W3LUD: SV1SP, VQ3JTI, ZB1DZ, 4X410, GC HA JA ZLs, W3ZKH: HA5BU (80), UB5UA (80), ZC4KF (80), ZS8I, K2UFT: UA1AU, ZS, K2YFE: Euros galore, W1ARR: KW6CM 19, W1DFY: UA3AC, UN1AA, UA9 UB5, I1ER: a dozen Yanks in five call areas, K16CAM: "Conditions poor, got Q5DQ," KL7JDO: KZ5BB (21) 2-3, VE1PQ: Cyprus. . . . Eleven c.w. is a novel though quite practical approach. W6KNM and EA1AB got together by this means.

15 c.w. reporters fire increasing wordage these sunspotty days, our first by-line being W9FNX: CN8BK, HE9LAC, SP6KBE, UC2AX, K9ATZ: CN2AQ, GP1CJ, HA5AM, SV0WR, TP5TF, UA3CA, YU1AG, ZC4BL, 4X4FN, 9S4CH, K9ZKC: HA5s AIR DU, JA3AX, OE1FF, PJ2ME, SP2BK, UAs 1CK 6UP, UB5s AQ KMB, UA9CM, VP7NB, VQ2LE, YU8SO, all on Ranger, K9HCP: EL, W9FTL: F88TF, HA5WS, W3TTN: nice bag in CR7BN, EA8BF (80), F88BF (90), GD3FXN, GC3HFE, JAs 1CO 3BB 3CS 5AF 6AK 7AD, HC1RY, KP6AL (50), OA4G, OQ5CP, OY1R, PZ1AQ, UAs 1KAP 1KBB 1KSA 3BF 4KCE 4KYA 6KOB 9KSA, UC2AF, UQ2s AS KAA, UR2KAA, VK9XK, VQ2RG, 3V8CY, 4X4s DR IV, W3YGR: LZ1KPZ (30), HE 4X1, busily wires DX-100, W7DJU: OH9RD, JA, W7GYR: distaffer LU8DEL, W7PEG: JA8GA 5, UAs 9CR 3, 8CF 5, VP3AD 2, W2SGL/EL 2, VQ2, made 105/95, W7QNT: GE2DH 1, PJ5AA, UA3HI, YOBMS, 4X4CJ, KP6 SV0 VP7, delighted with new ground-plane, K7ADD: CE3RE, JA2JV, KA2KS, XE1PJ, HE PJ2 UA VP7, W6HBP: UD6KAB, ZB1SS, HE 984, W6KT: coaxed BV1US (220) to try c.w. W6RLP: FAs 8RJ 9RW, YO3RF, W6ZZ: GD4VJ, KV4BD, LX2GH, OY SV 984, K6LEB: CN8BK, HA5KBP, HC1LE, HP1LO, TF3s AP SF, Antarctica's VP8AO, 4X4BX, 5A5TZ, reached 106/78, K6SVA: seven ZLs, fourteen VKs, DL9PJ/C12 for that GYMA extravaganza (see p. 89, October '57 QST), UA4FE, HP, K6TAA: SP3PL, UA4IF, UB5UW, 9S4AL, VK9, now 104/46, K6UUD: 984, Euros, K5AUZ: FF8BZ, FQ9V/FC, FO8AC, UAs 9KYB 00M, VS61D, ZC5AL, ZD6RM, Alands, Liechtenstein on Ranger and 3-el. spinner, K6HSM: DU7SV, JA8AL YN1JW, with DX-35 and RME-4350, W4HKJ: ZC4BL, W4UW4/I: OA4IGY (200) 21-22, K4ELG: ZL1AH, K4HN4: K4CUSA, K4HGO: UA9CR (40) 4, W0BLV/KG 6 (33) 4, K4LEX: HB1UE/FL, K4KHC: 984, K4MOP: CN81W, Y051C 21, ZE2JC 5, FA KCH OA 984 on Globe Chief, K4MFB: KZ5DN, K4RXQ: LU3FO, W3GR0: DM2ABB, UA9OK (99) 2-3, UB5KCB (50) 13, ZC4AM (63), 20, 4X4CK (60) 22, HC HE OY, still stalks SV0AB, UD6AL (60) 23, ZB1DQ (102) 0, ZCs IAM (60) 1, 4AL (46) 15, W3LAX: c.w. to-phone with HC1RY; SP1KAA, WP4AKP, YU3ET, YV5ABD, HA 4X4, W3LUD: CN8DJ, F88AF, JA8AT, KA2USA, KR6QW, KW6CA, OQ5HS, TFs 3KG 6TP, UC2BA, VE80W, 4X4IM, OY SV KC1 984 on new triband quad, K2GMP: OE6HV, Crete, K2PLM: YV5PH (32) 2-3, CN8 HC ZC4 on Globe Scout and NC-300, K2TCD: UO5AA, K2UPD: UA6UL, UB5KBR, HE, heard "dubious" UN1AB, W1ARR: GD3FBS 18, UA6LF, ZB1HKO 21, ZC4JL, CN8 KW6, W1CTW: GD VP3 ZC4 pursuits ET3LF, has 133 on 15 c.w. W1YNP: CN8GW, YO3FM, one sadsack JTKAA, SV UA9 4X4, Sint Maarten, Liechtenstein, I1ER: VP2AQ, ZL2FT, all W/K call areas, KL7JDO: KG1HL (50) 15, KL7BPK: CX1FB, KZ5DNN, XE1QJ (25) 4 VE7CQ (ex-VE80J): SP5AA, 4X4BX, FA HA HE UA.

15 Novice networkers never had it so good, WN2DBV's first CQ brought back 4X4JU, not unlike seeking a homer first time up in the majors. Lon also caught CE2RE, CN2AQ, GX2AM, DM2AMM, GB3SP (just Britain), PJ2ME, SPs 1KAA 6EG and others via an Adventurer and 2-element twirler. . . . KN2VOZ reached the 51-country mark before General time. . . . KN2VZL has 59 countries with his Globe Chief, S-85 and 3-el. beam, stuff like PY7AN, SP3PJ, UA1BE, YO3AQ, YU3CW, ZC4AM and ZS2AK. . . . CN8JL, LU3FO and W2IDZ/VES satisfied KN4R.JN. . . . KN5KBB/5's final report before "burning pro" features EA7TF, JA3BP, KA8RA, KL7s AIR CAT, KZ5DNN, OE1GZ, T12LA, VK3s BR HL TX ZM, WH6s CJJ CLV, YU3SQ, ZLs 1JG 2GS 3DT for 22 countries. . . . Other newcomer notes, KN5KGH: WP4ALC on DX-20, KN5KIZ: DLs LU, KN6VDG: KL7FZ, LU1DEN, WH6CIZ, ZL1EB, JA, uses DX-35 and SX-100 with dipole, KN6ZGI: KA2KS, WH6CJJ, VL, "Only 96 to go!"

15 phone fun is acknowledged by cream-skimmer *W9WFM*: UA0s OE OK (300), UA9CM (300), UR2KAA (240), *K9ATZ*: CR5SP, EL2F, EA8BB, KC4USK, KG1HL, KX6BQ's s.s.b., OA4AS also, *TG7JD*, VP's 2DL 7NB 7NM, VO4EU's s.s.b., 5A2TZ, *H8TTN*: CN8s CW EU FV GH GT GU GW IG, HC's IOW 4JL, GC6FQ, OA3J, TI2PP, VP's 2GS 4LO 6WR 7NF 9DL, 4X4GB, *W7PEG*: CN's 2BK 2.8CX 2, YN's ABB ABB 1, *W7VRO*: DU6IV, FA9IO, SVIAB, VR2BC, 5A1TA for 80/78, *H6RLP*: CE3TH, TI2AB, YV5HL (37) 4, *W6ZZ*: YL KL7BLL, VK ZL's, *K6SYA*: BV1US, KA8RA, KR6RB, TG9VS, VK9HO, UR2 VP7, ZL1BO, *K6DZE*: CE2HX, CX2BC, HC4LD, HPIJF, *K4HNA*: CE3LV, VO4RF, CN8s VP2, *K4HQD*: HH5LA (330) 1, KR6BN (215) 13, OE2WR (210) 19, VK2ID, ZS3AC (230) 20, still chases KG6FAE (430) 18, OO5HL (250) 20, VO4IT (210-240) 19-21, ZE5EA/m (210) 20, *K4LEX*: HR2MC (200) 22-23, VP4LR (380) 1, YN1s FF (250) 1, TF (240) 0, *K4RAQ*: HR1BB, VP's IGLG 5BL 6US 9DW, XE2FL, YN, *K8TCD*: CN8GL, CX1FM, HR1UA, MP4BCC, OO3s HP RD, TG9DP, VP2GC of the Windwards, VP6s LT ZX, ZD4CO, ZSs a-plenty, at 90/65, *W1PNR*: FF8AK (175), KB6BH (255), YS1LA (233) 23, reached 132/123, ----- KL7JDO (see "Whence") managed VR2CD (300).

20 c.w., DXdom's megacyclic mainstay, is a jumpin' jumble of short-skip, long-path and routine-route radiations with auroral echoes thrown in. We'll sample communiqués beginning with our One correspondents, first being Harvard Wireless Club's *W1AF*: CR6FC 22, EA9EF 0, FF8AC 8, FO8AG 7, GC2FZC 6, PJs 2ME 3, 5CA 5, UA's 2KAW 3KAZ 6LF 0KAR 7 of Dickson Isle, UB5KKK 4, VP5AB 22 of the Chicos, ZC4CB 22; K0BBB did these honors, *W1ARR*: DU7SV 12, EA's 6AW (60) 23, 8BF (22) 6, FG7XC (20) 20, JA's 6AO 8AA 8AH all 12, KW6CA (6) 12, OX3DL 14, RAEM 3, WASMI dhbit SM1BVQ (10) 18, UA's 1DZ 2KAA 3BU 3EG 0FR (90) 12, 0KCA (82) 6, UB5s AQ CI, UC2AF 4, VP2LU 23, ZK2AD (70) 8, 4X4BX (37) 5, 5A2TY for fast 82/43, *W1BPIV*: FE8AE (40) 23, FF8AJ (60) 22, FM7WT (40) 1, GDSUB (15) 1, HA7KIZ (45) 2, HC1LE (15) 1, KG4AL (20) 1, KR6MD (40) 12, OX3IGY (75) 20, UA1s CC KAP, UA3s KAT KNB WZ, UF6AE (40) 1, VP's 4TF 6LN, ZP9AU (100) 1, 3V8s AG (20) 0, CY (40) 23, 5A5TZ (60) 23, *H1EOE*: EI8BC/AIM, KV4AA 23-3, *W1VNP*: EA9BM, HP1BR, IS1AM, IT1AI, JA's IHP 6TA, UA's 1KAQ 4KPB, UB5KAG, UA6KJA, VS1HU, VO's 2BU 3WL, 4X4DH, *W2AOY*: KC4USA, KG1GY, Shemys's KL7FB, UC2CB, Papuan K9XXK, Dickson Island, *H2GLFZ*: welcomed new ones JT1AA (62) 0, ZM6AS (75) 10, swears by his Q-multiplier, *W2HBY*: HC1HL (50) 1, SP's 1KAA 8KAR, UB5XA (26) 3, VP6PME, YV5FS (93) 4, KC4 UA, has new SX-100, *W2HAMJ*: new-one CR8AC (49) 10-11, CX9CJ, HE9LAC (1) 22-23, KJ6BU (82) 10-11, UI8KAE (31) 3-4, UJ8s AF (79) 2, KAA (20) 12-13, VO5GJ (55) 20, VU2CK (55) 2, YK1AT (348) 7, 457RD (20) 21, guns for GR10AA, FB8CD of the Comoros, ZD8JP, *W2IVS*: broke in new +125A on JA1ACA, UD6ID (19) 0, 3V8KS (25) 22, *K2GMF*: FF8CA, JA3XX/MM, LA1VC/G of Norwegian Antarctica (Queen Maud's Land), Leewards, *K2UPT*: HK3AE, Suba Island's PJ2SA, VP9, *H3DVF*: new 70-ft.-high beam clobbered CN8CJ (70) 3, SP7LX, UA3KKB, UB5KAM (90) 9, VP9Y, YU3FD, XE1CN, *W3LUD*:

FE8AE, now closed for a nine-month holiday in France, will return to this Cameroons installation come summer. Marcel is piqued by over 300 DXers who still owe him QSLs for FE8AE contacts dating since mid-1956.



Du6IV is a familiar phone entry from Iloilo on 20, 15 and 10 meters. Mike's 1625 final is modulated by 807s and his hearing-aid is a modified HRO. (Photo via DUICE)

CE3CU, FO8AP, HA5DH, OD5LX, UA's 1KFA 9SA 0KAD, YQ2KAB, VP8BM, ZB1LQ, ZS3Q, JTI OX3 U8 VU2, Crete, *W4GCB*: VS9AC, *W4HKJ*: JA3AH, UA's 6KAF 0KDA, YU6FA, Crete, *W4UWA/1*: TI2PZ (30) 4-5, *W4ZZL*: KP6AL, has 65 worked, *K4HNA*: FY7YF, JA2NX, SU1MI, UA0CN, UC2AX, VO2AW, DU FF8 KV4 U106 U18, *K4LEX*: GC3LXK (10) 20, GD3FBS (10) 2, HPILO (70) 3, SP2CJ, UA9s FB KCA ROG all 2-3, ZB2I (60) 21, CN8 EA8 OX3 PJ UA0 ZS3, *K4IGD*: CN2AQ (94), Isla's Deception LU5ZG (83), SP's 6BY 8CK, UA's 1AU 3BN 4KHA, XE2HU, nears half-DXCC, *K4HQD*: JA1DM (30) 7, UA's, stalks FF3AB (15) 21, UC2AD (40) 5, UQ2AS (30) 7, *K4HNA*: SP2BE, UB5KKA, YU3FS, UA VP9, *W6KG*: OE2UR, OY2IH (99) 1, UA's 9KCE (55) 7, 9OM (29) 8-9, UC2AU (30) 7, UOPL6 (88) 6, VS2DW (28) 16, YU5RT, ZS4KC, GD HC U18 YK1, *W6RLP*: CR6CV (49) 15, CT3AN (93) 8, FA8ZZ, KC6JC (46) 10, OO5GJ (79) 16, UF6s AB (71) 4, FF (37) 4, UP2AT (53) 5, VQ2IE (67) 4, VR2DA (60) 8, VU2DR (85) 17, ZC4s BL (11) 7, CT (68) 3, XZ2TH (36) 15, 457WP (27) 16, CN2 OD5 YK1, *H6ZZ*: now 177/166, IS1AI, KA2s FF MS, OK1MB, SP2AX, UA9s AE YN, UB5UA, YOSKAN, CT3 GC UA0, *K6LZZ*: fine haul in CR7s BN (28) 15, LU (70) 14, UA9s AR (40) 6, CQ (30) 7, UA0s AZ (78) 12, KGA (42) 14, SK (13) 13, SL (71) 15, UB5DW (40) 9, UD6BT (63) 10, UH8KAA (60) 14, UH8KAA (39) 14, UL7s FA (75) 14, KAD (50) 15, ZC3AD (26) 7, ZE5JU (19) 13, FF8 PY7 JTI UJ8 YK1 heard UD6AL, UH8AG, UH8KAA (55) 15, *K6SHJ*: UA6UH, UA0KFC (70) 6, SP, *K6TYA*: CX7KC, LZ1KSZ, PZ1AF, UR2AO, UA0KKB, VP3AD, VO's 3GC 4GQ, one VR5AD, YOSCR, ZC4IP, FO8 OX3 UJ8 UMS ZK2 4X4, *W2IUA*: KA8KW, UA's 1CV 9KJB, *W7GYE*: CN8GQ, DM2AIG, JA's 2RC 3XY 7AD, KA8RA, KR6MI, 0E6RM, SF's 3DG 8AG, UA's 1BE 3KAN, UB5KJA, YU3CX, U18s, *W7PHO*: HL2AM (30), *W7VRO*: KR6DG, CN8 GC ZK2, *H6KGB*: HA5AM, YO ZC4, *H8TBY*: K0LSJ/KG6, SP8HU, YV, *H8TTN*: CE3RE, CP1CJ, CR7DQ, HK3JC, KG4AI, ZP9AY, ZS7M (20), FF8 PZ1, *H8VYN*: JTI YK1, *W9FNA*: SL3AG, Leewards, *W9JIN*: Sputnik-watch crammed DX style but caught UC2AT (50) 6, UQ2AB (60) 5-6, *W9JAK*: YV4AU, UA VP9, *W9UBT*: CN8FD, CR6AL, XE1RAM, EA8 HK VP9, now 70/60, *K9AZT*: JA8BL, UA9s DN OK, VE8NS, U18, *K9ILT*: HR1JZ (20) 3, Y06XU, *K0DQI*: CN8JG, DM2AEL, EL2S, HA5AT, HH's 20T 2Y, HK3TH, KG6AAY, KJ6BH, *W4FCB/KS4*: OO5GU, TP3KB, YV5EB, ZB2W, 3V8RC, EA KA KC4 UA9 UA0 U18 UC2 UD6 UN1 UP2 UR2 4X4, *W7PQ*: FB8BF (35) 19 for 201/184, KS6AD (110) 10, VS6DO (20) 12, 4X4V (60) 14, JA OY UA0, Crete, *VE3EGG*: VP6RG, *VE7CQ*: CN8GZ, KG6FAE, OE8KI, FY7 VP2 YV, *H00CMJ*: CE9AE, CR7FC, JA's IGW 3ZF/3 6CS 9GO, KA's 2CX 4AS, KR6BF, OA4FM, UA94A, UA0s HF KC3 KCA, VP8CC, VS1s HJ HX, YV5AE, FO8 KV4 TT VP9 ZK2, still after BV1US, FK8AS, FB8ZZ, VK0AB, XK1BG, *KL7BPA*: UA's HP KAB, TE2VA, VS6DV (62) 15, YV5FH (45) 11, *KL7JDO*: HA HE, *KR08W*: many W/Es, UL7KAA, UQ2KAA, VS2FG, ZC5AL, ZP5CF.

20 phone interested *W1APU*: YL KS6AF (240), *K2QXG*: found KA0SC of Iwo Jima, KA2KS, K4FDT/KC4, KC4s USA USB USH USK USN USV USW, KG1BB, KL7SLA, KM6AX, KR6s AF DR JC MD USA, KX6BQ, VS1HU a cinch with his s.s.b. HT-32 around 4-6 local time, *W4HKJ*: UB5WF, UC2KAB against the pin, YU2CE, *W4LYC*: counted 90 countries worked 2-way side hand, *K4HNA*: EA6AR, HK0AI, VU2BK, 3V8AS, *K4LEX*: KG4AA (230) 0, *K6LZI*: KG1DT (256) 9, VSs 4JT (304) 17, 6AZ (304) 8, all solid on s.s.b. *W7PHO*:

HL2AM (130). W7YFC: observed activity by HL9KT. W8YLN: side-banded HP1RB 5, HS1A 13, KH6AD/KW6 13, TG9AD 4, T12CHV 1, UA1DZ 5, KA0 VS6, now up to 230. 65 via s.s.b. W9WHM: FUGAD (140). UA3CR (160). UB5FG (190). UR2AO (140), these a.m.-style. K9ATZ: KX6BP. W0ZSZ: stalking HL2AF, ZM6AL, has 136/121. K0DQI: KA2USA, OA1K, VE2YE/VE8 on Baffin.

40 c.w. fared well considering all the distractions caused by DX excitement on higher frequencies. Here and there around the land, we find at W7ARR: DM2XLO, FP8AP (35) 6. LZs: 1K1D 2KBW, OE6KZ, SPs 2LV 3KBJ 6EG, VPs 6GT 7NL, YS2AF (1) 23. YU5PQR, ZC4CB (20) 1. W1FDG: made it 40 worked with KW6CA, T12LA. W1YNP: EL1R, HA3MA, KG1JA, VP3s VN YG, YU 2RN 5HUV, VPs. W2HUG: GN8GZ, HA1VP, KR6AK, SP6FU, UA3AM, UC2KAB, VP4TR, VO 5LI 7DL and VP6BQ for fast WAC on 7 Mc. K2GMP: a questionable 4X4AC, W9NLJ/VE1 on Prince Edward. K2PSX: VK1EG, W3GRO: Euros, heard QBE1FF, W3LAX: VP6GT, WH6CEA (162), YU2GPQ. K2UBC: does well in antenna-prohibited housing project, nabbed previously mentioned YS2. K2UPT: GW3LEF, K4KIG: PY7AFQ, K4MOP: IT1AGA (20) 5 which goes as Italy. K6DVF: Nippon pipeline to JA 1CV 2TG 4LL 5AI 6AK 8AL, hears JA1AA working W/Ks s.s.b.-to-c.w. K6CS: KL7CAS/KL7, W7DJU: DU7SV, JAS8K, VK7LZ, W8CSK, VE8TW, 9S4CH, W3YFJ: OD5LX, VP1MC, W9M4K: KZ5s IF RF K3AMH/4 ran into HK6IB (298) in the A3 segment, while our lone 7-Mc. Novice note this trip is KN5KBH/5's success with K4IRK/KH6 and WH6CMP (160) 9 Eighty is stingy this season judging from very random rundowns — W1MFG: OK1SP (10), DJ, K4ELG: E19J 1, LU0AC 4, W4FCB/KS4 6, KZ6, K4HQD: that KS4, KZ5RF (6) 6, W9M4K: KZ5IF One-sixty DX is on the drawing board at this writing. W1BB reports G3PU, OA5G, PY7AN, VPs 3AD 6RG, ZL3RB and other DX dusting off their cross-wound coils for the fray. Preliminary surveys of conditions indicate that the going may be rougher than in past years on 1.8 Mc. Those hot nights do come along, though! Wow, some activity, eh? Now it's time to deal with QSL and QTH matters.

Where:

Asia — It doesn't work, fellows. We mean this business of cautioning DXers to "omit mention of radio on envelope" when shipping QSLs to DX stations whose official status is precarious. Such advice now circulates pertaining to CR8AC, UA9DN and others, but inevitably a certain percentage of mail will carry "AMATEUR RADIO STATION —" on its exterior for all to see. This won't do much good, either, but we caution DX operators: If "radio"-addressed mail may cause you trouble, don't leak your postal QTH to anybody except a reliable QSL manager, and this means omitting it on outbound QSLs as well. "HL9KT indicates a preference for self-addressed stamped envelopes," hints W0ZSZ. JT1AA now fills out QSLs for contacts as he goes along, then mails them to OK1JX by air where Jan relays them on receipt of matching incoming cards. This procedure really keeps 'em moving. UA9DL, Box 9, Sverdlvovsk, U. S. S. R., asked me to pass the word along that he will act as QSL bureau for UA9-bound cards." This from W3QAZ who was told further by UA9DL. "Many U. S. S. R. hams cannot afford to have cards printed and some are located where printing facilities are not available. Also, some are just not interested in sending QSLs." Rrrrrrrrr!

Africa — Periodically we stress the advisability of patronizing non-ARRL QSL bureaus only when instructed to do so by stations worked. This SARRL form letter received by ZS6TP is a mild illustration of one of the reasons for our caveat: "We enclose herewith a batch of QSL cards sent through our bureau addressed to you. We wish to advise you that this will be the last despatch of cards from us to you as a nonmember of the League. Our Council has decided that all League facilities to non-members are to cease, so that in future all cards addressed to you via our Bureau



GC2RS required a mere 25-watt 807 rig to rate vocal WAS and DXCC from Guernsey in the Channels. Frank is ex-G5MT and he ever delights in collecting "First GCI" QSOs and QSLs. (Photo via W1WPO)

will be returned to the senders marked 'Unknown — not a member of the SARRL.' May we suggest that to avail yourself to the benefits of the QSL Bureau and the many other advantages to be gained, it would be in your best interest to join the League," this duplicator-signed by the SARRL QSL manager. While not disposed to argue here the pros and cons of closed-shop QSL bureau policy we do have responsibility in making it clear to "How's" readers that the impartiality of your ARRL QSL Bureau, which handles cards for members and nonmembers alike, is by no means a universal rule. From ex-ET2RH via W1VG: "Have returned to the States and all of my logs, etc., relative to the operation of ET2RH are following in my baggage. Will resume QSLing as soon as my gear catches up with me." Bob's present address follows. "The Richmond Amateur Radio Club, P. O. Box 1985, Richmond, Va., has completed arrangements with VQ4EO to handle QSLs for Paul's forthcoming safari around Africa in Land Rover. W/K cards must be accompanied by stamped self-addressed envelopes, while VE and foreign QSLs will be sent via bureaus." This from the mill of W4HYC.

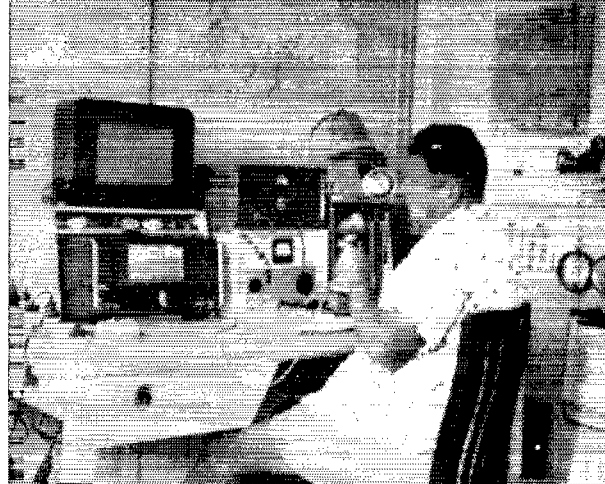
Oceania — "ZK1BS QSLs can be obtained from K6EXO for all contacts dating after October 22, 1957." Harvey adds that s.a.s. envelopes will bring direct reply, otherwise by bureau. "Stations working KH6CMM/KJ6 and KH6CNU/KJ6 are requested to include self-addressed envelopes with their cards. IRCs in the case of foreign DX," advises KH6CMM. "These QSLs will be answered direct, others via the bureaus." KH6CMM also welcomes offers of QSL-managerial assistance, anticipating at least a thousand KJ6 QSOs if all goes well. Mac's own Hawaiian QSL backlog temporarily increased while fresh stock was being obtained for 14-Mc. confirmations. WGDXC has it that FUGAD's newest batch of QSLs were grievous misprints which necessitated reorder from France. Patience, please.

Europe — From Svalbard's LA2JE/P via W9ZRG: "I am not able to QSL before August, 1958, because we have no more mail communications with Norway before July. Really sorry for this long delay but I will QSL 100 per cent when I am home again. I still look for the States on 14 Mc. — give me a call!" W7VY operated SV0WE/Rhodes for a spell not long ago, working about fifty lucky lads in ninety minutes. Gene is handling QSL matters from Seattle for these QSOs only. "To be sure of getting delivery on his QSL it would be a good idea



EA6AF, leading Balearics DX chaser, piled up 1142 QSOs with W/K/VE/VOs in the 1957 ARRL International DX Competition for one of Europe's top scores. With Bartolome such impressive operating performances are an old, old story. (Photo via W1TS)

VR2BC's 6146 thirty-watter does a bang-up voice job on 15 and 10 meters. Greg receives with an Eddystone and his antennas are three-element rotaries. He's ex-VPIGG (photo p. 68, June 1955 QST) and intends early DXpeditionary visits to such Pacific points as Tonga and Rotuma. (Photo via K6TJK)

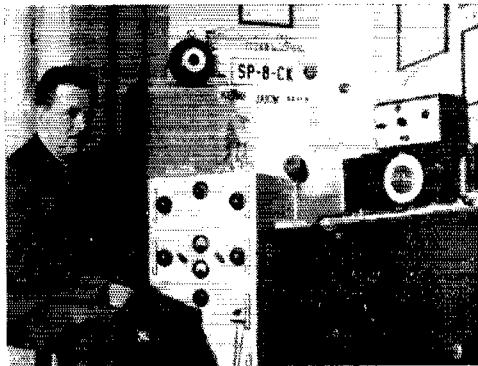


for a W/K to check the full QTH of any DL4 at the time of QSO," recommends DL4XZ. This, of course, because of the irksome rapid reissuance of DL4 suffixes OY4T is unknown at the EDR (Denmark) bureau so W2LKW and other unfortunates may have to hunt the Faeroes anew.

South America — "I have agreed to QSL all W2/K2 stations who have worked FY7YF and who send to me self-addressed stamped envelopes, this contingent on my receiving logs from Gaby. Non-W2/K2s should QSL FY7YF direct. I also plan to ship some GE-type QSLs to him so he will be able to clear up his backlog." Nice going, W2FXA! W3MQC and others would appreciate something substantial concerning the QSL policy of FY7YF. Who's the latest of Mario's many QSL managers?

Hereabouts — W4UWA, doing a Massa-husetts military tour, raises an interesting question in conjunction with DX activities as W4UWA/1. Which QSL manager, W1/K1 or W4/K4, should handle his incoming QSLs? That is, with which should he keep liaison? Theoretically, unless Al expected late cards to filter in down south, he could do all his business with the W1/K1 QSL chief. But overseas DX operators may not realize this, and chances are that W4UWA/1-bound DX QSLs will accumulate in both offices. DXers who gub about in more than one call area (or country) should bear these thoughts in mind Regarding YS1MS QSL data in our October effort we hear from somewhat ill-used W3EQK: "I did make arrangements with YS1MS some months ago to handle his QSLs — then heard no more from him until the announcement appeared in QST. I talked with Mike again and he assured me his QSLs would arrive shortly." At this writing Art still holds the bag although his offer to YS1MS still stands. When the deal starts rolling Art will insist on s.a.s. envelopes with all soliciting QSLs "Anyone who has not received his deserved Navassa card should send full QSO data and s.a.s. envelope to W2IWC/KC4, P. O. Box 68, Fordham College, Bronx 58, N. Y." Since coming back down that rickety iron ladder Fred has pushed the home DX tally to a fancy 207/192 KG1BB (W3ZHL) suggests that those stymied in attempts to locate KG1s or ex-KG1s forward their QSLs via MARS Director, Hq. 8th Air Force, Westover AFB, Massachusetts. "I believe the present policy of retiring a KG1 call sign for one year before re-assigning it will eliminate most difficulties." Why not three years, to be sure? VP5AB, listed last month, reports depletion of QSL stock but assures WIBDI that more blanks are on the way. Jim says that South Caicos personnel suffered a king-size influenza visitation in late '57. Is the virus picking up rare ones toward its double-DXCC? Now for your files we list specific QTH suggestions offered by W1s BDI BPW CTW ECH EKU ELR PNR

Recall the signals of old SP1DC, outstanding Polish DX specialist of the 1930s? Edward is equally prominent these days as SP8CK in LuLlin and he still prefers his old favorite, 20 c.w. WAS, DXCC and WBE tapestries are included in SP8CK's extensive collection of DX honors. (Photo via W1WPO)



UED VG WPO, W2HMI, K2s QXG TCD UFT, W3GRO, W4s HKJ PNK YQR, K4s HNA IEX, W5MIZP, W6s HPB KG RLP YY, K6s ICS LZL, W7s DJU FBD PHO QNL, W8s FMJ YFJ YGR, W9s FNX IRH, K9GZK, W0s QGH ZSZ, K0DQI, F08AE, KH6CMM, SA15ARP, VE3BYV, clubs DRDXC, ITRC, ISWL, JDXRC, NCDXC, OVARA, OVSU, WGDXC, WIA, WVDXC and other good Samaritans:

GE2DH, Box 307, Quillota, Chile
 GE7AY, B. G. Hosmer, Casilla 435, Puerto Montt, Chile
 CN8HK (to K4LYB)
 CO8LS, J. F. Cuervo Troy, Box 510, Santiago de Cuba, Cuba
 CR4AU, Box 39, Praia, Cape Verde Islands
 CX9CJ, A. Cordones, Maldonado 1670, Montevideo, Uruguay
 ex-DL4CD (to KP1AFS)
 ex-DL4CU, N. Albaugh, c/o W. D. Lake, French Creek, W. Va.
 DL4XZ, SFC I. T. Jeffrey, USAREUR Sig. Svc. Bn., Det. 2, APO 189, New York, N. Y.
 EL4A (via W4TO)
 ex-ET2RH, R. I. Hall, 1030-B Elm St., Fayetteville, N. C.
 F7CO, A/2e F. L. Jacobs, 8th Radio Relay Sq., Det. 8, APO 84, New York, N. Y.
 FA3OY (via FA9RW)
 FE8AE (until July) M. Veber, 45 Avenue de Kergoat ar Laz, Quimper, France
 FM7WT, A. Meunier, P. O. Box 7, Lamentin, Martinique, F. W. I.
 FO8HG, Box 891, Brazzaville, Fr. Equatorial Africa
 FY7YF (see preceding text)
 G3JO, E. T. Webster, Southome, Tytherington, Macclesfield, England
 GM3MCH, N. Stewart, 16 Kings Rd., Forfar, Scotland
 HA5DU, Box 17, Budapest 10, Hungary
 HA5KB, Box 185, Budapest 4, Hungary
 HC5CL, C. Jaramillo, Box 1366, Cuenca, Ecuador
 HE9LAC, R. E. Mader, Eschenstrasse 425, Schaan FL, Liechtenstein
 HK7AB, H. McCormick (HK3AB), P. O. Box 216, Bucaramanga, Colombia
 HL2AJ, Yoon, Seoul U., Seoul, Korea
 HL9KR, Maj. F. Barnes, Box 35, Hq. 314th Air Div., SPO 970, San Francisco, Calif.
 HL9KT, R. Jones, 304th Sig. Bn., APO 301, San Francisco, Calif.
 HV1CN, D. Petti, Radio Str., Vatican City (or to I1CNS)
 I5FL, F. and L. Martini, P. O. Box 90, Mogadiscio, Somalia
 JA8GA (via JARL)
 JY1AC (via RSGB)
 K2000/VE8, M. Peare, Federal Electric, Box 330, Edmonton, Alta., Canada
 KA2DW, J. Weaver, Hq. USARJ, Signal Office, APO 343, San Francisco, Calif.
 KB6BH, Box 653, USPO 06-5000, Canton Island, Phoenix Gp.
 KC4USK, Wilkes Str., Navy 20, Box 016, Navy P. O., San Francisco, Calif.
 KG1BB, Box 1983, AACSS Sqdn., APO 29, New York, N. Y.
 KG1CH, APO 24, New York, N. Y.
 KG1DO (to W1UDQ)
 KG4AL, Box 35Y, NAS, Navy 115, FPO, New York, N. Y.
 KL7FBJ, APO 716, Seattle, Wash.
 KL7JDO, ex-W6JDO/KL7-DL4JD, T. Smaker, 710th ACWRON, APO 715, Seattle, Wash. (or to W6JDO)
 KL7OOT, Box 487, Fairbanks, Alaska
 KL7SLA, Project Icebox, Station A, APO 731, Seattle, Wash.

(Continued on page 152)

24th A.R.R.L. International DX Competition

Phone: Feb. 7-9 and Mar. 7-9;

C. W.: Feb. 21-23 and Mar. 21-23

IT'S TIME once again to ready your station for the ARRL International DX Competition, to be held in February and March of 1958. This contest, the 24th of its kind, gives an opportunity for all Canadian and continental U. S. operators to add new countries to their DXCC totals, other stations to fill in for their WAS and WAVE awards, and everyone to match DX operating skill with others in his country or ARRL section. But whether you run 9 or 900 watts input and whether you work 2 or 2000 stations, you can have a whale of a time in this annual event.

As in the past, certificates are offered to the top single-operator phone and c.w. scorer in each country and ARRL section. A special category recognizes multi-operator stations in sections or countries from which at least three such entries are received. Within an ARRL-affiliated club, single-operator bona fide members may compete for the certificates which go to the highest c.w. and phone scorers. A gavel with an engraved silver band is also earned by the club whose members pile up the biggest aggregate score.

The contest rules are exactly the same as those of last year. Stations outside W (K) and VE/VO will call CQ W/VE or CQ TEST and attempt to trade exchanges with U. S. and Canadian participants. The DX will send us 5- or 6-digit numbers indicating the signal report and power input. U. S. and Canadian amateurs, in turn, will transmit an RS or RST report plus their state or province, or some abbreviation for the state or province.

The award and scoring systems are designed to put a premium on flexibility of operation and to encourage the widest use of our DX bands. Thus

CONTEST TIMETABLE					
Phone Section:					
Time	Starts		Ends		
GMT	Feb. 7	2400	Feb. 9	2400	
AST	Feb. 7	8:00 P.M.	Feb. 9	8:00 P.M.	
EST	Feb. 7	7:00 P.M.	Feb. 9	7:00 P.M.	
CST	Feb. 7	6:00 P.M.	Feb. 9	6:00 P.M.	
MST	Feb. 7	5:00 P.M.	Feb. 9	5:00 P.M.	
PST	Feb. 7	4:00 P.M.	Feb. 9	4:00 P.M.	
The second period of this contest starts at these same hours Mar. 7.			The second period of this contest ends at these same hours Mar. 9.		
C.W. Section:					
GMT	Feb. 21	2400	Feb. 23	2400	
AST	Feb. 21	8:00 P.M.	Feb. 23	8:00 P.M.	
EST	Feb. 21	7:00 P.M.	Feb. 23	7:00 P.M.	
CST	Feb. 21	6:00 P.M.	Feb. 23	6:00 P.M.	
MST	Feb. 21	5:00 P.M.	Feb. 23	5:00 P.M.	
PST	Feb. 21	4:00 P.M.	Feb. 23	4:00 P.M.	
The second period of this contest starts at these same hours Mar. 21.			The second period of this contest ends at same hours Mar. 23.		

repeat QSOs are permitted on additional bands. When CR6AI and W3LOE exchange contest information on 10, 15, 20 and 40 meters, for example, the contact-point total, multiplier, and score rises for both. For the DX, the multiplier is the sum of U. S. A.-Canada licensing areas worked per band, while the W/VE multiplier consists of the sum of different countries (see ARRL Countries List, p. 70) contacted per band. No credit for W/VE-to-W/VE QSOs is allowed.

It is suggested that W/VE c.w. entrants refer to this tabulation in indicating states and provinces. Overseas competitors may use it as a check-off list of states and provinces and for logging abbreviations.

EXPLANATION OF DX CONTEST EXCHANGES		
Stations in U. S. and Canada Send:		
	RS or RST Report of Station Worked	Your State or Province (or Abbreviation)
Sample (c.w.)	579	ORE
Sample (phone)	57	Oregon
Stations Outside U. S. and Canada Send:		
	RS or RST Report of Station Worked	Three-Digit Number Representing Your Power Input
Sample (c.w.)	579	075
Sample (phone)	57	500

- W1 — CONN MAINE MASS NH RI VT
- W2 — NJ NY
- W3 — DEL MD PA DC
- W4 — ALA FLA GA KY NC SC TENN VA
- W5 — ARK LA MISS NMEX OKLA TEXAS
- W6 — CAL
- W7 — ARIZ IDAHO MONT NEV ORE UTAH WASH WYO
- W8 — MICH OHIO WVA
- W9 — ILL IND WIS
- W0 — COLO IOWA KANS MINN MO NEBR NDAK SDAK
- VE1 — NB NS PEI
- VE2 — QUE
- VE3 — ONT
- VE4 — ALAN
- VE5 — SASK
- VE6 — ALTA
- VE7 — BC
- VE8 — NWT YUKON
- VO — NFLD LAB

LOG, 24th INTERNATIONAL DX COMPETITION

Call..... ARRL Section.....
 14 1 3
 Band..... Me. Sheet..... of.....

Country	Station Worked	Date	Time (GMT)	Sent	Received
France	F8VJ	2/22	1300	589CONN	479075
	F9MS	2/22	1345	569CONN	579080
England	G2DC	2/22	1306	589CONN	469150
	G4CP	2/23	1245	579CONN	469125
	G2QT	2/23	1255	569CONN	579100
	G3HJJ	3/22	1430	469CONN	559100
	G6ZO	3/23	1822	579CONN	589125
Germany	G5RI	3/23	1851	469CONN	459075
	DJ1BZ	2/22	1315	559CONN	449050
	DL1JW	2/23	1149	469CONN	559080
	DL7AH	3/22	1502	559CONN	559045

Sample of report form that must be used by W/VE c.w. participants. When a station is worked for less than the maximum number of points allowed, the additional contact to make up the points not earned in the first contact should be entered at the bottom of the sheet. Canadian entrants should allow two blocks for each country, but may record no more than eight contacts therein. A separate set of sheets should be used for each band.

U. S.-Canadian amateurs have quotas on c.w. (see rule 10) but none on phone. DX amateurs have no quotas; they will QSO as many stations as they can in the 19 W (K) and VE/VO licensing areas on each band.

Keep your log carefully and send a copy to ARRL as soon as the contest ends. All reports, large or small, are welcome. Convenient forms are now available free from the ARRL Communications Dept.

Rules

- 1) *Eligibility:* Amateurs operating fixed amateur stations in any and all parts of the world are invited to participate.
- 2) *Object:* Amateurs in the continental U. S. and Canada will try to work as many amateur stations in other parts of the world as possible under the rules and during the contest periods.
- 3) *Conditions of Entry:* Each entrant agrees to be bound by the provisions of this announcement, the regulations of his licensing authority, and the decisions of the ARRL Award Committee.
- 4) *Entry Classifications:* Entry may be made in either or both the phone or c.w. sections; c.w. scores are independent of phone scores. Entries will be further classified as single- or multiple-operator stations. Single-operator stations are those at which one person performs all the operating func-

Sample of report form that must be used by W/VE phone entrants and all participants outside U. S. and Canada, phone and c.w. This example is a U. S. A. phone log. Foreign competitors, of course, would have reverse information in the "Sent" and "Received" columns; their "Received" column would show exchanges like "579CAL," "589ONT" (or, on phone, "46 Vermont," "58 Georgia," etc.), indicating signal reports received and different states and provinces worked; their "Sent" column would carry signal reports and power indicators transmitted.

LOG, 24th A.R.R.L. INTERNATIONAL DX COMPETITION

Sheet..... of..... Call..... ARRL Section..... or Country.....

Date & Time GMT	Station Worked	Country	Record of New Countries for Each Band						Exchange		Points		
			1.8	3.5	7	14	21	28	Sent	Received			
Feb. 8 0005	XE1RE	Mexico				1				56	Maine	57080	3
Feb. 9 1300	PA0ULA	Netherlands							1	58	Maine	47075	3
1306	G3COJ	England							2	58	Maine	46150	3
1345	PA0VB	Netherlands							2	56	Maine	59080	3
2030	LU1DDV	Argentina							3	58	Maine	57750	3
2310	VP9L	Bermuda				2				57	Maine	56050	3
Mar. 8 1020	ZL1MB	New Zealand				3				58	Maine	58075	3
1035	VK5LC	Australia		1						47	Maine	46100	3
1105	VK3ATN	Australia		1						46	Maine	45100	3
1421	PA0NV	Netherlands							3	45	Maine	57100	3
Mar. 9 0925	EI5I	Ireland				4			3	57	Maine	57050	3
1245	G2PU	England										46125	2
1255	G3DO	England							3	56	Maine	57100	3
1350	G2PU	England							3	57	Maine		1
1430	G5BA	England							3	46	Maine	55100	3
2320	YN4CB	Nicaragua				5				58	Maine	58500	3

SUMMARY, 24th A.R.R.L. INTERNATIONAL DX COMPETITION

.....Entry Call.....ARRL Section.....or Country.....
(C.W. or Phone)

Name.....Address.....

Transmitter Tubes.....Power Input.....

Receiver.....Antenna(s).....

(Logs from W(K) and VE/VO show number of foreign countries worked. Logs from other countries show number of U. S. A. and Canadian call areas worked.)

Bands	1.8 Mc.	3.5 Mc.	7 Mc.	14 Mc.	21 Mc.	27 Mc.	28 Mc.	Total
No. Countries QSOd		1		5			3	9 ¹
No. of Contacts		2		5			3	15

Number of Different Countries Worked.....Number of Hours of Station Operation.....

Assisting Person(s): Name(s) and Call(s).....

$15^2 \times 9 = 405$
 (Points) (Multiplier) FINAL SCORE

Participation for Club Award in the.....(Name of Club).....

I certify, on my honor, that I have observed all competition rules as well as all regulations established for amateur radio in my country, and that my report is correct and true to the best of my belief. I agree to be bound by the decisions of the ARRL Award Committee.

.....
Operator's Signature and Call

¹ Figure in this box is multiplier.

² Count 3 points per completed QSO; see rule 8a.

Sample of summary sheet that must accompany all reports.

tions. Multiple-operator stations are those obtaining assistance, such as from "spotting" or relief operators, or in keeping the station log and records.

5) *Contest Periods:* There are four week ends, each 48 hours long: two for phone work and two for c.w. The phone section starts at 2400 GMT, Friday, February 7 and Friday, March 7, ends 2400 GMT, Sunday, February 9 and Sunday, March 9. The c.w. section starts at 2400 GMT, Friday, February 21 and Friday, March 21, ends 2400 GMT, Sunday, February 23 and Sunday, March 23.

6) *Valid Contacts:* In the phone section, all claimed credits must be made voice-to-voice. In the telegraph section, only c.w.-c.w. contacts count. Crossband contacts may not be counted.

7) *Exchanges:*

a) *Amateurs in U. S. and Canada* will transmit a three-figure number, representing the RST report, plus their state or province. (The latter may consist of an appropriate abbreviation.) Phone participants will transmit a two-figure number consisting of the readability-strength report plus the state or province. *Example:* W6YY might transmit "579CAL" on c.w., "57 California" on phone.

b) *Amateurs outside U. S. and Canada* will transmit six-figure numbers, each consisting of the RST report plus three "power" numbers; the power indicator will represent the approximate transmitter power input. Phone contestants will transmit five-figure numbers, each consisting of a readability-strength report and the three "power" numbers. *Example:* VK2GW, with 100 watts input, might transmit "569100" on c.w., "56100" on phone. If the input power varies considerably on different bands, the "power" number should be changed accordingly.

8) *Scoring:*

a) *Points:* One point is earned by a W (K) or VE/VO station upon receiving acknowledgment of a contest exchange sent, and two points upon acknowledging an exchange received. Two points are earned by any other station

upon receiving acknowledgment of a contest exchange sent, and one point upon acknowledging an exchange received.

b) *Final Score:* W (K) and VE/VO stations multiply total points earned under Rule 8(a) by the number of countries worked on each other band. All other stations multiply total points earned under Rule 8(a) by the sum of the number of W (K) and VE/VO licensing areas worked on one band plus the number of W (K) and VE/VO licensing areas worked on each other band.

Countries will be those on the ARRL Countries List. There are 19 licensing areas: 10 in the United States, 9 in Canada (VO, VE1-VE8). [See Countries List on p. 00 - Eo.]

9) *Repeat Contacts:* The same station may be worked again for additional points if the contact is made on a different frequency band. The same station may be worked again on the same band if the complete exchange for a total of three points was not made during the original contact on that band.

10) *Quotas:* The maximum number of points per country per band which may be earned by W (K) stations in the c.w. section is 18, and contacts made on the same band with the same country after the quota is filled will not count. Thus complete exchanges with 6 stations in one country on one band fill the band quota for that country. The maximum number of points per country per band which may be earned by VE/VO stations in the c.w. section is 24, and contacts made on the same band with the same country after the quota is filled will not count. Exchanges with 8 stations in one country on one band are thus permitted Canadian participants. There is *no quota* for stations in the c.w. section outside of the U. S. and Canada. There is *no quota* for any station in the phone section.

11) *Reporting:* Contest work must be reported as shown in the sample form. Each entry must include the signed statement as shown in that example. Contest reports must

be mailed no later than April 30, 1958, to be eligible for QST listings and awards. All DX Contest reports become the property of the American Radio Relay League and none can be returned.

12) *Awards:* To document the performance of participants in the 24th ARRL International DX Competition, a full report will be carried in QST. In addition, special recognition will be made as follows:

a) A certificate will be awarded to the high-scoring single-operator phone and to the high-scoring single-operator c.w. entrant in each country (as shown in the ARRL Countries List) and in each of the 73 U. S. and Canadian ARRL sections (see page 6 of this issue) from which valid entries are received. In addition, a certificate will be awarded to the high-scoring multiple-operator station in each section or country from which three or more valid multiple-operator entries are received.

b) A suitable certificate will be awarded to the operator making the highest single-operator phone score in each ARRL-affiliated club, provided the club secretary submits a listing of a minimum of three phone entries by members of the club and that these scores are confirmed by receipt at ARRL of the individual contest logs from such members. The highest single-operator c.w. scorer in each club

will be awarded a certificate under the same conditions. Only a bona fide resident member, operating a station in local club territory, may compete for club certificates.

c) ARRL will award a gavel to the affiliated club submitting the greatest aggregate phone and c.w. score by its members, whether single- or multiple-operator entries, provided such scores are confirmed by receipt at ARRL of the individual contest logs from such members. Only scores of bona fide resident members, operating stations in local club territory, may be included in club totals.

13) *Judges:* All entries will be passed upon by the ARRL Award Committee, whose decisions will be final. The Committee will void or adjust entries as its interpretation of these rules may require.

14) *Disqualifications:* Each participant agrees to observe the contest rules as well as all regulations established for amateur radio in his country. Violation of any regulation, as confirmed by a single FCC citation or advisory notice or two ARRL accredited Official Observer reports, may constitute grounds for disqualification. Some examples of practices which can result in disqualification: off-frequency (out-of-band) operation, harmonics, spurious emissions, low tone reports in logs, key clicks, splatter, excessive sidebands, W (K) stations working banned countries.

Strays

Heard on the air during the 1957 Sweepstakes:

W2XXX: "Time 1841."

W5XXX: "Please repeat time, I have 1743."

W2XXX: "Time here 1841."

W5XXX: "My clock must be wrong. I have 1743."

W2XXX: "You are on Central Standard."

W5XXX: "Yes I know, but we're 2 minutes apart."

W2XXX: "Let's say my clock is wrong and change my time to 1843."

W5XXX: "Never mind. I just checked against the clock in the living room and your clock is right."

W2XXX: "Let's leave it as it was, then."

W5XXX: "You mean 1841 or 1843?"

W2XXX: "Heavens to Betsy, what difference does it make?"

W5XXX: "Well, it would look funny if you showed 1841 and I showed 1743."

W2XXX: "Is this your first contest?"

W5XXX: "Yes, why?"

W2XXX: "Well, I've been in nine of them and you can take my word for it, it doesn't matter so long as you copy what I say."

W5XXX: "Even if it's wrong?"

W2XXX: "Even if it's wrong. Do you mind if I run along? I'd like to make one or two points before the contest is over."

W5XXX: "Roger, didn't mean to hold you up. Did we agree that 1841 or 1843 is correct?"

Then heaven-sent QRM descended in large gobs. Contests are wonderful! — W3IBX

— . . . —

The *Malta Amateur Radio Society* is sponsoring a "ZB1 Activity Week End" during the first and second days of February. As many ZB1 stations as possible will be active on all bands in order to provide QSOs with "a moderately rare one."

Quist Quiz

Here is one for the apparent-paradox department, submitted by Paul Smay, W9TZN.

Two radio operators at two different stations, A and B, make frequency measurements at the same time on the carrier frequency of a third station, C. Station A measures the frequency as 400 cycles higher than the value obtained by B, yet both measurements are correct with W10 cycles. How is this possible?

— . . . —

The answer to last month's problem is 10 resistors, of value 1, 2, 4, 8, 16, 32, 64, 128, 256 and 512 ohms.

If you are familiar with binary notation, it is easy to arrive at the proper series connection that will give the desired value. For example, in binary notation the number "52" is written "110100," indicating that you would need 4, 16 and 32 ohms in series to total 52. (Take the binary notation of the number; the places reading from right to left represent the resistors 1, 2, 4, 8, 16 and so on. If a 1 shows in the binary representation, use the corresponding resistor.)

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.



Correspondence From Members -

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

HI-FI CONVERTER

58 Felch Road
N. Natick, Mass.

Editor, *QST*:

In all probability the U. S. satellite will have been launched by the time the following can appear in *QST*, assuming sufficient interest in the material offered.

Since the "moon" frequencies will be 108 and 108.03 Mc, additional equipment must be constructed to enable the standard variety of ham receivers to monitor the signals. Like myself, many hams are also hi-fi enthusiasts and in all probability own f.m. tuners. The average f.m. tuner makes a fine converter. It may be necessary to shift the tuner oscillator up slightly to assure coverage. In my own case it was not. The usual practices where a converter/receiver combination is concerned should be followed. The usual conversion frequency of 10.7 Mc. should be tuned in on the communications receiver and adjusted for maximum noise. The tuner is then adjusted to the satellite frequency. A good antenna will be of help. A word of caution: if either the tuner or receiver is of the a.c./d.c. variety the foregoing is not recommended unless extreme caution is observed.

This should enable at least a few more amateurs to follow and provide reports on our own projects. 73.

— Carl M. Getter, W1M1J

15-METER SKIP

6334 W. 77th Street
Los Angeles 45, Calif.

Editor, *QST*:

Sputnik and Muttnik caused me to break out the general coverage spare receiver as the 75A-2 just wouldn't cover the proper frequencies. During the past few weeks I've heard more time signals (WWV on 20 megacycles) than in all the rest of my life put together. One happy result of all this listening is that I now have an excellent means of telling when the fifteen-meter band is open to the East Coast. Even though I may not hear a single signal on the band, more often than not, a CQ or two will stir up some activity.

My thanks to the two Niks for calling this to my attention.

— Bill Stewart, K6NV

LET'S SAY TNX!

R. F. D. No. 1
Summerfield, Florida

Editor, *QST*:

A thought has occurred to me — just this: have been reading "the mail" at times and have heard reference being made to the lack of service provided by QSL Bureaus. While that cannot be said of our branch covering the K4 or W4 district, I have thought that perhaps the trouble lies with the recipients of QSL Cards.

Accordingly then, it would be well to sit back and do a little thinking. What have you contributed towards your QSL Manager in the way of maintaining his morale and giving him an inkling that you do care? I'm sure a note of appreciation along with your envelope for QSL cards would show you cared and make for better conditions around. How about it, fellows?

— Arthur Kunkel, K4LFZ

LETS KEEP 'EM

1160 Jefferson Avenue
Memphis 5, Tenn.

Editor, *QST*:

It is true ("It Seems to Us . . ." Nov. '57) that Ten-

nessee has call-letter license plates. Unfortunately according to several large Tennessee newspapers, there is a move to introduce a bill in the next session of Tennessee state legislature to withdraw the privilege for special plates for amateurs, C.A.P., and others.

The chance of this bill passing the legislature would be lessened if enough Tennessee hams wrote their congressmen. I like my call-letter plate. . . . !

— R. H. Hutcheson, Jr., W4EAX

VERMONT SAYS O.K.

135 College Street
Burlington, Vermont

Editor, *QST*:

Apropos of "It Seems To Us . . ." in November *QST* with its list of states providing for amateur call signs on license plates, I'm sure that I will only be one of many from Vermont to write you that the last session of our state legislature (1957) now permits issuance of amateur call signs (up to 5 characters).

— John F. Daly, M.D., W1SEO

VQ5GF SAYS . . .

P. O. Box 150
Entebbe, Uganda

Editor, *QST*:

I was interested to read W7VX's letter in September *QST*. I cannot, however, quite agree with his idea.

When a foreign station calls CQ DX he does not necessarily want to work a stream of Ws who might want to work him. Unfortunately, it seems to be accepted that a foreign station is duty-bound to work all who call him. I, personally, prefer a rag chew with any decent signal rather than "hello" and "goodbye" to half a dozen. However, this is rarely possible as (a) there are always a number of other hopefuls attempting to break in, and (b) the W you happen to work hastily apologizes for keeping you too long — usually 3 to 5 minutes maximum — as "a lot of the boys would like to work you." This starts the endless repetition of QSOs consisting of name, rig, weather and best 73s.

I would say to W7VX that if a foreign station calls CQ W, he is wide open for the above session, but CQ DX does not qualify usually for Ws only, and the foreign station may not even want to work a dozen "rubber stamp" QSOs. I trust therefore, that in my case at least, the boys will not be too disappointed if I disappear after one or two contacts only. Look at it from this end: "only one W counts for 1DXCC," yet while the foreign station grinds away at the pile-up the W who has made QSO is off to pastures new.

— Frank W. Unstead, VQ5CF

ANYONE FOR CHESS?

218 N. Josephine Tobin Drive
San Antonio 1, Texas

Editor, *QST*:

Does anyone play chess on the air these days? After numerous "CQ chess games" I've only managed to round up a few hardy souls to brave the QRMI for the sport of kings. I would like to make a few schedules with avid chess players who are also hams. From what I understand of the old days, chess playing on the air was done quite a bit, so possibly some of the old timers might be interested. Perhaps the best way might be to issue a challenge, as I'm so far undefeated on the air (hooray!). In my opinion, c.w. would offer the best opportunities with relatively less QRMI, using standard chess abbreviations. I'm available for schedules on any band 80-10 meters on phone or c.w. at all sorts of odd hours. Any takers?

— Greg Wren, K5BAT



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

1957 a Good Year for Activity and Progress.

Each *New Year* reminds us that all operational accomplishment comes as the sum total of station activity. In '57 there were more licensed amateurs on the air than ever before. Writing in advance of the year end we cannot report the actual numbers of WAS or DXCC awards, or CP certifications. But week after week we have matched RCC requests, contest reports and correspondence running 25 to 35 per cent above 1956, a big year in itself incidentally. Our ARRL has had an increase in the number of League members for about the fourth consecutive year; FCC found amateur license authorizations up at the end of its fiscal year; the demand for DX, FD and SS log forms was the greatest in history. If you so much as turned on a receiver in the SS, we don't need to tell you that it was the biggest activity ever; we hope you enjoyed some part in it.

About 1958. Of course the aim in '58 must be to look forward rather than backward. Whether in terms of radio-sighting reports on satellites, participation in organized Emergency Communications (AREC-RACES), completing your tally for new award objectives, teaching groups of newcomers at the club (teaching is the best way to step up one's own knowledge and pay our debt to those who helped us earlier) we can readily find avenues for personal progress. Watch the Activities Calendar in this section of *QST* throughout the year. It will list for you the different ARRL activities and other timely announcements for your operating pleasure. If you are an SCM Appointee, the quarterly fraternal parties in January, April, July and October are for you; code proficiency qualifying runs are made on stated dates every month; these are not for Novices only, but for all amateurs and can qualify you up to 35 w.p.m.

The v.h.f. Sweepstakes announced for Jan. 4-5 is dedicated to the success of all v.h.f. operators. Get in there and see how far you can work with the v.h.f. rig at a time when there's activity in every section in the country! February 1-16 is the Novice Roundup. For you Novices this is a top opportunity to step up operating and code proficiency and see how far you can get with the new station. For everybody else it's a pleasure to work with enthusiastic new amateurs. ARRL welcomes your station list and points scored from Novice QSOs in the half-month Round-up.

In February and March four week ends are dedicated to the c.w. and the phone sections of the ARRL International DX competition. See

full announcement in this issue. The February 14 Frequency Measuring Test exercise is primarily an activity to help Official Observers make and keep top frequency measuring ratings, but all comers are invited to try their hand. Look for the detailed announcement next month. Progress in frequency measurement ability or in DX operation or contests doesn't necessarily require your going "all out," but merely accepting the opportunities and challenges *instead of sitting on the sidelines*. If your time permits you of course will be out to win!
F. E. H.

A.R.R.L. ACTIVITIES CALENDAR

- Jan. 2: CP Qualifying Run — W6OWP
- Jan. 4-5: V.H.F. Sweepstakes
- Jan. 11-12: CD QSO Party (c.w.)
- Jan. 18-19: CD QSO Party (phone)
- Jan. 20: CP Qualifying Run — W1AW
- Feb. 1-16: Novice Roundup
- Feb. 5: CP Qualifying Run — W6OWP
- Feb. 7-9: DX Competition (phone)
- Feb. 14: Frequency Measuring Test
- Feb. 18: CP Qualifying Run — W1AW
- 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. Amateur Radio Assn. (p. 124, this issue).

Jan. 3-5: WAE DX Contest (c.w.), DARC (p. 82, last month's issue).

Jan. 25-26: VE1 Contest, New Brunswick Amateur Radio Assn. (p. 146, this issue).

Mar. 1-2: YL-OM Contest (phone), YLRL (next month's issue).

RESULTS, OCTOBER CD PARTIES

The highest claimed scores follow. Figures after each call indicate score, number of contacts and number of different ARRL sections worked. Final and complete results will appear in the January CD Bulletin.

C.W.

W6YMD.....	298,782-503-66	W1SMO.....	85,065-315-53
W4KFC.....	260,965-772-67	W7JC/7.....	84,816-162-57
W6JVA.....	230,100-390-65	W4QDY.....	82,835-275-59
W3VOS.....	219,700-670-65	W5ZKT.....	82,160-266-62
W1EOB.....	202,290-606-66	W2HDW.....	78,520-295-52
W3JNQ.....	201,915-636-63	W6WIL.....	78,432-149-57
W6BIP.....	172,305-300-63	W1LVQ.....	77,380-285-53
W28Z1.....	163,485-513-63	K1HXG.....	76,150-280-54
W6YHM.....	157,815-275-63	W9SDK.....	75,815-250-59
W1JYH.....	154,635-500-61	W6YCF.....	74,741-142-57
K61YJ.....	153,016-272-62	W8NOH.....	74,200-260-56
W9SRZ.....	148,680-466-63	W2CVW.....	73,670-271-53
W1WEF.....	148,480-505-58	W9LNQ.....	71,920-243-58
W2FEB.....	139,080-456-61	K4AJG.....	71,250-246-57
W3YA ²	138,060-468-59	K6CEO.....	71,073-149-53
W9RQM.....	137,100-451-60	W2AYJ.....	70,720-265-52
W3NF.....	135,995-454-59	W4ZM.....	70,110-241-57
VE6NX.....	129,642-229-62	W3MSR.....	65,520-266-48
K68XA.....	126,453-227-61	W2EMW.....	64,410-220-57
W7VIU/7.....	124,620-228-60	W1BWP.....	62,450-230-54
W3KLA.....	123,120-432-57	W4WHK.....	62,370-226-54
K6ORT.....	121,540-225-59	W3UE.....	61,360-230-52
K6BWD.....	116,000-220-58	K4CAX.....	61,355-268-45
W2DMJ.....	114,125-408-55	K2AFP.....	61,000-238-50
K4HOU.....	108,585-375-57	VE2DR.....	59,570-253-46
W9MAK.....	107,400-352-60	W1CMH.....	59,045-211-49
W4LK.....	107,055-351-61	W9LA.....	57,200-201-55
W4PNK.....	100,000-400-53	W8PBO.....	57,000-224-50
K2OMT.....	105,840-375-56	K4OQR/9.....	56,680-214-52
W3WJD.....	100,005-339-59	W9WYJ.....	55,350-198-54
W4THM.....	98,175-357-55	W8IM.....	55,200-226-48
W8PJL.....	95,875-325-59	W4GIM.....	54,520-227-47
W3GJY.....	95,100-311-60	KZ5IF.....	53,300-202-52
K6CNC.....	90,480-308-58	W9FGX.....	52,530-200-51
W8CSK.....	87,575-251-53	K5MBB.....	52,110-190-54
W2DRV.....	87,480-317-54	W8UPH.....	51,170-233-43
W8DJN.....	86,940-322-54	K2PIM.....	51,000-194-51
W8SVL.....	86,640-300-57	W9VAY.....	50,160-225-44

PHONE

W4DCQ.....	39,010-166-47	W4IYE.....	11,000-81-25
W2SZ1.....	30,400-154-38	W6ALW.....	10,800-69-30
W8NOH.....	20,140-101-38	W9YPT.....	8,380-50-31
K6BWD.....	19,965-65-33	W3ADE.....	8,100-63-24
K4DTL.....	19,055-100-37	W1UKO.....	7,980-74-21
K2CTD/2.....	18,000-120-30	W4BQG.....	7,830-54-29
W1JYH.....	15,950-103-29	W1BXT.....	7,350-70-21
W3BNR.....	15,000-100-30	K4HXG.....	7,250-53-25
W7RSP.....	14,787-53-31	W4AKC.....	6,750-43-27
W3KLA.....	14,700-84-35	K2OMT.....	6,500-62-20
W4ZM.....	14,040-103-26	W3QOR.....	6,195-55-21
W1CRW.....	13,200-80-33	W1GVC.....	6,000-60-20
W1YBH.....	11,235-104-21	W3PKC.....	5,040-48-21

¹ K2EIU, opr. ² W3YOZ, opr. ³ W9SRZ, opr.

W1AW OPERATING SCHEDULE

(All times given are Eastern Standard Time)

General operation covers all amateur bands on which W1AW has equipment. Notice periods include operation on 3.5, 7 and 21 Mc. (see Footnote 2 in box). Master schedules showing complete W1AW operation in EST, CST or PST will be sent to anyone on request.

Operating-Visiting Hours:

Monday through Friday: 1500-0300 (following day).

Saturday: 1900-0230 (Sunday).

Sunday: 1500-2230.

Exception: W1AW will be closed from 0300 Jan. 1 to 1500 Jan. 2 in observance of New Year's Day.

General Operation: Use the chart on page 101, last November QST, for determining times during which W1AW engages in general operation on various frequencies, phone and c.w. Note that since the schedule is organized in EST, certain morning operating periods may fall on the evening of the previous days in western time zones. W1AW will participate in all official ARRL operating activities, using scheduled general operating periods for this purpose if necessary.

Official ARRL Bulletin Schedule: Bulletins containing latest information on matters of general amateur interest are transmitted on regular schedules:

Frequencies (hc.):

C.w.: 1885, 3555, 7080, 14,100, 21,010, 28,060, 50,900, 145,600.

Phone: 1885, 3945, 7255, 14,230, 21,330, 29,000, 50,900, 145,600.

Frequencies may vary slightly from round figures given; they are to assist in finding the W1AW signal, not for exact calibration purposes.

Times:

Sunday through Friday: 2000 by c.w., 2100 by phone.

Monday through Saturday: 2330 by phone, 2400 by c.w.

Code Proficiency Program: Practice transmissions are made on the above listed c.w. frequencies, starting at 2130 daily. Speeds are 15, 20, 25, 30 and 35 w.p.m. on Monday, Wednesday and Friday, and 5, 7½, 10 and 13 w.p.m. on Sunday, Tuesday, Thursday and Saturday. Approximately ten minutes of practice is given at each speed. Exceptions: On Feb. 14 W1AW will transmit a special Frequency Measuring Test and on Jan. 20 and Feb. 18 W1AW will transmit ARRL Code Proficiency Qualifying Runs instead of the regular code practice.

RESULTS, SEPTEMBER FREQUENCY MEASURING TEST

ARRL's Frequency Measuring Test of September 18, 1957, brought a total of 792 readings from 221 participants, each of whom has already received a report comparing the accuracy of his measurements of the W1AW transmissions with those of a professional frequency-measuring laboratory. In the standings of the leaders below, decimal fractions are shown only to establish an order of listing, inasmuch as the readings of the "umpire" can only be accredited to 0.4 p.p.m. Equally sharing top honors, therefore, are Observers W4JUL, W1AUN, W4CVO, K4HTO, W8CUJ, W8GBF, W8YCP, W9VZF, and non-Observers W4YEC, W8GQ, W8HIB.

	Parts Million	Non- Observers	Parts Million
W4JUL.....	0.0	W4YEC.....	0.1
W1AUN.....	0.2	W8GQ.....	0.1
W4CVO.....	0.2	W8HIB.....	0.2
K4HTO.....	0.2	W1TJW.....	1.7
W8CUJ.....	0.2	W1GVK.....	2.5
W8GBF.....	0.2	W2WH.....	3.1
W8YCP.....	0.3	W2VSA.....	4.0
W9VZF.....	0.3	W3PT.....	5.3
W9OTR.....	1.0	W1JBL.....	6.5
W2AIQ.....	1.3	W8CG.....	6.6
W9HPG.....	1.4	K6HI.....	6.7
W2JCA.....	3.8	W4AWY.....	6.8
W4CMP.....	5.0	W0QGG.....	6.8
W6GQA.....	5.0	W2CRK.....	7.0
W9GFL.....	5.9	K6ALH.....	7.0

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 January 20 at 2130 Eastern Standard Time. Identical texts will be sent simultaneously by automatic transmitters on 1885, 3555, 7080, 14,100, 21,010, 28,060, 50,900 and 145,600 kc. The next qualifying run from W6OWP only will be transmitted on January 2 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 November QST

Jan. 3: Compact AB1 Kilowatt, p. 11

Jan. 7: Project Moonbeam, p. 15

Jan. 9: QRM or Cockpit Trouble, p. 21

Jan. 13: Artificial Earth Satellites, p. 22

Jan. 16: How to Adjust a Key. . . , p. 28

Jan. 21: How to Handle a Message, p. 48

Jan. 29: Final Results, DX Contest, p. 50



The Training and Education Office, Federal Civil Defense Administration, is working on the development of amateur radio operator courses (Nos. 4.1 and 4.2). These courses, whose descriptions are included in FCDA Manual 25-1, "Federal Contributions," are designed to culminate in amateur novice and general class licenses respectively, the former being a prerequisite to the latter. Amateurs who obtain their licenses in this manner are, of course, expected to work as civil defense communications volunteers at their local level. The courses are set up locally and expenses for maintaining them are eligible for federal 'matching funds' in the customary fashion. ARRL publications are used for references throughout.



In April, when tornadoes were dancing everywhere, there were other elements at work in Central Texas. Old Man River raised Cain. Creek beds, dry from years of drouth, became oceans of water. Such was the case in Killeen, Texas, on a Friday in April. With severe weather conditions existing, the rain came down in sheets. All communications to Killeen were out. Telephone lines and poles "went thataway" with the water. K5EOW was asked to set up communications facilities by amateur radio. The members of the Temple Amateur Radio Club were mobilized and set out for Killeen, about 35 miles distant. It took four hours to travel this distance, since the going was very rough. All available mobile units and the club truck with emergency power were dispatched. W5DWK and W5DWN were set up at the Red Cross in Killeen to handle disaster traffic, assisted by mobiles W5PNP, W5DWL and W5DWK, and club truck under the call of K5INH. Assisting as operators were W5s WDW CHF LM JIB and DWN. Handling traffic and keeping in touch with the field and mobile units from home stations were K5EOW, W5VLF and W5MXT. A good job was done by all concerned.—K5EOW, EC Temple, Texas.

FCDA has completed a manual entitled "Surplus Communication Equipment and Its Use in Civil Defense Organizations," designated MP-4-1. This manual was compiled by an amateur (K8BFI) and is a comprehensive summary of the type, frequency range, power requirements, civilian counterpart and possible civil defense use of each of the more commonly available equipments on the surplus market. A note from FCDA Headquarters tells us it is available to all RACES amateurs. Inquire of the FCDA Communications Office, Battle Creek, Mich.

SUPPLEMENT TO NET DIRECTORY

The following listing will supplement and correct the listing on page 98, November QST. Please inform us promptly of any errors or omissions so that they can be in the March QST installment. An asterisk (*) indicates correction from previous listing in November QST. This listing brings the record up to date as far as November 22, 1957. Registrations received after that date will appear in the March QST supplement.

Important Note: QST net listings are for information only. Insofar as possible, net information is listed exactly as received. Certain common abbreviations are used to conserve space. Listing in QST or the annual ARRL cross-indexed net directory does not signify necessarily that nets listed have any official status, does not entitle them to exclusive or prior right to the frequency or frequencies on which they are registered, and is in no sense a form of "copyright."

Name of Net	Freq.	Time	Days
Ala. Emerg. Net "B" (AENB)*	3575	1900 CST	Daily
Ala. Emerg. Net P (AENP)*	3955	1800 CST	Daily
		0800 CST	Sun.
		0630 CST	Mon.-Sat.
Ala. Emerg. Net J (AENJ)	3900	1330 CST	Sun.
Alberta Phone Net	3765	1930 MST	Mon., Wed. Fri.
Albuquerque VHF Net	146,802	1930 MST	Tue.
Amateur Radio Caravan Club of NM, Albuquerque Chapter	29,600	1930 MST	Wed.
American Legion Amateur Radio Net	3975	1900 PST	Daily
American National Red Cross — Marin County Chapter Net	3885	1000 PST	Sun.
AREC 10 Meter Net (Cal.)	29,500	1900 PST	Tue.
Ark. Emerg. Phone Net*	3885	0600 CST	Mon.-Sat.
Azalea Emerg. Net (AENG) (Ala.)	29,680	1945 CST	Sat.
Badger Emerg. Net (BEN) (Wis.)	3950	1800 CST	Daily
Bedford AREC & CD Net (Mass.)	29,210	1900 EST	Mon.
Belmont Co. Emerg. Net (BCEN)	29,600	2100 EST	Mon.
Bloomfield Communications Group (N. J.)	146,320	1900 EST	Tues., Fri.
Blue Ridge 160 Meter Net (Texas)	1880	0830 CST	Sun.
The Blue Ridge YL Net	3900	0830 EST	Tue.
Boise Valley Emerg. Net (BVARC) (Idaho)	147,410	2100 MST	Sun.
Braintree Amateur Radio Club Net (Mass.)	28,560	2100 EST	Mon.
	146,900	2030 EST	Mon.

On October 21, sixty tons of ammunition in a burning box car exploded in Piedmont, Ala., scattering live shells over a wide area. Over 200 homes were evacuated and power to the city was cut off. At 1031 W4GCV called Alabama Emergency Net P (3955 kc.) into action. K4s APF AOV and IJMJ got through to Gadsden (K4JMC) at 1135. The Gadsden c.d. director and three amateurs got all available generators and the communications bus on the way immediately. W4HKK got word to c.d. headquarters in Montgomery and the state dispatched four generators. Power was not restored until 1830. Active on AENP as NCSs were K4AOZ W5ZZV W4WJX K4HJM W4PVG and W4HKK. The following were also active on AENP: K4s KQN AAQ KJD OQY PKL HUS DQL GRA KJZ, W4s BQS GCV WAZ ALG SMD PBK ICW, W4YGE and W3BRC helped keep the net frequency clear. By 1800 the traffic was lean and the emergency was declared over when electricity was restored to Piedmont at 1830. — W4TKL, SEC Alabama.

Within an hour after the tornado struck Orange, Texas, on November 7, the Orange Amateur Radio Club was in action. They found the city in darkness and over half the telephones incapacitated by the strip of destruction torn through the city by the twister. K5BJB and W5SON, whose phones were still working, stayed at their fixed locations to maintain telephone contact. W5NMV, Orange County radio officer, went to the club station atop the Orange Memorial Hospital, to direct the units in the field and pass telephone traffic to the fixed stations. K5HMB/m and W5QLE went into the disaster area looking for fires, looters and broken gas mains. Within 20 or 30 minutes telephone service was restored at the hospital, so W5JMX and K5BJB threw a portable unit into the latter's pickup and proceeded to the disaster area, as did W5VEG and W5BPP in another car. The three mobile units patrolled the areas hit hardest until after 0400. During most of this time W5NMV was in contact with W5GQI in Port Neches near Groves, also hard hit by the twister. Personal damage was comparatively minor, but property damage considerable.—K5BJB, EC Orange Co., Texas.

Twenty-four SEC reports for September, representing 6859 AREC members. This is an increase of nine reports and over 2000 AREC members over last year. Things are really looking up. No new sections reported this month, however. Sections reporting: Conn., S. Texas, N. C., NYC-LI, Wis., E. Fla., W.N.Y., Santa Clara Valley, Ga., San Joaquin Valley, Nevada, N. M., N. Texas, Colo., Santa Barbara, Minn., Wash., Maritime, Mont., Ala., Mo., Md.-Del.-D. C., Ore., Nebr.

Brazoria Co. Emerg. (Amateur) Net (Texas)	3825	1330 CST	Sun.	East Coast Radioteletype Net (RT/NET)	3620	1900 EST	Wed.
Breeze Shooters Net* (Pa.)	29,000	2100 EST	Mon.	East Coast YL Net (ECLYN)	3610	2100 EST	Wed.
British Columbia Amateur Radio Emergency Corps Net (BCAREC)	3755	1800 PST	Mon.-Sat.	Eastern Canada Net (ECN)	3535	1945 EST	Mon.-Fri.
Broward Emerg. Net (HEN) (Fla.)	29,100	1115 EST	Sun.	Eastern Mass. Net (EMN)	3660	1900 EST	Mon.-Fri.
Brown Co. Emerg. Corp 10 Meter Phone Net (Wis.)	29,620	2200 CST	Mon.	Eastern N. Y. Medical Net (ENYMN)	146,500	1200 EST	Mon., Wed., Fri.
Brown Co. Emerg. Net (BCEN) (Wis.)	3950	1330 CST	Sun.	Eastern Shore Net	3925	1145 EST	Sun.
Bryan Co. AREC Net (Okla.)	7210	1400 CST	Sun.	Eastern Sierra Net (Cal.)	3925	1030 PST	Sun.
Burlington Co. Radio Club Net (N. J.)	29,580 146,320	1945 EST	Fri.	Elbow Benders Net (Mich.)	1806	2000 EST	Wed.
Calgary Radio Emerg. Net (C'REN) (Alta.)	3740 146,700	1930 MST	Tue.	Erie Co. Emerg. Net (N. Y.)	3915	1230 EST	Sun.
Calif. Civil Defense Net (CCDN)	3501 7090	1930 PST	Mon.	Essex Co. RACES Net (N. J.)	28,590 50,420 145,290	2000 EST	1st Tue.
Cambria Co. Civil Defense Net (Pa.)	29,470	2000 EST	Tue.	Evergreen Emerg. Net	51,000	1830 PST	Tue.
Cambridge AREC Net (Mass.)	29,470	1900 EST	Wed.	Fall River Emerg. Net (FREN) (Mass.)	29,000	1900 EST	Thu.
Canal Zone Emerg. Net	28,900	2100 EST	Mon.	Far West Novice Net (Cal.)	3720	1830 PST	Fri.
Catalina Radio Net (Ariz.)	29,625	2000 MST	Wed.	Fayette Co. C.D. Net (Pa.)	28,640	0700 EST	Sun.
Catalpa Amateur Radio Society Net (CARS) (Mich.)	3970	0930 EST	Sun.	Federal Civil Defense Region 6 RACES Net (FCDR6)	7120 3510	2030 MST	Tue.
Central Area Net (CAN)	3670	2030 CST	Daily			1930 MST	Tue.
Central Gulf Coast Hurricane Net	3935	1815 CST	Daily			2030 MST	Tue., Thu.
Central Illinois Net (CTN)*	1815	0830 CST	Sun.	Fifth Regional Net (RN5)	3645	1945 CST	Mon.-Sat.
Central Iowa 6 Meter Net	50,748	2000 CST	Tues., Fri.	Finger Lakes Net (N. Y.)	145,350	2000 EST	Fri.
Chattanooga Amateur Radio Emerg. Net (CARE)	50,400	2030 EST	Sun.	Fla. Mid-Day Traffic Net (FMTN)*	7230	1200 EST	Mon.-Sat.
Civil Defense & Emerg. Corps Net (Mass.)	29,560	1930 EST	2/4 Thu.	Floridora Net (Fla.)	7225	0900 EST	Mon.
Clam Digger Net (of South Shore of Long Island)	3950	1000 EST	Sun.	Floridora Y Ls Net	7104	1400 EST	Wed.
Clam Diggers Net (CDN) (R. I.)	29,000	2000 EST	Daily	Fort Hamilton Net (Hamilton, Ohio) (FHN)	1885	1030 EST	Sun.
Coast Guard Auxiliary (7CGD) Net (CGA7)	3815	1815 EST	Fri.	Forty New Jersey Net* Forty RTTY Net	7105 7140	1715 EST	Mon.-Sat.
Coastal Emerg. Net (CEN)	3790 3805 7190 7205	0830 EST	2nd Sun.	Fourth Regional Net (4RN)*	3547 2130	1400 CST	Sun.
Coastal Emerg. Radio Net (Texas)	146,800	2000 CST	Tue.	Franklin Co. Emerg. Net (Ohio)	145,290	1930 EST	Tue.
Coaster Net	14,275	0800 MST	Mon.-Fri.	Gadsden Emerg. CW Net (AENC) (Ala.)	3735	1900 CST	Wed.
Colo. Hi Noon Net (HNN)*	7240	1200 MST	Mon.-Sat.	Gadsden Emerg. Net (AENII) (Ala.)	29,560	1900 CST	Wed.
Colo. Weather Net (CWXXN)*	3945	0700 MST	Mon.-Sat.	Gator Net (Fla.) (GN)	7105	1000 EST	Mon.-Sat.
Comanche Co. Emerg. Net (CCEN)	3860	1230 CST	Sun.	Geauga Co. Net (Ohio)	51,000	2030 EST	Mon.
Commonwealth of Pa. C.D. Net	3997	0700 EST	Sun.	Ga. Cracker Emerg. Net (GCEN)	3995	0800 EST	Sun.
Confederate Signal Corps "2" Meter Net	145,350	2000 EST	Mon.	Georgia Mobile Net	3995	1800 EST	Tue.-Thu.
Conn VHF Net	145,674	2030 EST	Mon., Wed., Fri.	Golden Empire Amateur Radio Society Civil Emergency Net (Calif.)	1920	1330 EST	Sun.
Conn. Nutmeg Net (CN)*	3640	1845 EST	Mon.-Sat.	Golden Gate Net (GG) (Cal.)*	28,700	2030 PST	Tue.
Conn. Phone Net (CPN)*	3880	1800 EST	Mon.-Sat.	Graveyard Network	3885	0400 EST	Daily
Conn. 6 Meter Phone Net	50,600	2000 EST	Mon.	Greater Lynn (Mass.) C.D. Net	29,810	1845 EST	Tue.
Coosa Valley Net (Ga.)	3840 3850	1320 EST	Sun.	Greater Worcester Phone Net (Mass.)	29,200	2300 EST	Sat.
CQ Radio Club Net (Conn.)	145,670	1800 EST	Tue.	Green Mountain Net (GMN)	3855	1700 EST	Mon.-Sat.
Cross Country WRL Net	21,300	1345 EST	Fri.	Gulf Coast Sideband Net	3925	1730 CST	Daily
Cumberland Valley Amateur Radio Club Emerg. Net	29,400	2200 EST	Sun.	Hair Pin Net	29,000	1300 EST	Tue.
Danvers Emerg. Net (Mass.)	145,350 145,620	1930 EST	1st Mon.	Ham Butcher's Net	7280	1230 CST	Tue.-Thu.
Davidson Co. Emerg. Net (Tenn.)	29,600	1900 EST	Wed.	Hamilton Co. emerg. 160 Meter Net (Iowa)	1815	1830 CST	Daily
Delaware Emerg. Net	3905	1830 EST	Sat.	Hampton Emerg. Net	145,350	2000 EST	Mon.
Delta 75 Net	3905	0730 CST	Sun.	Hampton Roads Emerg. Net (Va.)	29,000	2000 EST	Mon.
Dimond Net	145,080	0700 EST	Fri.	Harrisburg Amateur Radio Emerg. Net (Pa.)	50,550	2000 EST	Tue.
Dog House Net (Ohio)*	3860	1800 EST	Mon.	Harford Co. Amateur Radio Club (RACES) Net (Md.)	29,590	1900 EST	Wed.
Du Page County R.A.C.E.S. Net (Ill.)	29,600	2000 CST	Mon.	Hiawatha Weather Net of Upper Michigan	3920	0730 EST	Mon.-Sat.
Dutchess Co. (N. Y.) CD/AREC Net	145,350	2100 EST	Mon.	Hit & Bounce Net	7140	0730 EST	Daily
Dutchess Co. Civil Defense Six Meter Net (N. Y.)	50,380	2030 EST	Mon.	The Humdinger Phone Net	7240	1600 EST	Mon.-Fri.
Dutchess Co. Civil Defense 10 Meter Net (N. Y.)	28,610	2000 EST	Mon.	Huntsville Emerg. Net (AENS) (Ala.)	3825	1330 CST	Sun.
				Illinois Emerg. Net (IEN)	3940	1730 CST	Tue., Thu.
				Indiana CW Net (QIN)*	3656	0800 CST	Sun.
				Interplanetary Space Patrol Net	3950	1900 CST	Daily
						2100 CST	Mon.

Interstate Phone Net	3970	1600 EST	Sat.	Minnesota Section Net (MSN)	3595	1830 CST	Daily
	3980	1600 EST	Mon.-Fri.	Minn. State Phone Net	3820	1205 CST	Mon.-Sat.
The Interstate Single-Sideband Net	3985	2000 EST	Daily	(MSPN)		1800 CST	
Iowa-Des Moines City Emerg. Net* (IDM)	7130	1730 CST	Mon.-Sat.	Mission Trail Net (MTN)*	3854	0900 CST	Sun., Hol.
Iowa 160 Meter Emerg. Net	1815	1900 CST	Daily	Missoula Area Emerg. Net (Mont.)	3890	1900 PST	Daily
Iowa 75 Meter Net*	3970	1230 CST	Mon.-Sat.	Missouri Net (MON)	3580	0700 CST	Mon.-Sat.
Iowa Tall Corn Net (TLCN)	3560	1830 CST	Mon.-Sat.			1900 CST	
Ironing Board Net	3915	0900 PST	Wed.	Mohawk Hudson Training Net (MHT) (N. Y.)	3716	1300 EST	Sat.
Jasper Co. Emerg. Net (Iowa)	1810	1930 ST	Thu.	Monroe Co. Emerg. Net (MCEN) (Fla.)	3910	1400 EST	Sun.
Jeff. Co. Emerg. Net (AENJ) (Ala.)	3900	1330 CST	Sun.	Monterey Bay Radio Club Emerg. Net (Calif.)	147,160	1900 EST	Wed.
Kalamazoo Amateur Radio Club 10 Meter Net	29,000	2100 EST	Wed.	Montgomery Co. CD Net (Ill.)	50,500	2000 CST	Tue.
Kans.-Nebr. Radio Club Net	3910	1230 CST	Mon.	Montgomery Co. Penna Ten Meter Civil Emerg. Net	29,520	2000 EST	Thu.
Kansas Novice Net (QKN)*	3730	1730 CST	Mon., Wed., Fri.	Montgomery Emerg. Net (AENK) (Ala.)	3940	1400 CST	Sun.
		1700 CST	Sun.	Montreal Area Net (MAN)	3673	1300 EST	Sat., Sun.
Kans. 75 Mtr. Fone Net	3920	1230 CST	Tue., Fri.	Montrose A.R.E.C. Net (Colo.)	7260	1930 MST	1st Mon.
		0800 CST	Sun.	Mosquito Net (MN)	29,000	2130 EST	Tue.
		0630 CST	Wed.	Muskegon Co. CD & Red Cross Amateur Radio Network (Mich.)	29,610	2100 EST	Tue., Fri.
		1830 CST	Thu.				
Kans. State College Novice Net	3735	1730 CST	Tue., Thu.	Muskegon County Civil Defense & Red Cross Amateur Radio Network	50,418	2100 EST	Mon., Thu.
Kay Co. Emerg. Net (K.C.E.N.) (Okla.)	3850	0800 CST	Sat.		145,260	2000 EST	Wed.
Kennebec Emerg. and Traffic Net (Ga.)	29,460	2130 EST	Sun.	Muskingum Amateur Radio Assn. (Ohio) Net	29,616	2200 EST	Fri.
Kent Co. 6 Meter Fone Net	50,550	2100 EST	Wed.	Nebraska CW Net	3525	1900 CST	Daily
		2000 EST	Mon.	Nebr. 75 M. 'Phone Net*	3983	1230 CST	Daily
Kent Co. 10 Meter Fone Net	29,610	2000 EST	Mon.	Nebr. Slow Speed Net (NSS)	3750	1700 CST	Daily
Kentucky CW Net (KYN)*	3600	1900 CST	Daily	Net of Central N. J. (NCNJ)	3748	1830 EST	Mon.-Fri.
		1700 CST	Mon.-Sat.	New England Emerg. Phone Net	3870	0900 EST	Sun.
Ky. Korn Krakers Net	3932	0600 CST	Daily	New England WX Net*	3900	0630 EST	Mon.-Sat.
Kentucky Novice Net (KNN)	3735	2000 CST	Mon.-Sat.	N. H. CW Traffic Net	3685	1900 EST	Mon.-Sat.
Ky. Sideband Net (KSN)	3945	1830 CST	Daily	N. J. Civil Defense Net (CW) (UDNJ)	3505.5	1000 EST	Sun.
Kings Co. AREC & CD 2 Meter Net (N. Y.)*	145,260	2030 EST	Mon.	N. J. Civil Defense Net (Phone)	3993	0930 EST	Sun.
Knox Co. Emerg. Net (KEN) (Tenn.)	50,600	2000 EST	Thu.	N. J. 6 Meter Phone Traffic Net	51,000	2300 EST	Wed., Sat.
Knox-Warren Emerg. Net (KW) (Ill.)	50,550	2100 CST	Mon.	New Mexico Net (CW)	3633	1900 MST	Mon., Wed., Fri.
Lark CW Net	3750	1300 CST	Mon.	New Orleans 3825 Net	3825	0930 CST	Sun.
Lark Nest	29,640	2200 CST	Fri.	N.Y.C. Support Area Command Net	147,060	2030 EST	Mon.
Long Island Six Meter Emerg. Net	50,250	1930 EST	Tue., Thu.	N. Y. State Civil Defense Command Net	3993	0900 EST	Sun.
Lorain Co. 160 Net *(Ohio)	1820	1300 EST	Sun.	N. Y. State CW Net (NYS)	3615	1900 EST	Mon.-Sat.
Louisville Area Amateur Radio Emerg. Corps Net	29,500	1930 CST	Mon.	Newton (Mass.) CD Net	53,745	2100 EST	Sun.
	53,600			Nite Owls Net (Ill.)	29,640	2130 CST	Thu.
	147,300			The Nootimers	3905	1230 EST	Daily
Malden Emerg. Net (Mass.)	29,540	1930 EST	Mon.	North Ala. 6 Meter Net (AENO)	50,550	1915 CST	Mon., Wed., Fri.
Manitoba CW Net	3700	1845 CST	Daily	N. C. Dist. 13 Net	3900	0900 EST	Sun.
Manitoba ARRL Phone Net	3760	1245 CST	Daily	North Dakota CW Net	3670	1830 CST	Mon., Wed., Fri.
		1900 CST		N. Dak. State 75 Meter Phone Net	3845	1800 CST	Mon.-Sat.
Maritime Phone Net	3750	1900 AST	Daily	N. Texas CW Traffic Net (NTX)	3770	1900 CST	Mon.-Sat.
Mason Co. Red Cross Disaster Net (Mich.)	29,060	2200 EST	Mon.	N. Texas Emerg. Net (NTEN)	3930	0800 CST	Sun.
McKean Co. Emerg. Net (Pa.)	3525	0900 EST	Sun.	N. E. Texas Emerg. Net	3970	0800 CST	Sun.
Megacyclone Net	3908	1530 EST	Mon.-Sat.	Northern Calif. Net (NCN)	3635	1900 PST	Mon.-Fri.
Mercer Co. Disaster Net (MCDN) (N. J.)	53,680	1900 EST	Tue.			2200 PST	
Mercer Co. General Discussion Net (Pa.)	147,000			Northfork Amateur Radio Club Net (NFN)	3815	1215 CST	Daily
Mercer Co. Emerg. Net (MEN) (N. J.)	29,520	0930 EST	Sun.	Northwest Traffic Net (NTN)	3920	0630 PST	Mon.-Sat.
	147,000			Nova Scotia Amateur Radio Assn. Net	3750	1600 AST	Sun.
Merrimac Valley Net (MV-6) Met Net	50,700	2130 EST	Sun.	Nutley Amateur Net (N. J.)	29,400	1330 EST	Sun.
	146,250	2030 CST	Daily	Ohio Emerg. Net (OHIO)*	3860	1800 EST	Thu.
Miami Valley Civil Defense Radio Net	147,150	2100 EST	Wed.	Ohio Novice Net (ONN)	3704	1300 EST	Sun.
Michigan Emergency/Buzzards Roost Net (Mich.)	3930	1730 EST	Mon.-Fri.	Okla. Slow Speed Traffic Net (SSZ)	3682.5	2130 CST	Mon.-Sat.
Michigan (QMN) TFC Nets	3663	1800 EST	Mon.-Sat.				
		1830 EST		160 Meter Scrawball Net	1992	1230 CST	Mon.-Sat.
Middle Tenn. 6 Meter Net	50,600	1930 CST	Mon.	Ontario Fone Net (OFN)*	3770	1900 EST	Mon.-Sat.
Midwest Novice Net (MNN)*	7152	0700 CST	Daily	Ont. Section/Province Que. Net	3535	1900 EST	Mon.-Sat.
Mike Farad Traffic Net (MFTN)	7238.8	1215 EST	Mon.-Fri.	Orange Co. CD Net (Fla.)	145,200	0900 EST	Daily
		0745 EST		Orange Co. Emerg. Net (Texas)	50,520	0815 CST	Daily
Military and Civilian Affiliated Net (NACAN-15)	21,400	1200 CST	Mon.-Fri.			1930 CST	
Military-Civilian Amateur Radio Net (MCAN-80)	3905	0700 PST	Mon.-Fri.	O.A.R.S. Net (Oregonian Amateur Radio Society Net)	29,200	1930 PST	Daily
Military-Civilian Amateur Radio Net (MCAN-20)	14,290	0800 PST	Mon.-Fri.				
Minneapolis Radio Club Emerg. Net	29,400	2000 CST	Tue.				

Oregon YL Net	3890	1500 PST	Mon.	Sixth Regional Net (RN6)	3615	1945 PST	Daily
Orlando Amateur Radio Club Inc. Net	29,520	2000 EST	1/3/4 Tue.	SKETO Net (Calif.)	3910	2000 PST	Wed.
Oswego Co. Civil Defense Net (N. Y.)	147,150	1900 EST	Sat.	Sooner-Nooner Traffic Net	7235	1230 CST	Mon.-Sat.
Pacific Teen Agers Net (PTAN)	3815	1700 PST	Mon.-Fri.	Sourdough Net (Alaska)	3832	1830 AST	Mon.-Fri.
Padre Net	7240	1600 CST	Mon.	Southeast Emerg. Net (Ohio)	29,500	2030 EST	Mon.
Panhandle Weather Net (PWXXN) (Texas)	3910	1730 CST	Daily	South Bay Emerg. Radio Net (Calif.)	3825	1900 PST	Mon.
Pea Nut Whistle Net	3850	0830 PST	Mon.-Fri.	South Carolina Phone Net	3930	1930 EST	Mon.-Fri.
Pensacola Emerg. Net (Fla.)	29,560	1900 CST	Mon.			0830 EST	Sun.
Pine Tree Net (Me.)	3596	1900 EST	Mon.-Fri.	South County Amateur Radio Service (SCARS) (Calif.)	50,710	1930 PST	Mon.
Pittsburgh Phone Net	1810	1330 EST	Sun.	S. Dak. CW Net (SDAK)	3645	1900 CST	Mon., Wed., Fri.
Pittsburgh 6 Meter Net	50,400	1930 EST	Mon.	S. Dak. 160 meter phone net	1915	2000 CST	Daily
Polecat Net (PCN)	3665	1130 EST	Sun.	S. Dak. 75 meter (emergency) phone net*	3870	1830 CST	Daily
Pony Express Net (Wyo.)	3920	0830 MST	Sun.	South Dakota Sideband Net	3870	2000 CST	Mon.-Sat.
Potomac-Happahannock Valley Weather Net (PRVN)	3935	0900 EST	1/3 Sun.	S. Dak. Slow Speed Net (SDSS)	3700	1730 CST	Mon.-Sat.
Potomac Valley Pipeline	147,600	2100 EST	Daily	S. Dak. Weather Net*	3870	0725 MST	Mon.-Sat.
Quad City Emerg. Net	29,500	2100 CST	Sun.	Southern Calif. RTTY Society Net (SCTRY)	147,850	2000 PST	Tue.
Quarter Century Wireless Assn. Inc. member net NE Chapter	3810	0930 EST	Sun.	St. Paul Metropolitan Area Net	29,520	1930 CST	Mon.-Fri.
Quarter Century Wireless Assn. Inc. member Net	3810	1100 EST	Sun.	State Line Radio Club Net	3695	2030 EST	Sun.
Queens 10 Meter CD-AREC Net (N. Y.)	29,500	2030 EST	Mon.	Steuben Co. Civil Defense Net (N. Y.)	50,700	0900 EST	Sun.
Quick Brown Fox Net (Cal.)	3620	1830 PST	Mon.-Fri.	Susquehanna Emerg. Net (SE-N)	3910	0800 EST	Sun.
Quincy Emerg. Net (Mass.)	28,820	1915 EST	Mon.	Tangle Net	14,210	1300 CST	Thu.
	146,800	1000 EST	Mon.	Tar Heel Emerg. Net (N. C.)	3835	1930 EST	Mon.-Fri.
		1915 EST	Mon.	Teenage Net	3910	1930 CST	Mon.-Fri.
(Races) Command, Observation & Info Net (N. C.)	3993	1830 EST	Fri.	Tenn. Age Net (AENT) (Ala.)*	3905	1630 CST	Daily
Radio Club of Brooklyn Net	3990	2230 EST	Mon.			0800 CST	Sat.
Randolph Civil Defense Emerg. Net (Mass.)	29,530	1930 EST	Mon.	Tenn. 75 Meter Phone Net (TRF)	3980	0645 CST	Mon.-Sat.
Region 2 RACES Net	145,700	3997	1930 EST	Tenn. Single Side Band Net	3980	1900 EST	Mon., Wed., Fri.
	3502.5			Tenn. Valley Emerg. Net (AENB) (Ala.)	50,550	1400 CST	Tue.-Thu.
R. I. Intercity Net	29,260	1930 EST	Mon.-Fri.	Tenth Regional Net (TEN)	3545	1700 CST	Daily
R. I. State Phone Net	3915	1830 EST	Tue., Thu., Sat., Sun.			1945 CST	
						2130 CST	
R. I. Traffic Net (RIN)	3540	1900 EST	Mon.-Fri.	Texas YL Round-up Net (TYLRUN)	3880	0800 CST	Thu.
The Ridge Runners Net	3880	2000 EST	Tue.	Thumb Amateur Radio Club's Net	7235	1000 CST	Thu.
Rockford 6 Meter Emerg. Net	50,400	2100 CST	Wed., Thu.	Topoka Kansas Ten Meter Phone Net	29,600	0930 CST	Sun.
	50,700			Tropical Phone Net (TPN)*	3945	1730 EST	Daily
Rockford Emerg. Am. Rad. Serv.	28,700	2030 CST	Mon.	Trumbull Co. Emerg. Net	29,604	1845 EST	Tue.
Rockland Co. AREC Net	29,600	1930 EST	Wed.	Tuboro Radio Club Net	29,520	1200 EST	Sun.
Rockland Co. RACES Net (N. Y.)	29,610	1930 EST	Mon.			1900 EST	Tue.
Rosetown Area Emerg. Net (RAEC) (Sask.)	3740	1300 MST	Sun.	Tulare Co. Net (Calif.)	3900	0900 PST	Sun.
Royal Order of Hoot Owls (ROH)	50,400	2400 PST	Sat.	2200 Club Net	29,056	2200 EST	Daily
Sacto Am. CD Emerg. Comm. System	3885	2000 PST	Tue.	Twin City Emerg. Net (Champaign-Urbana) Ill.	28,560	2100 CST	Tue., Thu.
	51,300	2000 PST	Tue.	Two Forty Six Net (Cal.)	50,100	1900 PST	Mon.-Fri.
	147,120	1930 PST	Tue.		50,400	1900 PST	Mon.-Fri.
Sailfish Net (Fla.)	29,640	2000 EST	2/4 Fri.	Ulster Co. Novice Net (UCNN) (N. Y.)	145,089	1900 PST	Daily
Saints of 75 Net	3935	0500 EST	Daily	Union County N. J. Amateur Radio Emerg. Corps Net	3735	0915 EST	Sun.
San Bernardino Area Net AREC (Calif.)	29,200	1900 PST	Mon.	U.S.C.G.A. 1st Dist. Net	3520	0845 EST	Sun.
San Diego Area Net #1	29,545	1930 PST	Mon.		3825	0800 EST	Sun.
San Diego Area Net #2	28,725	1930 PST	Mon.	United Trunk Lines (Central) (UTL)*	3565	2030 CST	Daily
San Diego Hospital Net	145,680	1930 PST	Mon.		3590	2130 CST	Daily
San Diego Two Meter Net	145,500	1900 PST	Tue.	United Trunk Lines (East) (UTL)	3565	2015 EST	Daily
San Joaquin Co. 2 Meter Emerg. Net (Calif.)	146,700	2000 PST	Tue.	United Trunk Lines (E-W 40) (UTL)*	7125	2300 EST	Daily
Santa Barbara (Calif.) AREC Net	29,550	1900 PST	Mon.	United Trunk Lines (West) (UTL)	3565	1930 PST	Daily
Sask ARRL Phone Net	3780	1830 MST	Daily	Univ. of Conn. Emerg. Net	3825	1500 EST	Mon.-Fri.
Satellite Net (Fla.)	29,500	0900 EST	Sun.			1000 EST	Sat., Sun.
Schenectady Emergency Communications Net (SEC) (N. Y.)	3950	1400 EST	Sun.	Upper Ohio River Valley Emerg. Net (URN)	3585	1930 EST	1st Sat.
Second Regional Net (2RN)	3690	1845 EST	Mon.-Sat.	Upper Peninsula Emerg. Net (UPEN) (Mich.)	3920	0900 EST	1st Sun.
		1945 EST		Valley Emerg. Net (AENI) (Ala.)	3885	1230 CST	Sun.
		2130 PST		Vermont CW Net (VTN)	3520	1830 EST	Mon.-Sat.
Seventh Regional Net (RN7)	3575	1945 PST	Mon.-Sat.				
		2130 PST					
7290 Traffic Net	7290	0900 CST	Mon.-Fri.				
		1300 CST					
7210 Delinquent Net	7210	0700 CST	Mon., Wed., Fri.				
			Fri.				
Seymour Amateur Radio Club Net (Ind.)*	3750	1900 CST	Sun.				
Sheridan Emerg. Net	3735	2000 MST	Mon.				
Short Skip Radio Club Net*	28,800	2330 EST	Sat.				
Show-Me Net (SMN)	3580	1600 CST	Sun.				

Vermont Phone Net (VTPN)	3860	0900 EST	Sun.
Virginia Phone Net (VFN)	3835	1900 EST	Daily
Walker Co. Emerg. Net (AENW) (Ala.)	3920	0930 CST	1/3 Sun.
Walpole Emerg. Net (Mass.)	145,275	1900 EST	Mon.
Waltham CD Net (Mass.)	146,800	1930 EST	Mon.
Washington Amateur Radio Tfr System (WARTS)	3970	1800 PST	Mon.-Sat.
Wash. Co. Emerg. Net (OKLA)	3815	1330 CST	Sun.
Weber Co. CD Net (Utah)	29,510	2000 MST	Thu.
Western Penna. Mobilers Net	29,360	2000 EST	Wed.
West. Penna. ORS Traffic Net*	3585	1900 EST	Mon.-Fri.
Westlake Net (Ohio)	3950	1000 EST	Sun.
Westmoreland Co. CD Net (Pa.)	29,500	2100 EST	Tue.
Westside Amateur Radio Club Emerg. Net (La.)	28,900	2000 CST	Mon.

Weymouth C.D. Net (Mass.)	28,800	1900 EST	Mon.
	51,000	1900 EST	Mon.
	147,186	1100 EST	Sun.
		1900 EST	Mon.
Whittier, Calif., Emerg. Net	3885	1900 PST	Thu.
	29,520	1930 PST	Thu.
	145,280	2015 PST	Thu.
Windjammers Net (Calif.)	3948	1700 PST	Daily
Winthrop Emerg. Net (Mass.)	146,750	1830 EST	2nd Mon.
Wis. State RACES Net	3505.5	1500 CST	Sun.
	3993	1400 CST	Sun.
Wood Co. Amateur Radio Net (Ohio)	3825	0800 EST	Sun.
Wood-Ridge, N. J. C-D Net	145,680	2000 EST	Wed.
Yankee Lassies Net	3900	0830 EST	Wed.
YL Welcome Net	3900	0900 EST	Wed.
YO CW Net (Wyo.)	3610	1800 MST	Mon., Wed., Fri.

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for October traffic:

Call	Orig.	Recd.	Rel.	Del.	Total
W0BDR	289	1463	1399	0	2951
W2KEB	583	1192	968	208	2451
W0SCA	7	1024	1017	4	2052
W7BA	20	982	950	21	1953
W3CUL	170	801	573	184	1728
W9CXY	10	774	767	7	1558
W3WIQ	33	728	710	51	1522
W5RCF	18	731	680	45	1474
W4PL	16	688	660	12	1376
W0LCN	37	576	566	10	1189
W7PGV	41	548	455	93	1137
W9NZY	276	422	2	416	1116
W7TLC	62	489	300	189	1040
W9DO	24	482	433	73	1012
W1YBH	24	489	36	385	954
K2PIF	90	464	390	7	951
W0LGG	40	451	423	22	936
K6GZ	614	144	115	15	888
W0KQD	53	437	387	9	886
W7VAZ	36	413	351	62	862
W1EMG	4	415	369	37	825
W0IA	40	365	359	4	768
W1TYQ	35	373	319	5	732
W1LDE	4	356	330	20	710
W0CPL	7	328	294	34	663
K0BCQ	0	309	4	303	616
W0GYH	208	175	160	17	560
W0E0F	7	276	262	13	558
W0BLI	3	276	268	6	553
KH6AJF	70	123	314	45	552
K60ZJ	9	267	251	16	543
W4QDY	110	216	175	37	538
K8AEC	1	274	255	2	532
K6DYX	5	260	262	4	531
W0CFA	27	232	244	35	528
W0MAK	31	258	205	34	528
W0GAR	4	260	261	3	528
W4IA	25	263	224	10	522
K4DNW	41	244	227	8	520
K6UOD	10	249	174	75	508
Late Reports:					
W7TLC (Sept.)	242	341	280	49	912
W0IA (Sept.)	45	359	341	2	747
K0BCQ (Sept.)	0	279	279	4	562

More-Than-One-Operator Stations

Call	Orig.	Recd.	Rel.	Del.	Total
K5WAB	52	825	783	42	1702
W1AW	31	755	94	649	1529
W3PCF	32	654	678	7	1371
K6MCA	13	392	359	0	879
KG1DT	236	138	8	130	512

BPL for 100 or more originations-plus-deliveries:

W9GDF	248	K4AIB	138	K80QD	109
K4QHW	187	W2VDT	132	W2EAW	108
W1MQT	184	W0KJZ	128	W9PCQ	108
K6XA	168	W9ETM	123	K5FHU	104
K1BCS	167	K2UNR	121	W6KVB	103
W0ZWL	164	K2SEK	117	W8GFE	100
W1NJM	147	K9CLS	116		
W6ZJB	144	K4JSC	112	Late Reports:	
VF2ATL	140	W0RTH	112	KH6AJF (Sept.)	154
W1WZJ/1	139	W0N1Y	111	K8BIZ (Sept.)	119

More-Than-One-Operator Stations

W2CXM	173	K3WBJ	142	K7FAE	135
		W3YDX	137		

BPL medallions (see Aug. 1954 QST, p. 64) have been awarded to the following amateurs since last month's listing: W1UEQ, K2EQP, W3AFA, W3WIK, W9ETM, W9PCQ, K9GDF, W0VPQ, K9CLS.

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

TRAFFIC TOPICS

Miscellaneous net reports: Interstate Sideband Net reports 31 sessions, traffic 553, average net of 48 stations. Early Bird Transcon Net reports 416 messages handled. The 7290 Traffic Net reports 775 messages with 1218 check-ins. North Texas-Oklahoma Net reports 30 sessions, 150 traffic, 1080 check-ins. Transcontinental Phone Net reports: 1st call area, 1723; 2nd call area, 1558; 4th, 9th and 9th call areas, 629; total, 3919.

National Traffic System. Since midsummer we have been working sporadically on another "Emergency and Traffic Bulletin," to cover both emergency and traffic topics of general interest to participants. It now looks as though, what with the biggest net directory yet just beginning to get rolling (at this writing) and several other continuing projects still on the fire, it will be some time after the first of the year before we can get this bulletin through the works and in circulation.

One of the things we were working on for that bulletin includes some statistics on NTS nets. Frankly, we like statistics — mostly, we suppose, because they are something tangible we can get our teeth into. It is often said that you can prove anything with statistics, but this is true only if you go about it backward; that is, decide first what you want to prove, then figure out how you can prove it statistically. This is statistical dishonesty. To be completely honest, one must first decide what statistics are significant, then follow them through to their inexorable conclusions, letting the chips fall where they may.

October reports:

Net	Ses- sions	Traf- fir	Aver- age Rate	Repre- sentation (%)
1RN	27	641	.481	23.7
2RN	53	534	.360	10.1
3RN	46	264	.303	5.7
4RN	45	336	.245	7.5
RN5	54	529	....	9.8
RN6	37	518	.263	14.0
RN7	53	327	....	6.2
SRN	37	145	....	3.9
9RN	48	999	.430	20.8
TEN	93	1841	.588	19.8
ECN	17	35	....	2.1
EAN	23	1177	.928	51.1
CAN	31	1340	.797	43.2
PAN	31	1378	.523	44.5
Sections ²	791	5874	....	7.4
TCC Eastern	45 ³	222	....	....
TCC Central	112 ³	796	....	....
TCC Pacific	91 ³	1432	....	....

Summary Record	1386	18387	EAN	11.5	CAN/PAN	100
			.928	12.3		

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

² Section nets reporting: GSN (Ga.); Iowa 75 Phone; CN & CPN (Conn.); S. Dak. 75 Phone & S. Dak. 40 Phone; SCN (Calif.); TLCN (Iowa); LLN (Ill.); NJN (N. J.); ONS/PQN (Ont.-Que.); QKS, QKS SS & QKN (Kans.); AENB, AENP & AENT (Ala.); WVN (W. Va.); MDD (Md.-Del.-D. C.); Tenn. CW; MSN (Minn.); Minn. Noon Phone; WSN (Wash.); STN (S. Tex.); KPN & KYN (Ky.); FN (Fla.); QMN (Mich.).

² Transcontinental Corps functions reported, not counted as net sessions.

Transcontinental Corps. Lots of vacancies in the Eastern Area — ten, to be exact; but most of the schedules that are working are working well. W0BDR submitted a very comprehensive first report for Central Area, with auxiliary schedules taking care of most overloads. The Pacific Area roster is full except for two schedules on Sunday, but several schedules have no Eastern Area counterparts and help in the alternate department is needed on Wednesday, Friday and Saturday.

October reports:

Area	Functions	% Successful	Traffic	Out-of-Net Traffic
Eastern	45	91.1	729	222
Central	112	99.1	3846	796
Pacific	91	92.3	2598	1432
Total	248	95.2	7173	2450

TCC roster: Eastern Area — W7s EMG TYQ AW NJM, W7s HDW ZRC, W7s COK WG, W7s CXY DO. Central Area — W9s CXY DO, W7s BDR LCX LGG

SCA. Pacific Area — W5DWB, W7s ADB GIW PLG EOT VZT BPT HC YHM, K6s DYX GZ ORT, W7s VIU GMC, W7s KQD WMK.

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

The following are the National Calling and Emergency Frequencies for Canada: c.m. — 3535, 7050, 14,060; phone — 3765, 14,160, 28,250 kc.

DXCC NOTES

Due to space-storage limitations, as of July 1, 1958, ARRL DX Competition logs from 1947-1951 inclusive will no longer be available for DXCC confirmation purposes.

DX CENTURY CLUB AWARDS

HONOR ROLL

W1FH.....273	W8BRA.....268	W3JNN.....265
W6AM.....272	W6DZZ.....268	W3BES.....265
W4HGW.....272	W8NBBK.....268	G2PI.....265
W6ENV.....270	W2AGW.....267	W7AMX.....265
W9NDA.....269	W6RW.....267	W6TT.....265
W3GHD.....269	W6SYG.....266	ZL2ZG.....265
W6M.....269	W6CUQ.....265	W2HUQ.....265
KV4AA.....269	W3KT.....265	W8KIA.....264
PY2CK.....268		W6SAI.....263

Radiotelephone

PY2CK.....266	ZS6BW.....254	W3JNN.....245
VQ4ERR.....261	W8GZ.....254	W8RF.....244
W1FH.....257	C8NBM.....251	W9NDA.....243
W4HGW.....256	W9RBA.....248	C8ZDA.....243

From October 15, 1957 to November 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

I1BDV.....150	W5BGA.....107	W1QQV.....102
W4VYP.....145	V5YH.....107	W9PQA.....102
OD5LX.....133	ZE5JJ.....107	W9LLI.....102
W4RCP.....130	W1BDI.....106	W7WZV.....102
W8LQA.....123	W3HTF.....106	H89QO.....102
R6CWS.....119	JASAI.....106	UA9DN.....102
W3JNQ.....117	W6BLA.....104	K2LGN.....101
W0MVO.....114	W9ZKH.....104	W2QZL.....101
SP5KAB.....114	W7BA.....104	W3EDY.....101
W2ANR.....113	W8ELB.....104	W4WSJ.....101
W1YNP.....112	G3KHE.....104	W8VPC.....101
W3AOH.....112	W1GET.....103	VE2ATD.....101
DL1MF.....112	K2BJA.....103	K2MIO.....100
4R2AK.....112	W5PM.....103	W2RDD.....100
W3CXL.....111	W6DAC.....103	K5DBK.....100
DJ1XV.....111	W6NWI.....103	W7ZOH.....100
W8SCU.....110	W9DPY.....103	F3ZU.....100
G3GNE.....110	I1CUC.....103	G3GZJ.....100
QO5FH.....110	VE2BR.....103	G3HCY.....100
YN1PM.....108		VF2LU.....100

Radiotelephone

I1BDV.....142	W2AOH.....105	0A5G.....101
W4VYP.....132	W4GRP.....105	W3ELH.....100
EA3IX.....122	I1CCO.....105	W4VKA.....100
ZL1PA.....113	OZ7FG.....105	W46NH.....100
QO5FH.....112	W8UUI.....102	W5WJQ.....100
4X4FF.....109	F1BAF.....102	W8GJC.....100
W0MVO.....108	W3MDE.....101	W9JQJ.....100
I1ZFT.....107	W4W8J.....101	W9UMJ.....100
W1LLF.....105	W5HAD.....101	C08JK.....100

ENDORSEMENTS

W6ADP.....260	W8MPW.....231	W2BRV.....211
W8JIN.....260	W3KDP.....230	W6YK.....210
W2JT.....250	W7KTN.....230	W8GLK.....210
VK2DI.....250	W0QVZ.....230	W2LV.....206
FA8IH.....245	W1BLF.....229	W3ALB.....202
W6YV.....243	W6TZD.....228	K6GJC.....202
W8LKH.....243	W6TXL.....221	W6ONA.....202
W2HMJ.....242	W6CEN.....220	W2BYP.....201
W8KML.....241	W4GXB.....219	W6YMD.....201
W9FBJ.....241	W2CYS.....218	W1VG.....200
W3JTK.....233	H89EU.....215	W7FA.....200
W2PRN.....231	W8NGO.....213	W9EU.....200

W2CR.....194	W2EBS.....160	W8QKB.....131
W3WU.....194	W2FJH.....160	VE2YA.....131
W2LAX.....193	W2ICO.....160	W1TS.....130
W5HDS.....193	W2SUC.....160	W2NLY.....130
W3PGB.....191	W2YTH.....160	W3HXA.....130
W8CQ.....191	W3EBG.....160	W4CT.....130
W2EVL.....190	W7GEB.....160	K5DGL.....130
W5OCS.....190	W9ALI.....160	W9PVE.....130
CR8AT.....190	W9BBU.....156	H89QA.....130
I1NK.....190	W7HET.....153	KZ5VA.....130
W2AYJ.....189	W6MYH.....153	W9WJH.....129
EA3CY.....188	W2GSN.....152	E7SS.....126
ITPAI.....187	W2BXY.....151	W1MPTG.....125
W2DEC.....185	W2EJY.....150	J433T.....124
W3RNL.....184	W7VH.....150	OH1ST.....124
W6ULS.....184	W2TQR.....150	W3RRS.....122
OK1CN.....184	W5LGG.....150	MP4BBE.....122
W1PFO.....183	W2PZL.....147	W2FLD.....120
W1OJR.....182	K2BSM.....143	W2PDB.....120
W6SWG.....181	EA3GF.....143	W2YJ.....120
W0PRM.....181	W3RFG.....142	W3CDG.....120
SM5ARL.....181	W1ICW.....141	W4IEH.....120
W2MUM.....180	W6TKX.....141	W4YQZ.....120
W4TEZ.....180	W9WTO.....141	W6WTH.....120
Z1JAH.....180	G3BNY.....141	W2NRB.....120
W2NUT.....174	W1KQF.....140	W9MPX.....120
W9DYG.....172	W2OTC.....140	G3FKH.....120
PY7LJ.....172	W3DBX.....140	G3BEOJ.....120
PY7VG.....172	W4TAY.....140	SM5BRO.....118
W81RN.....171	W5VNL.....140	W2GND.....117
K0BYR.....171	G3BNY.....140	W9PYA.....117
W2FBS.....170	SM5KV.....140	W9CMC.....115
W4NOY.....164	W4YK.....136	W1BEN.....113
W6NJI.....164	W1EVT.....134	K2QQQ.....112
W0PGL.....163	082LA.....134	W9YFD.....112
W0BRA.....163	C3EHL.....133	W6KQ.....111
W1EFT.....162	W2JVV.....132	W4CTU.....111
W2ESO.....162	LA7Z.....132	K2QXG.....110
KR6AC.....162	W4DXL.....131	W6RZS.....110
W5HJA.....161	K41PW.....131	Z86SG.....110
IS1FC.....161		

Radiotelephone

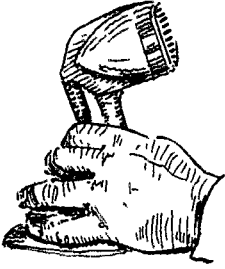
W8KML.....230	PY7VG.....164	W4SKO.....131
W6YV.....225	W8NGO.....163	W9JUV.....131
W8QJR.....221	W1PFO.....161	C3EHL.....130
G3HLS.....220	W5TIZ.....160	W2HTU.....126
ZS6DW.....214	W8ZOK.....160	W8EFW.....125
PY1NC.....200	CN2WX.....160	OZ7PO.....125
W4ANE.....192	CN3AA.....151	W3DRD.....122
W6SAL.....190	VE2DQJ.....150	W8MXS.....120
W1EFT.....184	SM5AA.....145	W6TAM.....119
W2WZ.....184	DL6VM.....142	W4PYX.....115
PA0NU.....184	W2UTH.....141	W8GLK.....113
W2JT.....182	W5CEW.....141	W8WT.....111
PY4APE.....180	W2PHI.....140	K2QQQ.....110
W1EQU.....170	W6TZD.....134	W4ZKM.....110
W4ADY.....170	W2BRV.....132	W9WHY.....110

W/VE/VO Call Area and Continental Leaders

W4TM.....255	VE3QD.....210	VE8AW.....191
W5ASG.....252	VE3EO.....118	W0BEP.....180
W0AIV.....252	VE5QZ.....140	ZS6BW.....257
VE1PQ.....183	VE6VK.....173	4X4RE.....227
VE2WW.....192	VE7ZM.....233	

Radiotelephone

W2BXA.....210	W0AIW.....232	VE6NX.....106
W4HA.....212	VE1CR.....120	VE7ZM.....185
W5BGP.....224	VE2GQ.....130	ZL2GX.....235
W6AM.....242	VE3AIU.....170	EA2CQ.....230
W7HIA.....190	VE5RU.....116	OD5AB.....180



A priceless gift . . . and a golden opportunity

In a world where man's technological advances are outstripping his ability to reason, it seems worth pausing to reflect on this simple and fundamental principle:

Most of the world's problems would resolve themselves if its peoples were able to communicate effectively with one another.

No one recognizes more fully than the radio amateur the feeling of accomplishment . . . the understanding of mutual human objectives . . . the deep sense of companionship that result from communicating successfully with others.

It is no coincidence that, even though amateurs get together infrequently, no other field of human endeavor produces more intense friendships and less rancor.

If the earth were peopled entirely with radio amateurs, the road to peace would be as wide as the world.

In the coming year of increased tension, the amateur fraternity has a golden opportunity to contribute to man's progress by exercising, even more broadly, its most priceless gift—the gift of human understanding.

Beul Bailey Jr. W. J. Halligan W9AC

*and the 114 radio amateurs who are members
of the **hallicrafters** family*

Award winning amateur



2000 WATTS P.E.P.*— 1000 WATTS CW AND AM!

Boldly styled, effectively TVI suppressed—contains every conceivable feature for safety, operating convenience, and peak performance. Continuous tuning 3.5 to 30 mc.—no coil change necessary. Compact pedestal contains the 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 Amateur Net \$1595.00

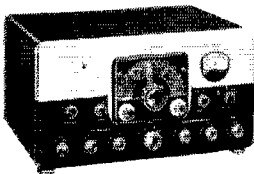
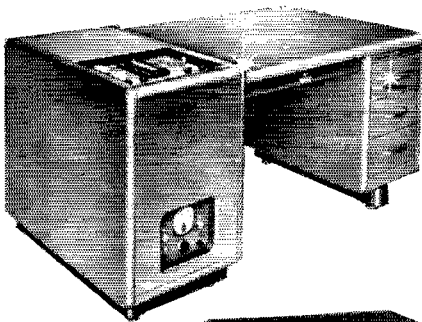
Cat. No. 251-101-1—Matching accessory desk top, back, and three drawer pedestal . F.O.B. Corry, Pa. \$132.00

DRIVE IT WITH THE "PACEMAKER"...

Here's the perfect companion unit to the Viking "Kilowatt." This exciting transmitter offers you the ultimate in single sideband . . . 90 watts SSB P.E.P. and CW input . . . 35 watts AM. Bandswitching 80, 40, 20, 15, and 10 meters. Temperature compensated VFO—VOX and anti-trip for excellent voice controlled operation. Wired and tested, with tubes and crystals.

Cat. No. 240-301-2 Amateur Net \$495.00

*With auxiliary SSB exciter—The FCC permits a maximum one-kilowatt average power input for the amateur service. In SSB operation under normal conditions this results in P.E.P. inputs of 2000 watts or more, depending on individual voice characteristics.



HERE'S AN INTERESTING NOTE—

Lt. Col. Colvin purchased his Viking "Kilowatt" from Dave Marks, W2APF, head of Ft. Orange Radio, while Dave was on a trip around the world. They got together in Germany and Dave had the equipment shipped from Ft. Orange stock.

... does it again with the Viking "Kilowatt!"

Lt. Col. Lloyd D. Colvin, W6KG, one of the world's most active radio amateurs has done it again! Holder of more than 75 certificates, Lloyd was just awarded the first WPX—Worked All Prefixes. When asked about the performance of his Viking "Kilowatt," here's what Lt. Col. Colvin said:

"During the past two years, I've transported my Viking "Kilowatt" over 10,000 miles, using it extensively first under the call DL4ZC in Germany and most recently as W6KG in California. During this period QSO's were had with more than 10,000 amateurs, and my equipment has helped me win more than 20 operating awards including the CQ World-Wide DX Contest and the ARRL International DX Contest for Germany; DXCC and WAS Certificates from 2 continents; and most recently the first WPX. With all of this traveling and operating I have never had a mechanical or electrical equipment failure of any kind—and my only replacement—one tube at a cost of \$2.30."

MORE THAN 30,000 QSL CARDS . . .

Shown at right—Lt. Col. Lloyd Colvin with just a few of his more than 30,000 QSL cards. In addition to the Viking "Kilowatt," Lloyd also uses a Viking "Ranger"—Kilowatt "Matchbox" and "Signal Sentry."



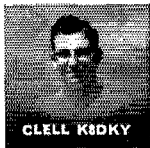
See your distributor

*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.

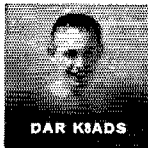


E. F. Johnson Company

2801 SECOND AVENUE S.W. • WASECA, MINNESOTA



CLELL K8DKY



DAR K8ADS



DICK K9BMJ/R



DOUG K8GNA



AL W8HTX



REX K8GND



FRED K8GMY



GIL W8QAH



WAYNE W8YRW



FRANK W8WUN



AL K8BLL

All of these licensed radio amateurs make important contributions to the Heath line of fine ham kits. In a sense, they are your personal representatives within the company, because their design ideas and performance preferences reflect not only their own "on-the-air" experiences, but those of the amateur fraternity with which they are in constant contact. With this kind of representation in Benton Harbor, you can continue to rely on high-performance Heathkit amateur radio equipment designed by hams, for hams!

HEATH *hams work to bring you*



CHUCK K4C-J

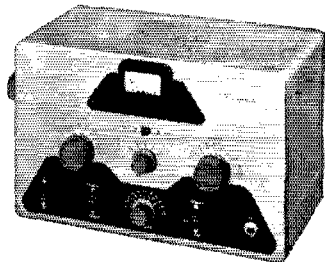


ROGER MACE (W8MWZ)
SENIOR HAM ENGINEER
HEATH COMPANY

HEATHKIT 50-WATT CW TRANSMITTER KIT

MODEL DX-20

\$35⁹⁵



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.

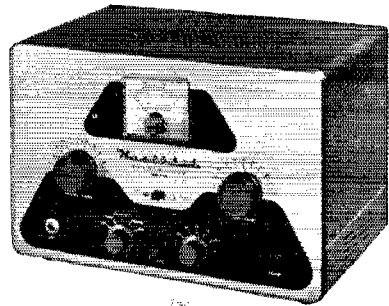
...top quality at lowest prices!

NEW HEATHKIT PHONE & CW TRANSMITTER KIT



MODEL
DX-40

\$64.95



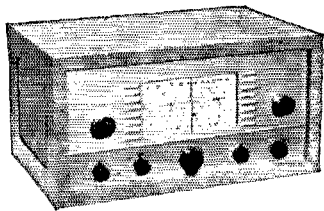
The new DX-40 incorporates the same high quality and stability as the DX-100, but is a lower powered rig, for crystal operation, or for use with an external VFO. Plate power input is 75 watts on CW, permitting the novice to utilize maximum power. An efficient, controlled-carrier modulator for phone operation 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.

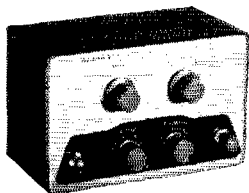
HEATH COMPANY

A Subsidiary of Daystrom, Inc.

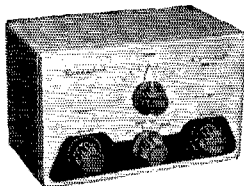
BENTON HARBOR 9,
MICH.



ALL-BAND RECEIVER



ELECTRONIC VOICE CONTROL



"Q" MULTIPLIER

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 **\$29⁹⁵.**

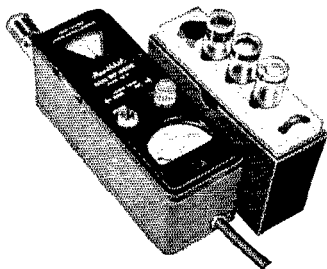
HEATHKIT ELECTRONIC VOICE CONTROL KIT

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 **\$23⁹⁵.**

HEATHKIT "Q" MULTIPLIER KIT

This fine Q Multiplier is a worthwhile addition to any communications, or Broadcast Receiver. It provides additional selectivity for separating signals, or will reject one signal and eliminate a hetrodyne. Functions with any AM Receiver having an IF frequency between 450 and 460 KC that is not AC-DC type. Operates from your Receiver power supply, and requires only 6.3 VAC at 300 ma (or 12.6 VAC at 150 ma), and 150 to 250 VDC at 2 ma. Simple to connect with cable and plugs supplied. Effective Q of approximately 4000 for sharp "peak" or "null". A tremendous help on crowded phone or CW bands. Shpg. Wt. 3 lbs. MODEL QF-1 **\$9⁹⁵.**

more fine ham gear from the pioneer



GRID DIP METER

HEATHKIT GRID DIP METER KIT

A Grid Dip Meter is basically an RF Oscillator used to determine the frequency of other Oscillators, or tuned circuits. Numerous other applications such as pretuning, neutralization, locating parasitics, correcting TVI, adjusting antennas, designed procedures, etc. Features continuous frequency coverage from 2 MC to 250 MC, with a complete set of prewound coils, and a 500 ua panel meter. Has sensitivity control and a phone jack for listening to the "Zero-Beat". It will also double as an absorption-type wave meter. Shpg. Wt. 4 lbs. MODEL GD-18 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 **\$21⁹⁵.**

HEATHKIT VARIABLE FREQUENCY OSCILLATOR KIT

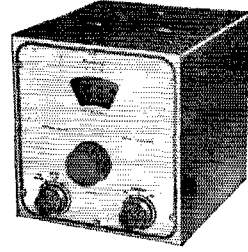
Enjoy the convenience and flexibility of VFO operation by obtaining this fine variable frequency oscillator. It covers 160-80-40-20-15-11 and 10 meters with three basic oscillator frequencies. Better than 10 volt average RF output on fundamentals. Requires 250 volts DC at 15 to 20 ma, and 6.3 VAC at 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. **\$19⁵⁰**

HEATHKIT REFLECTED POWER METER KIT

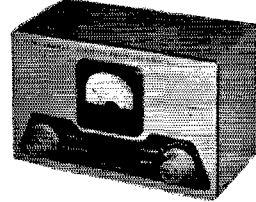
A necessity in every well equipped ham shack, the model AM-2 lets you check the match of the antenna transmission system, by measuring the forward and reflected power or standing wave ratio. Handles up to one kilowatt of energy on all bands from 160 to 2 meters, and may be left in the antenna system 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. **\$15⁹⁵**

HEATHKIT BALUN COIL KIT

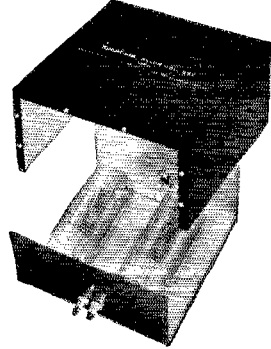
This convenient transmitter accessory has the capability of matching unbalanced coax lines, used on most modern transmitters, to balanced lines of either 75 or 300 ohms impedance. Design of the bifilar wound Balun Coils will enable transmitters with unbalanced output to operate into balanced transmission line, such as used with dipoles, folded dipoles or any balanced antenna system. Can be used with transmitters and **MODEL B-1** Receivers without adjustment over the frequency range of 80 through 10 meters. Will handle power inputs up to 200 watts. Shpg. Wt. 4 lbs. **\$8⁹⁵**



VARIABLE FREQUENCY OSCILLATOR



REFLECTED POWER METER



BALUN COIL

...in do-it-yourself electronics!



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1958
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Send for this Free informative catalog listing our entire line of kits, with complete schematics and specifications.

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address _____

city & state _____

QUAN.	ITEM	MODEL NO.	PRICE

\$ _____ enclosed. Parcel post, include postage—express is shipped collect.

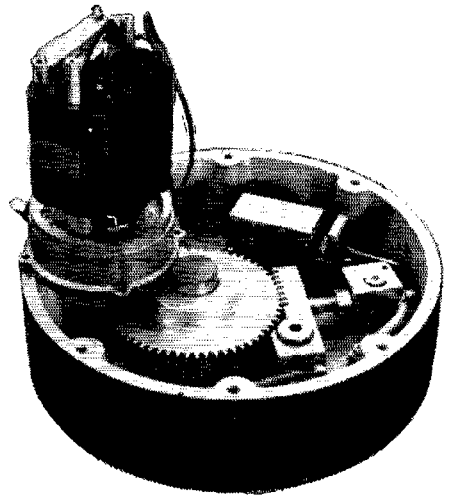
Rotate! Hold!

with the NEW **hy-gain** Complete

500 IN. LBS. ROTATING POWER
10,000 IN. LBS. BRAKING POWER

COMPLETE ROTATING ASSEMBLY

Now, for the first time, a complete rotating, braking and indicating assembly for the amateur. The Rotobrake is a spring actuated, solenoid-released, braking unit with built-in rotator, holding any conceivable Ham antenna system. Develops 500 inch pounds of rotating power, 10,000 inch pounds of braking power. Protects in winds up to 100 mph. Tests without failure up to 12,000 inch pounds of torque. High carbon machined steel gear and rack, heavy shoulder bolts and lock nuts together with reinforced aluminum casting and oil sealed bronze bearings provide dependable positive braking action. Powerful twin 3600 rpm motors are built-in to braking unit, develop 500 inch pounds of rotation torque, with gear reduction unit factory sealed.



GREAT CIRCLE MAP INDICATOR

New, multi-colored Great Circle wall indicator, 16" in diameter, is also included. A moving wedge of light, 10 degrees wide at perimeter, represents beam width and indicates beam direction. All countries on the planet are outlined with respective call areas labeled. Makes a beautiful decorative as well as practical unit for the Ham Shack. Control box for clockwise or counter-clockwise movement mounts under operating table. Great Circle Map available centered on West coast, Midwest or East coast. Compass rose available for other countries. Specify indicator desired when ordering.

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Indicate!

Antenna Rotating Assembly

the iron fist . . .

hy-gain

roto-brake

(BRAKE + ROTATOR + INDICATOR)

Patent Pending

The Rotobrake was primarily designed for mounting internally in a steel tower with 10-18 inches inside clearance, shipped complete with mounting brackets for towers of this size. The brake unit is encased in a heavily ribbed, heavy wall, cast aluminum housing. Thrust and bearing surfaces are provided by two bronze bearings, press fit into the top and bottom of the housing, designed to support more than 1000 lbs. of dead weight. In addition to the standard internal mount, mounting kits are available for side mounting on small towers less than 10" in diameter (\$21.40), steel pole or pipe masts (\$29.95) and telephone pole masts (\$24.40). Also available is a specially built RotoBrake with dual rotator, for rotation of extra large Ham antenna assemblies in extremely high winds. Twin rotators with four 3600 rpm motors and two gear reduction units, develop 1000 inch pounds of rotating torque. Amateur Net: \$179.95.

\$139.95

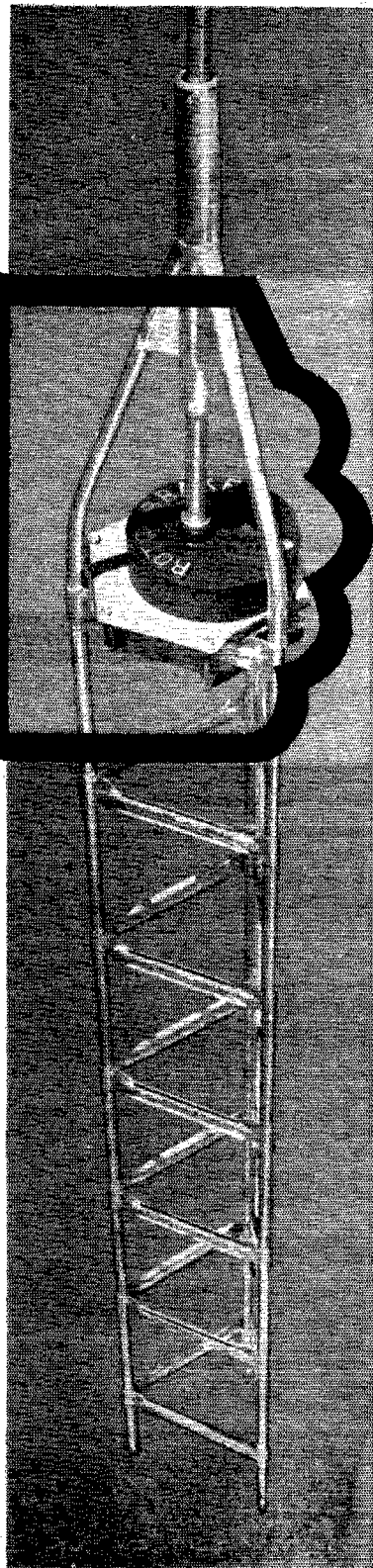
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• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.

ATLANTIC DIVISION

EASTERN PENNSYLVANIA—SCM, Richard B. Mesirov, W3JNQ—SEC: DVB, RM; YAZ, PAM; TEJ, The E. Pa. Net meets at 1830 EST on 3810 kc.; PFN meets at 1:00 on 3850 kc. With the appointment of DVB as SEC the AREC in our section will swing back into action. YLL replaces DVB as EC for Philadelphia. Other new appointees are WHK as ORS; HEK, GSD and DQG as OOs; EJVW as OES; CXJ, OY and GHM as OBS. The Frankford Radio Club was host to John Reinartz, K6BJ, of Kimaac, who lectured and entertained before more than 100 area hams. YAZ published the first edition of the E. Pa. bulletin, which should add life and interest to all activity; it was a job well done. The Short Skip RC had its annual picnic, which was carried off despite a torrential rain (which scared off the SCMD) and cold weather. AAU has a new Chevy, which may end up as a haven for a new mobile rig. EPL moans about hash on the PFN frequency. CUL notes better overseas conditions for traffic and also claims to have spent a little time chasing DX. YDX makes the BPL on originations and qualified for a medalion. TEJ reports that the flu curtailed operation on the PFN and hopes for healthier times ahead. The PFN also had a "first" when it patched K4LAP/aeronautical mobile to his sister, via LXQ. Bur skeds (PIC) for GIs connected with the IGY. LEZ is sneaking up into DXCC phone with 95 confirmed. NF is using 4 wires, each 520 feet long to form 3 "V" beams, but reports unsatisfactory results to date. CMN has a new antenna tower on the way. The Lancaster Radio Transmitting Society was the guest of WGAL-TV at its transmitter site. AXT made an oscilloscope recording of the Satellite. FLW is experimenting with 2-meter operation. UXX reports working four new countries and receiving five new awards. LN is on s.s.b. Z XV reports that 32 stations participated in the S.E.T., and brought the AREC publicity with an article in the Norristown paper. ZRQ has a new Globe Scout 300. 8NR is putting up a quad for 10 and 15 meters. JNQ has a 71-ft. tower which is still horizontal; plans are to have it standing up with a beam on top at an early date. Traffic: (Oct.) W3CUL 1728, GYP 304, TEJ 190, YDX 175, WHK 173, BFF 82, PDJ 64, ZRQ 49, NF 42, YAZ 33, FVT 22, DVB 21, AMC 17, CAM 12, NQB 10, WJD 10, BUR 9, CSP 9, FAW 6, KFI 6, BNR 5, ADE 1. (Sept.) W3YDX 83, NF 32, CAM 5.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA—SCM, Louis T. Cronberger, W3UCR—Asst. SCM Del.: Philip R. de Courcelle, 3DQZ, SEC: PKC, Section Nets: MDD, 3650 kc., M-S 1915 EST; MEPN, 3820 kc., MWF 1800; SS 1300 EST. New appointments: WTF, Frederick Co. and KEX Caroline Co. as ECs; DMS, INC. and SPV as OESs; and KA as ORS. Thanks to the many Washington Area stations and nets who stood watch all day Sunday and relayed on net and NEC frequencies Sputnik II data reports. WY relays that the information was much desired and appreciated. In event of any future satellites, the same Area watch will be established. Frederick Co. amateurs held a dinner meeting on Oct. 23. Mr. Crickenburger, Director of Civil Defense, thanked the amateurs for their continued support of the "RACFS Organization" under QDT. CDRO, K6BJ, John L. Reinartz, was the speaker at the BARCS meeting on Oct. 21. He spoke on and demonstrated new test equipment which could be built for a dollar or less. Many received prizes, including the SCM's XYL, for taking part in the program. The RCARA had DZZ at its Oct. 11 meeting. He

demonstrated and spoke on "The DZZ Antennas." The NCVHF Society had a talk, illustrated by slides, by OTC on "Meteor Burst Communications" at the Oct. meeting. The Antietam Radio Assn. furnished communications for the annual Mummies Parade. Participating mobiles were AMX, CSX, BFA, FBR, GVL, GVN and OYX, with EDA and VAM manning the fixed station. The CARC had Rudolph W. Drobish, 9QVA, who spoke on "Crystal Filters for Single Side-band and their Applications" at the Oct. 14 meeting. The Arec ARC lost the following members to Colorado and Florida because of recent company moves: AZY, MPR, NSV, NUU, QOQ, RRT, ZBH and ZTD. The Takoma ARC elected IRKB, pres.; Harold Campbell, vice-pres.; and UYC, secy.-treas. The Wilmington ARC elected CMR, pres.; and APB, secy. The WMIRC elected YAR pres. to replace 4KMG, who has moved to Florida. The WMIRC provided communications for the Porsch Club of America, Potomac Region, "Color Rallye" on Oct. 20. CN2OC described the "Radio Paradise" at Tangier at the Oct. 4 meeting of WRC. On Oct. 18 CDQ gave the WRC an illustrated travelogue of the many places she visited this summer. AFR, FWP, OMN, PWB, TKE and UCR represented Region II, Md. and D.C. RACES, at the Region II USCA/ARA annual meeting on Oct. 19. ONB has moved to Pittsburgh. DQZ has a new Valiant. JET was awarded "WDEL" certificate No. 84. Ex-OQF is now K8LYZ near Cedar Rapids, Ia. EXP is studying at the U. of Md. for a Masters Degree. GVL and GVN, father and son, have dropped the "N." KN3BRY and N3BPW are husband and wife in Clinton. SPV is experimenting with amateur TV. KLA is now on 220 Mc. YQD is on 220 Mc. and getting on 420 Mc. RV is K17 bound via Ladd AFB. MUK, chief operator at PQ1, has gone to Vol. Land. K5EPG, ex-SOG, occasionally checks into MEPN. WTF was reelected Director of MEPN. UE reports that 3RN is enjoying full participation from the MDD areas. HIZ has new beams on 20 and 15 meters. KA is handling traffic with KC4USA. EOY was instrumental in locating a special drug for a patient in a hospital near LU5DT via 10 meters. JZY has a new DZZ beam. The National ARC headquarters station, PZA, was active in the S.E.T. RDZ and LUL were section tops in the Sept. F.M.T. See you at the ARRL National Convention, Washington, D.C., Aug. 15, 16 and 17, 1958. Traffic: (Oct.) W3PQV 1371, UE 353, NNM 205, K3WBJ 205, W3HJZ 175, FQ 161, BUD 107, COK 92, AHQ 88, RV 62, UCR 62, MCG 61, ECP 50, WV 45, EOY/DAG 8, KA 8, TN 6, OYX 5, JZY 2. (Sept.) W3PZW 273, AKB 8, BWT 5. (Aug.) W3USA 296, FAP 79.

SOUTHERN NEW JERSEY—SCM, Herbert C. Brooks, K2BG—SEC: YRW, PAM; ZI, K2MBD has been appointed EC of Camden County. LS, Pleasantville, reported nearly 100 discrepancy reports issued in October covering out-of-band operation. K2ARY is doing a fine job as EC of Salem County, having registered nearly 100 per cent in the AREC. The Salem Co. Radio Club meets the last Wed. of each month. ZI, Trenton, visited the Ford Museum in Detroit and the Findlay (Ohio) Chapter of the QCWA. BAY, Haddonfield, is teaching his two daughters and son the code. We probably will have several new Novice calls in the near future. K2IGU, Glassboro, is doing an FB traffic job on the NTS and MARS. K2HOD is SJRA V.H.F. SS Contest Chairman. Sixty SJRA members are building 6-meter gear for the coming V.H.F. Contest. KN2GNT, a new Palmyra Novice, is heard on 40 meters. HX and SVV are doing a fine job coordinating the facilities of Mercer Co. in RACES/AREC. K2ITP/ITQ are the 50-Mc. editors of SJRA's Harmonics. K2CPR has a new three-band vertical. Reports from clubs and areas not reported in this column are solicited. Reports of new club officers also are requested. K2SOX is now a member of MARS. HDW, Somerdale is an active traffic-handler on NJN (3695 kc.), 2RN (3690 kc.) and EAN (3670 kc.) DXers should contact Box 55, Arlington, N. J., for their K2/W2 QSLs. We hope to announce an EC for Gloucester Co. next month. No reports were received from clubs in Cumberland, Cape May and Atlantic Counties. Keep informed; have an OBS in your area. Traffic: W2RG 294, HDW 169, BZK 110, K2PPT 84.

(Continued on page 100)



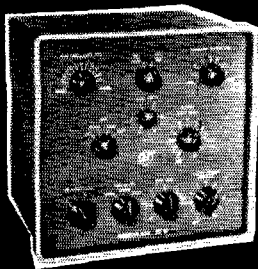
HQ-110



HQ-100

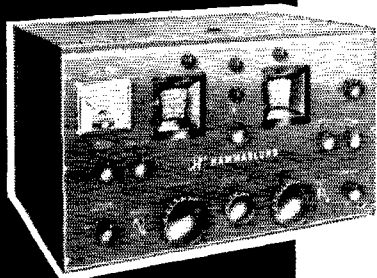
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There's no trick to it just down-to-earth facts. Hammarlund receivers are designed to incorporate better circuitry and components in such a manner that labor is held to a minimum. The result is a better performing, longer lasting receiver at a lower price. Compare - and see for yourself...



HC-10

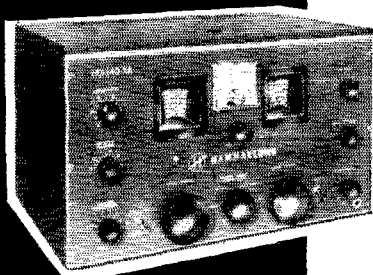
HQ-100 GENERAL COVERAGE RECEIVER. Continuously tunable from 540 KCS to 30 MCS Electrical bandspread. 10-tube superheterodyne with noise limiter Q-multiplier Exclusive Auto-Response for optimum listening under all conditions **\$169⁰⁰***



HQ-150

HQ-110 AMATEUR RECEIVER. Full coverage of 6, 10, 15, 20, 40, 80 and 160 meter amateur bands 12-tube dual conversion superheterodyne. Separate linear detector for SSB and CW. Q-multiplier. Separate stabilized beat-frequency oscillator for SSB and CW reception. Built-in 100 KCS crystal calibrator 2nd conversion oscillator crystal controlled **\$229⁰⁰***

HC-10 SSB/CW or AM/MCW CONVERTER. Completely self-contained with own power supply and audio system. Works with any receiver having IF between 450 KCS and 500 KCS. Connects in seconds. Tuned IF with seven selectivity positions Vernier type tuning. Razor-sharp filter, adjustable over passband **\$149⁰⁰**



HQ-150 GENERAL COVERAGE RECEIVER. Continuously tunable from 540 KCS to 31 MCS. 13 tube superheterodyne. Q-multiplier. Crystal filter. Electrical bandspread. Built-in 100 KCS crystal calibrator. Extra stable BFO for SSB and CW reception **\$294⁰⁰**

HQ-140-XA GENERAL COVERAGE RECEIVER. Continuously tunable from 540 KCS to 31 MCS 11 tube superheterodyne Crystal filter. Electrical bandspread Extra stable BFO for SSB and CW reception. **\$249⁰⁰**

*Telechron clock-timer \$10 extra.

HQ-140-XA

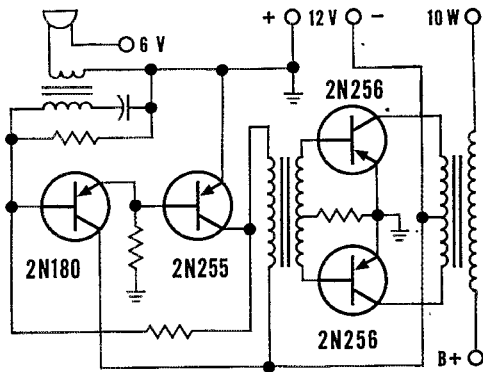


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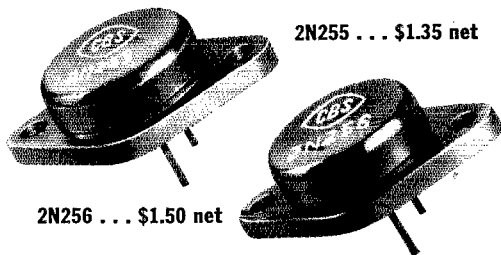
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Now radio amateurs and experimenters can build a mobile transistorized modulator. Simple circuit features: pre-driver, driver, and final amplifier with low-cost CBS 2N255 and 2N256 power transistors . . . 10 watts output (modulates 2E26) . . . instant-heating . . . low drain . . . for use with transmitter or sound system.

CBS alloy-junction, germanium power transistors 2N255 (6-volt) and 2N256 (12-volt) are useful also in many other economical amplifiers . . . fixed or mobile. Let the second edition of CBS Power Transistor Applications, Bulletin PA-16, help you put them to work. Free, it gives complete data and many detailed circuits, including the mobile modulator. Pick it up along with your 2N255 and 2N256 transistors at your CBS Tube distributor's — today.



CBS-HYTRON

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WESTERN NEW YORK—SCM: Charles T. Hansen, K2HUK—SEC: UTH/PRL. 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 Cntl Area on 3970 kc. at 1900. SRPN on 3980 kc. at 1000. LSN on 3970 kc. at 1600. LXE has been appointed PAM for the specific purpose of coordinating v.h.f. activities. K2QPC has a new rotor for the 6-meter beam. EMW received eleven envelopes of cards from the QSL mgr. in one day. CXM has a new kw. on the air and also is sponsoring a code class. K2ECL made DXCC with 102 countries. He now runs a full kw. with p.p. 813s. UTH worked LA9T in Norway and EI2W in Ireland on 6 meters. K2ALLT has increased power to 150 watts on 6 meters and added a ten-element 6-meter beam. He has teletype on 6 meters and has added a homebrew 60-watt Linear to his 6-meter gonset for mobile operation. The Northern Chautauqua ARC has 12 members signed up to build 2-meter transceivers as a club project, reports SB. K2HRB joined the gang on 220 Mc. SOK has a 220-Mc. transmitter finished and he's now working on the converter. QNA reports a five-way round table on 220 Mc. K2UZJ has a new Viking VFO. He has earned a VAF certificate and has received his CP-25 sticker. The RARA sponsors code practice sessions under the tutelage of K2EQK with the help of K2s HYO, DHR, MBH and TRC. QZI has a new tower. Two YLs are on 6 meters in the Rochester Area. K2TJY and RAS. The FCC exam schedule in Buffalo has been changed as follows: All exams requiring code tests will be held on the 1st and 3rd Fri. of each month at 0900. All other exams will be held on the 1st and 3rd Thurs. at 0900. K2CZO, K2HUK, K2MBJ, K2PVN, K2DG, AYH, GBX, VRG, WDO and PPY used their 2-meter mobiles to help coordinate and transport volunteer workers in the United Fund drive for the town of Tonawanda. The Syracuse V.H.F. roundup turned out to be the biggest V.H.F. event yet, with hundreds of V.H.F. hams from all over the East in attendance. The principal speakers were 1HDQ and 1RZJ. Appointments: K2RYH as ORS, LXE as v.h.f. PAM. Renewals: PPY as EC for Erie County, QNA and K2IYP as OBSs. All appointee's please note: the condition of your appointment requires that you report activities monthly to your SCM. I would appreciate hearing from you if you no longer are active so that I may pass the job along to someone on the waiting list. Traffic: (Oct.) K2UNR 247, W2RUF 213, K2IYP 193, W2CXM 186, K2RYH 100, W2FEB 93, OE 61, COB 40, ZRC 31, K2UZJ 20, DWE 19, DG 16, BBJ 14, HUK 12, W2RQF 9, K2CUQ 7, MLLT 3, RIT 2. (Sept.) W2ZRC 137.

WESTERN PENNSYLVANIA—SCM: John F. Wojtkiewicz, W3GJY—Asst. SCM: Anthony J. Atroczecka, 3UHN. SEC: OMA. RMs: NUG and GEG. The WPA Traffic Net meets Mon. through Fri. on 3585 kc. at 7:00 p.m. Condolences to OFW on the loss of his XYL. It is the sad duty of this column to record the passing of LHY. January 1 is the deadline for Pennsylvania amateur license plates for Generals and Technicians. YDK and ABN are new OOs. TOC is handicapped by blindness but is helping others handicapped to obtain their ham tickets. BZR is steadily building his traffic total. UHN has been troubled with sickness in the family. JWZ is QRL with studies at Lehigh University. LFK has left the section for Texas. NUG is building a new transmitter and gave a talk at the ATA RC on his rebuilt HRO. WIQ, not satisfied with his "whopping" totals manually, is going in for RTTY traffic. AGE has begun OBS operations. Up Erie way, KN3FO did a splendid job of tracking Sputnik 1. RTB advises the Western Pennsylvania DX Society, a club devoted to DX enthusiasts primarily, meets the first Thurs. of each month at the transmitter site of WQED/TV in Pittsburgh. Prospective members are invited to attend the meetings. A. L. Budlong was the main speaker at a meeting held by the ATA in Pittsburgh on Oct. 16. ROA sports a two-element Gonset Bantam beam and a DX-100, garnering 75 countries in 3 months on 14 Mc. with PA9UB, UB5WF, VQ6ST and 3V8AS among the choice ones. ZFB had an enjoyable time operating in her first C'D Party. The Steel City ARC members are considering a new constitution for their club. JQJ is a new member of the Rag Chewers Club. Due credit must be given members of the Pittsburgh 6-Meter Net for their untiring efforts to secure license plates for Technician Class license holders. ZPZ should have his new Viking mobile rig on by this time. FML has 26 states worked on 2 meters. MPO installed a "telepole" for 75 meters. In the meantime, APN took his down. NKM can be

(Continued on page 102)



Old timers can tell you that . . . fixed or mobile . . . they never had it so good!

Today, Gonset's skillfully engineered modern designs give you 5-band mobile operation . . . a powerful, complete station with full control at your fingertips.

G66B receivers and G77 transmitters are excellent examples of Gonset leadership in "compactness without compromise" designs. With them your mobile installation offers you the same operating features and conveniences as those of the finest fixed stations. Note too that G66B also covers the standard broadcast band, eliminates need for second receiver.

This same sparkling duo can also give you outstanding home station performance on 80-40-20-15 and 10 meter bands.*

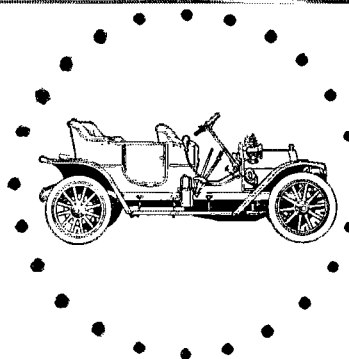
G-66B, less power supply #3046 209.50

Universal "three way" power supply/speaker unit.
(6V-12V DC, 115V AC) Factory wired 6V DC, 115V AC.
With patch cable #3069-6 49.50

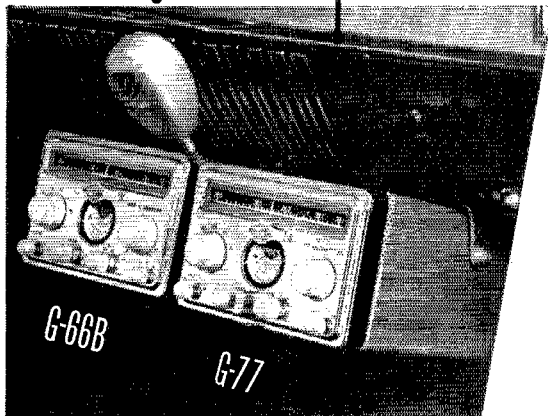
"Thin pack" power supply.
(12V DC only) less patch cable #3098 29.50

G-77 Transmitter with power supply and installation kit. Model #3116 289.50
6 and 12 volt operation. Factory wired for 12 volts.

*Special G77 models for AC operation available soon.



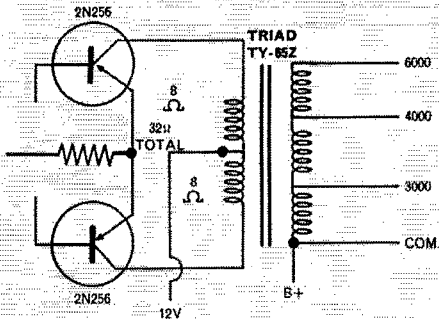
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TRANSFORMER NEWS

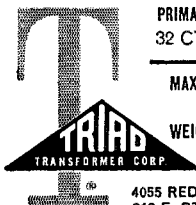
FROM TRIAD



All-transistor modulator circuit for low-power mobile transmitters. Triad TY-65Z Transformer is used in conjunction with the new 10-watt transistor (CBS Hytron 2N256).

TRANSISTOR TRANSFORMER for the advanced amateur

Our experience in building miniature transformers for military use led to the development of this new transistor transformer for you. The Triad TY-65Z is designed especially for amateur use. See your distributor, or write to us.



PRIMARY IMPEDANCE 32 CT. (575 Ma.)
SECONDARY IMPEDANCE 6000 4000 3000

MAXIMUM LEVEL 10W
WEIGHT, OUNCES 20
DIMENSIONS, INCHES
H W D MW 2-5/16 2-7/8 2 2-3/8

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A SUBSIDIARY OF LITTON INDUSTRIES

heard on 14 Mc. chasing the elusive stuff. In the Erie Area, ZLO heads a newly-created TVI committee. JQS is fast recovering from his accident. ALD was home on leave prior to his reassignment with Uncle Sam. VNB took marriage vows with a prospective Novice. POS, FVH, WDK and KVB took a total of 12 hours to raise a jinxed mast and most of this same group raised an all-band vertical for AXS. A south link on 6 meters to Pittsburgh through ONY is being attempted by JTF and K2ZYX. BFB and his NYL are proud of their first harmonic, a boy. LUG is active on 7-Mc. phone, K4IWM/3, with the help of FVH, raised a coaxial vertical antenna. IAF now has his beam electrically rotatable. The Radio Association of Erie has added several attractions and revived some old ones in an effort to encourage greater club attendance. BSF now is comfortably situated in a trailer and can be heard on 14 Mc. chasing DX. RBF has a total of 129 countries confirmed. GJY has 123 contacted and 111 confirmed. KPI has in the offing a kw. for 14 Mc. LXQ is off the "sick" list after a tussle with Asian Flu. UTR, having completed her studies in Virginia, is now operating from her home QTH. Traffic: W3W1Q 1522, HZR 104, AGF 48, GJY 44, UHN 16, NCD 14, TOC 10, NUG 4.

CENTRAL DIVISION

ILLINOIS—SCM, George T. Schreiber, W9YIX—Asst. SCM: Grace V. Ryden, 9GME, SEC: HOA, RM: MAK, EC Cook County: HPG, Section nets: ILN, 3515 kc., Mon. through Sat. Brass Pounders certifies this month go to DO, MAK and PCQ, although traffic seems to be at a new low. QQG is back on the net after a summer sailing on the *South American* as radio operator. EGI enjoys 6 meters and is trying hard for WAS. TZN got his feet wet in traffic and is striving for a certificate of the Royal Order of Arfers of Traffic Hounds Morning Watch. The Kishwaukee Radio Club of DeKalb elected the following officers: K9GYB, K9ARN, K9BHG and WTF, DED, who is a music teacher, has moved from Indiana and has joined us in the section. KN9JLJ is a new call in Malta. Other new Novices are KN9IVF and KN9IVM. New Generals are K9HCY and K9HWQ. A visitor to the Streator Radio Club, K9CAU, was VE3BRM. YH reports that the U. of I. Radio Club now has a new receiver to replace the one stolen from the shack. K9GOL made the Rag Chewers Club on the first contact with her new General Class license. HPG was pleased with the result of the Simulated Emergency Test and said he got nice cooperation from all. CTZ, of all things, has gone mobile on both voice and c.w. We always thought he was a fixed fixture, KJ surprised everyone, especially himself, by finally eliminating the bugs from his kilowatt with the help of ROE, and to prove it worked he made WAC in a few hours. SKR is pleased with the 133-ft. antenna installed with the help of TKJ. K9CHM has fun with his new General Class license and is in the middle of antenna rebuilding. UQT, in better health, is on the air again. It's good to hear you, Doc. CSW reports that Asian flu certainly cut the airtime of many hams in Central Illinois, but it is abating now. The North Central Phone Net handled 384 messages this month while ILN reports RM MAK, handled 219. He means that c.w. traffic men seem scarce in the section. K9IFB is glad he finally made WAS with all confirmed. Congrats, Andy. GDI now reports his quad is working very well and he is giving NN a run for the DX. BON has a mobile rig about ready to go. Well, fellows, this about winds up the SCM job for YIX. I want to thank you all for your cooperation and urge you give the new SCM the same. For his sake we suggest that when writing to him you use a typewriter if possible, but at least print your call letters. Thanks and see you all on 40 meters. Traffic: (Oct.) W9DO 1012, MAK 528, IDA 303, PCQ 179, OKI 178, HPG 118, FAW 94, CTZ 65, BUK 42, K9IFB 34, AMD 33, AXS 21, W9JZK 18, K9GVD 17, W9QQG 8, YFO 7, SKR 4, K9DYT 2. (Sept.) K9IFB 12.

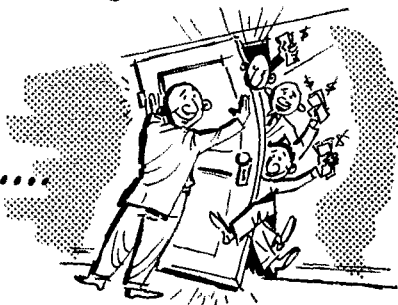
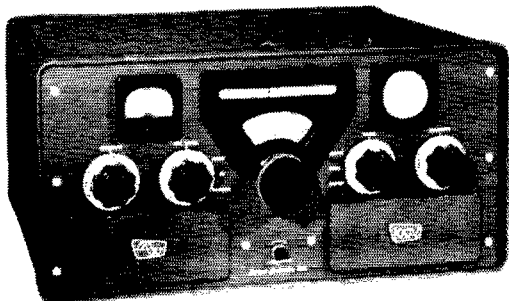
INDIANA—SCM, Arthur G. Evans, W9TQC—PAMs: KOY, SWD and UXK, RMs: DGA and TT. We all want to thank NTA as SCM and QYQ as SEC for the outstanding jobs they did during the past two years and wish them the best of luck in their new appointments as Asst. SCM and State Radio Officer, respectively. Other new appointees are CMT as SEC, BKJ as PAM and JOZ as RM. New EC's are DZC for Hancock County: EJC, Miami; GEK, Monroe, and SNQ, Jay. Twenty-one new hams in Evansville shows what can be done with an active training program. KLR has 36 states on 2 meters. BDG made WAC. HRV has a new transistor converter in his truck. K4EMH is now W9MLF at Peru. K9BCW is on 75 meters with a new DX-35. There are over 100 stations on 6 meters in

(Continued on page 104)

We can't hold back any longer!

WE HAVE BEEN DELUGED WITH REQUESTS FOR INFORMATION ON THE NEW 100V, SO WE ARE RELEASING THE FOLLOWING DATA IN SELF DEFENSE—AHEAD OF SCHEDULE.

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**The NEW MULTIPHASE
MODEL 100V
Exciter-Transmitter**

RF OUTPUT: 100 watts P. E. P. before grid current on all bands using a pair of ultra-linear 6550 tubes in final. Separate POWER OUTPUT CONTROL continuously adjustable down to 10 watts. Drive any linear or use it "barefoot".

FREQ. RANGE: 80, 40, 20, 15 and 10 meters with spare position on bandswitch for 160 meters or other frequencies such as Mars, CAP, commercial, etc.

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!

NO TUNING CONTROLS (other than VFO): Broadband circuits throughout, as introduced in our 600L Broadband Linear. Separate crystal controlled mixers.

NINE POSITION EMISSION SELECTOR: Lower sideband, upper sideband, double sideband, all with suppressed carrier; lower, upper or double sideband (AM) with preset carrier; Phase Modulation (PM), CW and FSK with preset carrier. FSK frequency deviation adjustable.

ONLY FOUR OPERATING CONTROLS PLUS VFO ON FRONT PANEL: Seldom used "set and forget" controls on front panel behind magnetic doors.

METER READS: Watts input 0 - 200, RF amps output and suppressed carrier level. Has input marked at 100 watts for AM and 170 watts for CW, PM and FSK.

2" RF ANALYZER SCOPE BUILT IN: Monitors RF output wave to show flat topping and prevent TVI.

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ADVANCED PHASING GENERATOR: With inverse feedback and new PS-2 network. Sideband suppression with new network in excess of 50 db. Built-in audio filter. Narrow signal, plus naturalness, coupled with long term stability are features of new generator.

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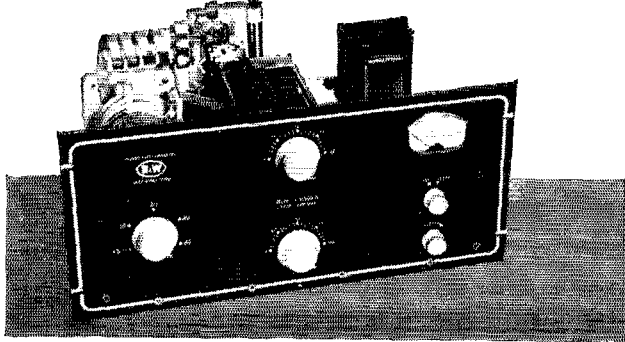
EQUIPMENT

Central Electronics, Inc.

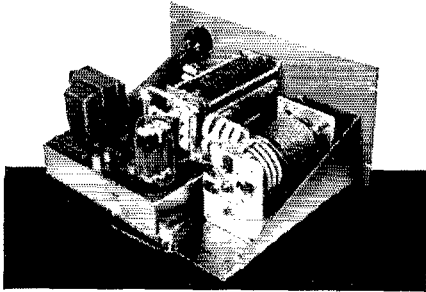
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Ever since B&W first came out with their grounded grid linear amplifier, amateurs from all over the country have been clamouring for just the RF section of the unit.

Now it's here! At last, you can buy only this RF section and have all the advantages of the complete B&W L-1000-A. Use of your own power supply will save many dollars.

Two tetrodes in the RF section are connected as high-Mu grounded grid triodes. Intermodulation distortion products of a grounded grid amplifier are far less than those generated in a conventional grounded cathode circuit because of the inherent negative feed-back. Increased driving power requirements are offset by recovery of most of the driving power in the output circuit.

This RF section will boost your signal to the maximum allowable. Quality of materials and workmanship is unsurpassed. Tuning and loading are precise over the 80, 40, 20, 15, 11 and 10 meter bands. Why not drop in at your favorite dealer and take a look at either the Model L-1000-A or just the RF section, Model L-1001-A. If he doesn't have them in stock write the factory for details.



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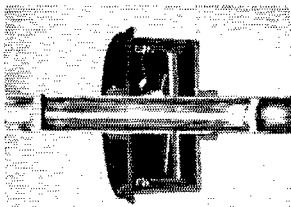
B&W AMATEUR EQUIPMENT: Transmitters • AM—CW—SSB • Single Sideband Generators • Grounded Grid Linear Amplifiers • Single Sideband Receiving Adapters • Dip Meters • Match Masters • Frequency Multipliers • Low-Pass Filters • T-R Switches • R-F Filament Chokes • Transmitting R-F Plate Chokes • Audio Phase Shift Networks • Band Switching Pi-Networks • Cyclometer-type Counters • Antenna Co-axial Connectors • Baluns • Variable Capacitors • Fixed and Rotary Tune Coils • Band Switching Turrets • Standard Inductor Materials •

the Marion County Area and two nets covering part of the State. SWD reports 1FN morning traffic as 158, evening 352, total 510. TQC reports QIN traffic as 375. TD reports 71 for RPN. EHZ gives CAEN traffic as 75. QIN net certificates were issued to AWL and HUF. The Porter County AREC did a bang-up job of handling communications for the Valparaiso University Homecoming Parade. BJK spent two weeks in Southern Indiana in a trailer complete with ham gear. A new club at Evansville is the Vanderburgh Amateur Radio Emergency Service. GJS is active on the IGY Project and got an FB write-up in the Greenwood paper. HXR began two years training for the CPA exam. NTR has a 20-10-meter beam up with new brake and selsyn indicator. RBV was elected TARS pres.; AIN, vice-pres.; K9AXK, secy.; OG, treas.; OVB and WUH, directors. KSR worked K2QOO/VE8 in the Arctic and his next contact a few minutes later was KC4USA in the Antarctic. K9BSU and SRT are new Gen. Cl. SYM is nearly finished with the new antenna and tower for 20, 15 and 10 meters. The Duneland ARA Banquet is scheduled for Jan. 18. Those making BPL this month were ETM, NZZ and RTH. A very Happy New Year to all. Traffic: (Oct.) WVNZZ 1116, JOZ 479, 1QC 250, SVL 209, ZYK 204, RTH 195, ETM 192, JYO 164, EQO 135, EHZ 133, KSR 132, TT 123, SWD 117, NTA 104, AB 81, BDG 77, DJH 66, BUQ 64, BJK 61, SNQ 57, WUH 42, VNV 39, KN9IXD 33, W9YX 33, HGF 30, CC 29, HXR 29, DOK 28, DZC 27, EJW 27, QR 27, WHL 25, HUF 22, DGA 21, GJS 19, HRW 18, BDP 17, MLF 16, ELE 15, WBA 13, QYQ 12, CMT 11, MMY 11, WAU 11, ENU 10, PQZ 10, VQP 10, CDW 9, IMU 8, NTR 8, DDT 7, FGX 5, ZSW 5, K9AOM 4, DWK 4, W9EYZ 4, SYM 4, EJC 2, HSK 2. (Sept.) W9WUH 23, ELE 6.

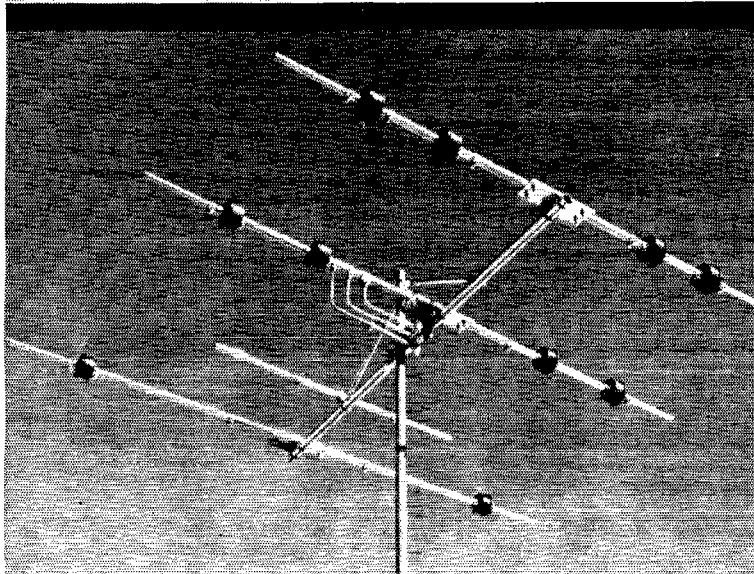
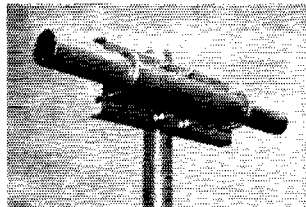
WISCONSIN—SCM, George Wolda, W9KQB—SEC: YQH. PAMS: NRP and AJU. RMs: KJJ and K9AEQ. Nets: WIN, 3535 kc. at 7:15 p.m. CST; BEN, 3950 kc. at 6 p.m. CST, both daily. CXY and K9GDF made BPL. New appointees: ERW as OBS, QJW as OPS, K9ELT as ORS, RQM is chasing DX and has 181 worked with 171 confirmed, RQK is at Northwestern U. for a degree in Nuclear Physics. DYG is back on the traffic nets after 9 years on the DX bands and has a 182 worked 172 confirmed record. K9ELT has a new 10-meter ground-plane and OMT a 10-15-meter quad. The Waukesha County Club meets the 2nd and 4th Wed. of each month. Officers are HAT, pres.; CWK, vice-pres.; MMA, treas.; Emily Koepf, secy. The club has a very active code-teaching program. The new Dunn County Radio Club at Menomonie has KN9IAG as pres.; KN9JIG, vice-pres.; YFZ, secy.-treas. K9IGF, city manager of Superior, announced the starting of radio classes at the Vocational School with members of the Superior Radio Club as instructors. UXZ is pres. of the club. Dr. E. C. Thiel, who took the flag of Wisconsin to plant on some mountain in Antarctica, was given the opportunity to talk with his parents at Wausau from KC4USW at Ellsworth Base by RQM. VAK, trustee for the U. of Wisconsin amateur station, YT, is checking the nets and working RTTY on 7 Mc. There is a new HQ-100 at JPW. There is much activity on 160 meters by the Oshkosh Club with its net on 1815 kc. Sun. at 8 p.m. IHG is happy with his new BC-348L. HPC finally is working DX with a new Valiant and trap antenna. K9AQT has a new bug and made WAS. PAM NRP finally got his mimeograph machine going; evidence, his letter to all BEN members on new net policies. SAA is busy on the MARS and BEN. IQW, RKP and UTV are all chasing DX. Let's keep those New Year's resolutions; no v.t.o. swishing, only the best of signal, no DX stealing, zero best the NCS and get a monthly report to the SCM. Traffic: W9CXY 1558, K9GDF 368, W9KQB 132, K9AEQ 113, W9SAA 75, KJJ 72, K9ELT 59, W9SZR 51, NRP 45, DYG 24, GFL 14, SDK 10, RQM 7, UTV 7, FXA 6, IQW 4.

DAKOTA DIVISION

SOUTH DAKOTA—SCM, Les Price, W0FLP—Asst. SCM: Gerald F. Lee, 0YKY. SCM assistants: NEO and FKE. SECs: YOB and GGE. V.H.F. PAMS: SCT. U.H.F. PAM: ORE. RM: SMV. The S.D. 75-Meter A.M. Phone Net had NC stations SCT, GQH, QEK, NEO, ZLB, OII and EXX with 34 sessions, QNT 871, high 38, low 3, average 25.61; QTC 45, high 9, low 0, average 1.32; informals 85, high 7, low 0, average 2.61. N.C. now stands as Sun. A.M. QEK, Sun. p.m. SCT, Mon. CRD, alternate ZLB, Tues. OII, Wed. EXX, Thurs. GQH, Fri. NEO, Sat. OQZ. This net meets at 6:30 p.m. Sun. on 9:30 a.m. CST and 6:30 p.m. CST. The S.D. 40-Meter A.M. Phone Net had NCs K8KPD, K9ARR, PAX, SCT and NNX, with 27 sessions, QNT 405, high 20, low 12, average 15; QTC 40, high 6, low 0, average 1.45; informals 36, high 7, low 0, average 1.45 (Continued on page 106)



The Insu-Trap makes possible a really efficient multi-band antenna system, acting as insulator at its resonating frequency, but allowing radio energies of other frequencies to pass. This automatic switch action isolates various sections of the antenna. Mechanically and electrically stable, the trap is enclosed in a carbon activated polyethylene cover and cap. Light weight, air foil design minimizes wind resistance. Hi-Q coils wound on large 3" diameter styron form. Capacitor dielectric is solid styron. No air dielectric. Traps are completely weather proof and air tight; guaranteed for life of the beam. Tribanders also feature ruggedly designed Boom/Mast clamp, with 12 Ga. galvanized steel channel for positive grip; also employed as Element/Boom bracket.



THERE ARE MORE hy-gain TRAP TRIBANDERS IN USE THAN ALL OTHER THREE BAND BEAMS COMBINED!

1-element, rotatable tribander

\$39.95

2-element trap tribander for maximum gain in minimum space

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3-element trap tribander, considered the standard in the field (as shown)

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5-element Champion, "the very best"

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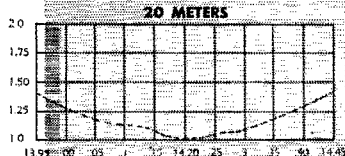
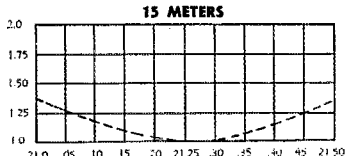
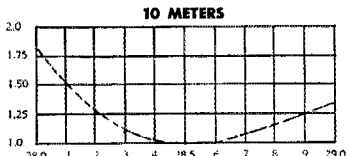
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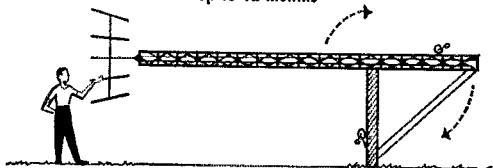
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- Brute steel in attractive design!
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- No material lost in moving . . . no guys, no concrete!

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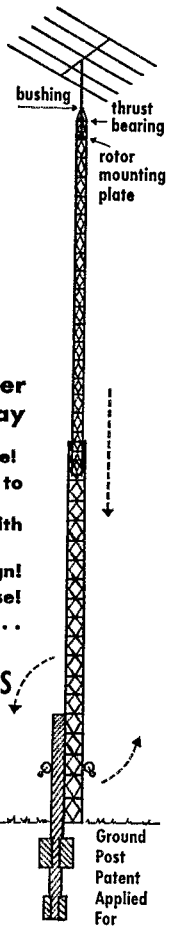
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1.56. The S.D. 80-Meter C.W. Net, 3645 kc., had QNT 30, high 8, low 4, average 6. After 11 years the Sioux Falls ARC is leaving Cathedral Church and has obtained meeting and station use of the old South Sioux Falls City Hall on West 41st St. New SFARC officers are: KØDYR, pres.; HON, vice-pres.; RWE, treas.; RRN, secy. Two of the SFARC's, four father-son combinations in the class got their licenses. The Black Hills ARC again aided the R.C. police with a Halloween patrol of mobiles on 3825 kc. KØARF was ready to relay if needed between the main base station and outlying mobiles. KØKKA, operator at KØPEJ, and his wife had a son born Oct. 12. KØBMM and KØBMS had a son born Oct. 26. Leslie Holmes, a member of the EMF ARC has received his Novice license with the call KNØLOW. He has a Globe Chief transmitter and SX-100 receiver on 40 meters. Roland Ruhauk, a member of EMFARC, is studying for his Conditional Class exam and already has a 75A-4 receiver. KØCRD is building a new final for his Viking Ranger which uses two 4-125As in parallel, running about 500 watts Class C when completed. KØJOK has enrolled in U.S.D. and will be mobile in Vermillion in the near future with an Elmac transmitter. GWS and his XYL, Lavonne, became the parents of a baby girl on Sept. 25. KØBUY visited KØBMQ at Millboro Sept. 20. KØBMP has moved to Springview, Nebr. The "N" has been dropping by KØKJT. She has a DX-100. BJH sold his rig and quit the ham business. ENL moved to Hawaii. KØHRA moved to Denver. KØGWJ is putting up a 10-20 quad. BNA and family left Redfield Oct. 22 for Little Falls, Minn. pastorate. Hugo was able to contact Delaware just a few days before for his WAS from Redfield. YVF and KØDHA, have a new 10-meter beam. OOL is attending McAlester College, Minn. HUM dropped the "N." HSH is working for the Weather Bureau in Sioux Falls. ZIQ has returned from three-months CAA School in Oklahoma City. GJX has a new tower and tri-band beam. He is also Sioux Falls' only 6-meter operator. NAB received his first Commercial Class telephone ticket. ENL has accepted a pastorate in KH6-Land. OZZ spent his vacation catching the big ones at Lac la Ronge. After 11 years, RRN finally hooked an African station for WAC. KJT, SFARC's only licensed gal ham, dropped the "N" and has a new DX-100, tower and 10- and 15-meter beams, and has an RME-4350 on the way. Sioux Falls has five 2-meter stations on the air. Traffic: WØZWL 424, SCT 267, BMQ 71, ARF 56, DVB 38, NEO 40, AIF 24, INZ 19, FLP 15, GWS 11, CTZ 10, FJZ 9, NNX 9, DKJ 7, BQR 2.

MINNESOTA—SCM, Robert M. Nelson, WØKLG—Asst. SCM; Bob Schoening, ØTKX. SEC: WVO, RMs: DQL and RQJ, PAMS; JIE and LUX. Thanks to KØGCN and WMA for collecting monthly activity reports for your SCM while he was temporarily off the air. Results of the St. Cloud Radio Club election are RVO, pres.; MBD, secy.; SV, treas.; KØDHG and JAI, publicity and public relations. TOK will be spending six months in Ft. Leonard Wood, Mo., for the U. S. Army Reserve. KØAUK is now located at Sauk Centre. GOG and his XYL AUJ moved to Norfolk, Va., and are sadly missed by the Hector Area Radio Club. KJZ made BPL. Code and theory classes are being held at the South St. Paul High School with KØAAO, KØBTE and KØGCN as instructors. QDZ has a new NC-188, Johnson Matchbox, and a center-fed antenna. WMA worked VAI8E, YUØJN, SVØWP and KØ8AF to make his "worked" total 105 countries. WDY is active in cosmic ray research in addition to high school activities. KØBTE queries, "Is anyone else in this area interested in ham TV on 420 Mc.?" EKR has a new Globe Chief. NUI is engineer-announcer at KRBI. BUO completed revamping a Wilcox 602A receiver for monitoring 108 Mc. EC WMA signed up fifteen new AREC members at the monthly MRC meeting. RAK and TEL attended the convention at Huron. KØALL is giving up his job as secretary of the Mankato Area Radio Club to attend school in Minneapolis. VBD is moving to higher ground. KØGCN worked GD4VH, TFZWBZ and EAIBC for three new countries. KØDEY received his General Class license. KØDTB now has a Conditional Class license. Traffic: WØKJZ 460, WVO 135, KLG 120, RQJ 44, WMA 40, BUO 28, UMX 22, FGP 19, KØGCN 19, GVX 19, WØLUX 16, HEN 14, FKT 12, PET 11, SZJ 10, KØGUJ 9, AEE 7, DIA 7, WØQDZ 7, KØGKI 6, WØLST 6, ØJK 6, KØEPT 5, IDV 5, WØQVR 5, TCK 4, UCV 1.

DELTA DIVISION

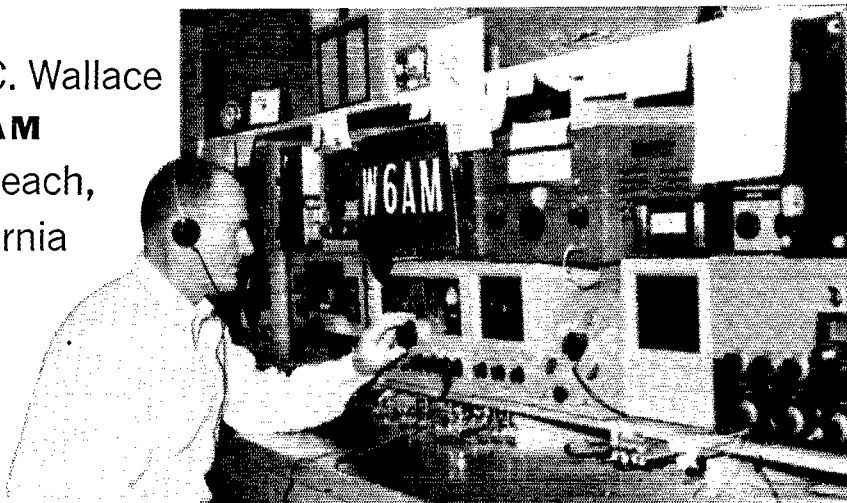
ARKANSAS—SCM, Ulman M. Goings, W5ZZY—SEC: CIR, PAM; DYL, RM; CAF. Portable fire extinguishers are needed by the hams in Batesville. VAE burned out his KWS-1. ENG's power transformer

(Continued on page 108)

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

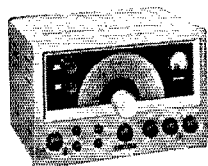
says Don C. Wallace
W6AM
Long Beach,
California

Don Wallace
at the controls of W6AM

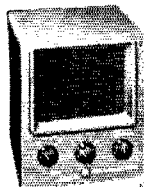


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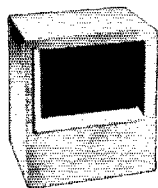
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RECEIVER



RME 4301
SIDEBAND
SELECTOR



RME DB23
PRESELECTOR



RME 4302
SPEAKER

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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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went up in smoke and EMN lost his 500-mil choke in a puff of smoke. Despite the fires the hams in Batesville are progressing and are building gear for tracking the U. S. A. satellite when it is launched. FRT has a new rig built for 2 meters. EYD is operating portable 5 from Conway. ZZR and BYD have received RACES authorization. Glad to welcome 7BED and 8JHY back to Arkansas. KN5MHD is a new ham in Scranton. WSM has a new 15-meter beam and reports that the club in Russellville is progressing and is giving Novice exams. KN5LNN has a new Globe Scout. K5HSO is very active on 6 meters. Anyone interested in 6-meter net operation, please contact him or K5EZI. HFQ is now getting on s.s.b.; he has a new 20-A with a new thunderbolt on the way. We are very sorry to lose TIE, who has moved to Michigan. Remember to check into the nets. The Arkansas Emergency Phone Net meets daily at 0600 on 3885 Mon. through Sat. The OZK C.W. Net meets Mon. through Fri. at 1900 on 3700 kc. Traffic: K5HYD 40, W5YHT 36, BYJ 32, CEU 21, WSM 16, K5HSO 13, W5GWB 9.

LOUISIANA—SCM. Thomas J. Morgavi, W5FMO—USN is contemplating the transmission of ARRL Official Bulletins on radioteletype. All interested in these transmissions can get more information by writing to USN or your SCM. Transmissions also are made on c.w., Mon. through Fri. on 7100 kc. at 12:30 p.m., Mon. through Fri. at 6:30 p.m. on 7100 and 3750 kc. and Sat. and Sun. at 7:30 p.m. on 7100 and 3750 kc. All times are CST. K5KLA, ORS and OES, passed his General Class exam, got a new NC-109 and won the WRL v.l.o. at the New Orleans Hamfest. MXQ says he will have more time for hamming now that the hamfest is over. NDV has been reappointed ORS. JPV is running into power supply trouble getting the mobile rig going. TVW has a new sixteen-element beam for 2 meters. K5CHC, when not working on his antennas, has been organizing a 6-meter net. Fellows who work 6 meters are asked to get in contact with him. VAR boasts of a phone patch but doesn't get much chance to use it. K5GAB, OBS, sends the ARRL bulletins on 14,250 kc. at 1930 CST. Mon., Tue. and Thurs. CEW, our PAM (who also is a DX man), now has 233 countries worked and 220 confirmed. He has been doing an FB job with the Delta Net on 3950 kc. every Sun. morning. TVW wants to start an AREC 2-meter net that will have Statewide coverage. All interested, please contact him or the SCM. EC, ORS, OPS and OES appointments are open over the State. Contact the SCM if interested in these worthwhile activities. We were glad to see HBV at the New Orleans Hamfest. Traffic: W5MXQ 47, NDV 40, JPV 12, TVW 12, VAR 4.

MISSISSIPPI—SCM. John Adrian Houston, sr., W5EHH—K5CHT reports the Tupelo Radio Club has an 813 rig under construction, designed by K5AYA. The club has been granted the use of a room in the City County Building for meetings and a club station. AMZ has been going after DX on 15 and 20 meters. K5CHT is about to get the modulator going. K5GRV is trying to figure out how he is going to get his tri-band beam and 90-ft. tower up. HTA was on a local TV program explaining our hobby. K5GUC is attending school in Jackson. KNSLFS recently took his General Class exam. ROB is working for WELO. K5JCD reports the recent picnic in Hattiesburg was well represented with hams and their families from Mississippi, Alabama and Louisiana. The Cleveland Amateur Radio Club gave the GG/HBX family a farewell party and supper and wished them well in their new W8 location at Council Bluffs, Iowa. Traffic: W5JHS 38, K5EXG 32, W5RIM flil. EHH 1.

TENNESSEE—SCM. Harry C. Simpson. W5CF—SEC: RRV, PAM; PQP, RM; IV. K4CWB reports that IBUD and his XYL were guests of the Nashville Club. RFR is a new bridegroom. ZCB has a new jr. operator and CSV is building a new half-gallon. UZZ reports the Jackson Club was active at the West Tenn. Fair, helping officials with various events and manning the c.d. exhibit. Participants were UZZ, SZI, TRS, FSP, RHO, AYQ, TM, EUF, UAW, UBA, LOJ, SBF, SNX, IOS, EBX, PUV and BTR. ONQ, who just finished building a new Ranger, is amazed at HII's results on TN with 200 milliwatts! Fine bulletins were received from the Memphis, Nashville and Oak Ridge Clubs, and completely new publications from our widely-known 2-meter expert HHK and equally well-known 6-meter expert ZZ! K4DJO has skeds with KX6AF and KW6CM and several KZ5s, KL7s and KP4s on 10 meters. UVU built a new ARRL designed scope. New MARS members include AJC, BAG, CDW, CSW, EAY, EQB, EQE, IPO, IV, JPP, JTN, JNG, LLB, MYD, PZE, SRCF SAQ, UFT and ZIA. RN5 manager RCF reports traffic from overseas is on the increase. He makes BPL for the oomph consecutive month, as does PL,

(Continued on page 110)

YOU COULD WORK WONDERS IF YOU HAD A GOTHAM BEAM!

NO TRAPS, COILS, BALUNS, STUBS OR INSULATORS USED!

TYPE OF BEAM. All Gotham beams are of the full half-wave plumber's delight type; i.e., all metal and grounded at the center. No wood, tuning stubs, baluns, coils, or any other devices are used.

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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.)

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FRONT-TO-BACK RATIO. We guarantee a minimum F/B Ratio of 19 db. for any of our 2-element beams; 29 db. for any of our 3-element beams; 35 db. for 4-element beams.

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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 $1\frac{1}{8}$ ".

YOU WILL WORK THE WORLD

STANDARD AND DELUXE BEAMS. Standard beams in the 6, 10 and 15 meter bands use $\frac{3}{8}$ " and $\frac{3}{4}$ " 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.

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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

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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.

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You could work over 100 countries with a three element 10 meter beam, and be a top man on the frequency, like WØDEI.

You could work terrific skip and DX with reports of 20 over 9, with as little as 36 watts input on 20 meters, as W. E. Woods did.

You could work 29 states in three months on six meters, with low power, as K2LHP did.

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2 METER BEAMS
 Deluxe 6-Element 9.95 12-El 16.95

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 Std. 3-El Gamma match 12.95 T match 14.95
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10 METER BEAMS
 Std. 2-El Gamma match 11.95 T match 14.95
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3005	3100	4900	5875	5310	6972	73750	7520	7640	7860	8090	8300	8560
3010	3885	4930	5875	6362	6975	7352	7575	7641	7856	8091	8306	8566
3015	3955	4980	5875	6313	7000	7366	7530	7650	7870	8100	8310	8570
3020	3980	4980	5875	6375	7008	7373	7533	7658	7878	8108	8318	8573
3025	3990	4990	5900	6400	7025	7375	7540	7660	7875	8105	8315	8575
3030	3995	5010	5906	6405	7040	7380	7545	7665	7880	8110	8320	8580
3035	4035	5035	5907	6406	7050	7400	7550	7670	7883	8116	8325	8583
3040	4045	5040	5925	6425	7073	7406	7558	7673	7890	8120	8330	8590
3045	4080	5127	6100	6440	7075	7408	7560	7680	7890	8120	8330	8590
3050	4095	5165	6095	6450	7100	7408	7566	7680	7900	8130	8350	8590
3055	4110	5205	6095	6473	7106	7416	7570	7683	7906	8135	8356	8606
3060	4125	5235	5973	6475	7100	7400	7560	7681	7910	8141	8361	8610
3065	4163	5245	5975	6500	7100	7400	7560	7681	7910	8141	8361	8610
3070	4175	5327	6095	6506	7100	7400	7560	7681	7910	8141	8361	8610
3075	4190	5365	6095	6506	7100	7400	7560	7681	7910	8141	8361	8610
3085	4215	5397	6096	6540	7100	7400	7560	7681	7910	8141	8361	8610
3110	4220	5435	6225	6550	7100	7400	7560	7681	7910	8141	8361	8610
3130	4255	5437	6040	6573	7116	7413	7566	7683	7913	8146	8366	8613
3135	4280	5485	6042	6575	7120	7440	7570	7685	7915	8148	8368	8615
3140	4295	5500	6050	6575	7120	7440	7570	7685	7915	8148	8368	8615
3145	4300	5545	6073	6606	7125	7445	7575	7688	7918	8151	8371	8618
3150	4330	5582	6065	6625	7125	7445	7575	7688	7918	8151	8371	8618
3155	4360	5587	6100	6660	7130	7450	7580	7690	7920	8154	8374	8620
3160	4395	5645	6106	6650	7135	7455	7585	7695	7925	8159	8379	8625
3165	4395	5660	6125	6673	7135	7455	7585	7695	7925	8159	8379	8625
3170	4445	5675	6140	6675	7140	7460	7590	7700	7930	8164	8384	8630
3175	4490	5687	6142	6700	7145	7465	7595	7705	7935	8169	8389	8635
3200	4495	5700	6150	6706	7150	7470	7600	7710	7940	8174	8394	8640
3205	4535	5706	6173	6725	7155	7475	7605	7715	7945	8179	8399	8645
3210	4540	5725	6175	6740	7160	7480	7610	7720	7950	8184	8404	8650
3220	4580	5730	6190	6740	7165	7485	7615	7725	7955	8189	8409	8655
3225	4610	5740	6200	6733	7175	7495	7625	7735	7965	8199	8419	8665
3230	4620	5750	6206	6775	7180	7495	7625	7735	7965	8199	8419	8665
3235	4635	5760	6210	6800	7185	7500	7630	7740	7970	8204	8424	8670
3240	4680	5773	6235	6806	7200	7510	7640	7750	7980	8214	8434	8680
3280	4695	5775	6240	6815	7206	7510	7640	7750	7980	8214	8434	8680
3290	4710	5780	6245	6840	7215	7520	7650	7760	7990	8224	8444	8690
3300	4735	5787	6273	6840	7240	7530	7660	7770	8000	8234	8454	8700
3410	4790	5800	6275	6850	7250	7540	7670	7780	8010	8244	8464	8710
3420	4820	5810	6275	6875	7275	7550	7680	7790	8020	8254	8474	8720
3455	4815	5820	6300	6875	7275	7550	7680	7790	8020	8254	8474	8720
3465	4820	5825	6306	6900	7300	7560	7690	7800	8030	8264	8484	8730
3475	4860	5860	6315	6906	7306	7566	7696	7806	8036	8270	8490	8736
3635	4845	5830	6325	6925	7316	7576	7705	7815	8045	8280	8500	8745
3640	4852	5852	6335	6940	7325	7585	7715	7825	8055	8290	8510	8755
3710	6380	8300	8340	8950	7340	7610	7833	7958	8083	8293	8558	8733

**SPECIAL
FT-243
FUND. FREQ.
59¢**

GREAT LAKES DIVISION

KENTUCKY—SCM, Albert M. Barnes, W4KKW—SEC: JSEI, PAM: SUD, RM: QCD. Kentucky has a new s.s.b. net, organized Oct. 14 by K4CEC. The new net is called KSN and meets Mon. through Fri. on 3975 kc. PAM SUD reports the Simulated Emergency Test was very successful on KPN. A total of 109 messages was handled. C.L. Red Cross and ARRL traffic was cleared direct to INJM and IAW on 3550 kc. The liaison stations are doing a very fine job between KPN and KYN. RM QCD reports KYN cleared 456 messages in 58 sessions. KYN certificates have been issued to K4CNJ, K4OAH and K4QKQ. New OPNs are K4LRL, K4LWL and 4M1MW. The new EC for Bell, Laurel, McReary, Pulaski and Whitley Counties is K4AXE, in Somerset. KPN certificates were sent to AZQ, BBD, K4BPN, K4ECJ, K4HKB, K4M1W, K4KHE, K4JPP, K4K1O, MWR, WNF, K4HBF, K4GAG, K4IHE, K4LWL, K4M1W, OGY, K4QKQ and ZWE. K4ALS made the BPL K4OAH has full break-in and a new vertical. BAZ is active on all bands 2 to 100 meters. MWX, Kentucky Novice Net (KNN) manager, says KNN is growing with the help of K4CSH and K4PGF as NCSS. K4DLG is QRL with Aristo Cats dance band. CDA is very QRL work. K4LWL liaisons the 2-Meter Louisville Net. K4JGN is QRL college. KKG is using duplex on 11 meters. K4DLI has 61 countries on 10-meter phone. OMW has 126 countries and a new tri-band two-element beam on 20 meters. JUI is rebuilding. K4ITO heard Antarctica on 50 Mc. NUQ, OPS in Henderson, reports that MWX has a new NC-300. OGB has the new shack insulated and soundproof. OSN is proud of a new Pacemaker. HKT sports a Pacemaker, Johnson KW and tri-beam. NUQ put his 10-meter rig in his truck. Twenty-three of Henderson's hams have emergency power and low-power rigs for c.d. work. Traffic: K4AIS 367, OAH 350, W4ZBD 271, KKW 172, QCD 150, BAZ 147, K4K1O 108, KIN 94, CSN 92, W4JSH 96, M1WX 62, K4M1W 54, W4OYJ 51, RPF 50, K4DLG 41, AKD 30, AXE 28, W4ZWE 28, K4PGF 27, W4CDA 26, K4LWL 26, JGN 25, W4NGN 25, HOJ 24, NIZ 24, CSN 21, HJI 21, KKG 21, NUQ 10, SZB 10, K4DLI 3, W4JUI 2, OAH 2.

MICHIGAN—SCM, Thomas G. Mitchell, W8RAE—Happy New Year, gang. I hope that your Christmas was a merry one and that the new year will bring health and happiness to all. New appointments made during October: K8CKD as OPS; K8AYL as EC for Ionia County; ARR as OBS; YVG as OBS and OES. Congratulations and best wishes to all. New officers of the Barry County Amateur Radio Assn. are KN8EET, pres.; MBM, vice-pres.; K8BIF, secy.; VXL, treas.; and TOX, act. mgr. The Brass Pounders Amateur Radio Club (Pt. Huron) has elected the following slate: K8BDI, pres.; WMN, vice-pres.; K8AZC, secy.; and PWQ, program chmn. JJJ has been very active in phone-patch QSOs with the fellows in KC4-Land. The latest report from him indicated 257 such QSOs and most of them for patches. It seems that he must be about the ranking single-operator station in such service. The comments on their cards attest to their appreciation of his time and efforts. Michigan was very well represented during the September 18 F.M.T. by the following stations: WQF, TZD, RDL, IYZ, HPR, BYV, BKV and AYY. The Genesee County Radio Club has completed installation of equipment for 2, 10, 75 and 80 meters in the County C.D. Control Center. FAV reports activity from Muskegon, where he is enjoying 40-meter c.w. activity after a long absence. KJC is orbiting back to activity with a Ranger. The QMN has missed him and is glad to have him back. HKT is taking a fling at the DX boys for a change of pace. TCY, EQK, IJJ, EGI, DXJ and JUY provided communications facilities for the Michigan Women's Air Race from Lansing to Traverse City on October 4. In case you happened to wonder who the

(Continued on page 112)

FT-243—From 1005-1995. Steps of 5 KC ea.....\$1.99
FT-243—From 2005-2999. Steps of 5 KC ea.....\$1.99

NOVICE BAND FT-243 Fund. or DC-34 Freq..... 99¢
80 Met. 3701-3748—Steps of 1 KC. FT-243 or DC-34
40 Met. 7150-7198—Steps of 1 KC. FT-243 only
Dbl. to 40 Met. 3576-3599. Steps of 1 KC. FT-243 or DC-34
15 Met. 5276-5312—Steps of 1 KC. FT-243 or DC-34

Special! FT-243 Prec. Calibrated to 1st Dec.

2 Meters { Exam: *8010.6 x 18=144.190
 { Exam: *8010 x 18=144.180
Note—Only 10 KC difference between the above

6 Meters { Exam: *8340.6 x 6=50043.6
 { Exam: *8340 x 6=50040
Note—3.6 KC difference between the above

This is a must if you want exact freq. on these 2 pop. bands.

Hermetically Sealed for new Genset.....ea. \$2.50
Thin-Line FT-243 for new Genset.....ea. \$1.49
Calibrated FT-243 as exam. above* spec.99¢
Don't take chances with uncalibrated surplus—Be sure of freq.

FT-241 SSB. Matched Pairs.....pr. \$1.95
FT-241 Single Side Band low frequency Crystals—
370 KC to 540 KC.....ea. 49¢
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2009—2182—2637 etc. Tol. .005%.....ea. \$2.99

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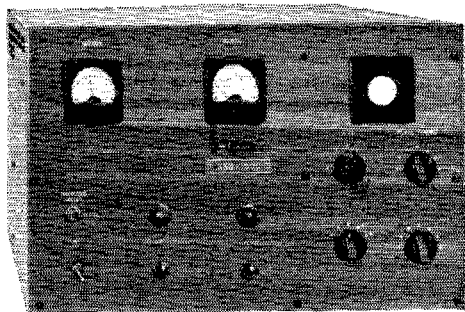
Include 5c per crystal for postage and insurance, Calif. add 4% Tax. No. C.O.D.'S. Prices subject to change. Ind. 2nd choice; substitution may be necessary. Min. Order \$2.50.

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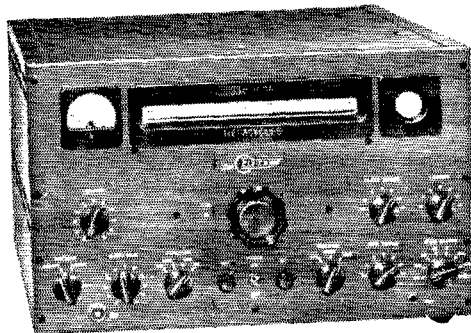
ELDICO SSB-1000

POWER RATING: DC input C.W. 1000 watts,
A.M. 700 watts.

PEAK ENVELOPE POWER: Input SSB-1000 watts.
Output SSB-625 watts.

FREQUENCY RANGE: 10 thru 80 meters.

TUBE LINE-UP: 9 tubes; two 866, two OA2, one
OB2, one 6AU6, one 1CP1, two 4 x 250B.



ELDICO SSB-100F

TYPE OF EMISSION: C.W. — A.M. — SSB Power ratings: DC average input SSB-100 watts; A.M. input (two tone test) — 60 watts. Peak envelope power input SSB-144 watts. Peak envelope power output SSB-100 watts.

HARMONICS AND SPURIOUS RESPONSES: Spurious mixer products — 50 db or more down. Third order distortion products — 35 db or more down. TV interference suppression — 40 db or more second harmonic, 60 db or more higher harmonics.

UNWANTED SIDEBAND & CARRIER SUPPRESSION: 50 db minimum attenuation, through low frequency crystal lattice filter.

ELDICO, long-time pioneers in designing completeness into transmitters, spent a lot of time over the coffee pot and drawing boards to produce the newest and finest package, that's as much at home on the SSB frequencies as in the midst of trunk line "A" or a 75-meter AM roundtable.

What does this mean to you? For one thing you'll get a chance to really enjoy ham radio at its fullest and richest . . . you can find out what the other man likes and you can compete on even terms.

Price? For \$795 you start with the 100-watt SSB-100F transmitter exciter. With it you drive ANY final amplifier, or you can add, for \$745, the SSB-1000 kilowatt amplifier. Look over the specs, compare with anything on the market, and then get together with your ELDICO distributor to find out what terms can be arranged to put this "Years Ahead" gear in your shack.

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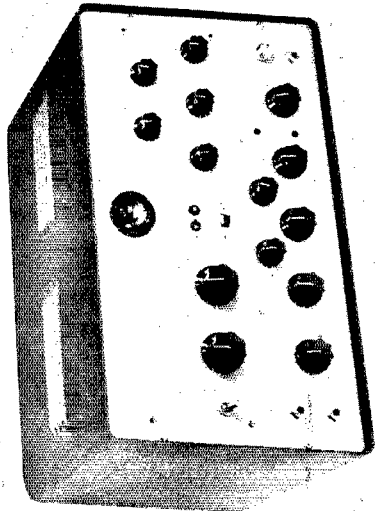
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IMPROVED AND ADVANCED OPERATING FEATURES

- 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.
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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.
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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**

Price and design subject to change without notice.

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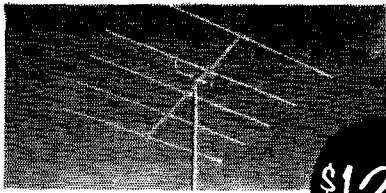
MANITOWIC, WISCONSIN

MANUFACTURERS OF PRECISION ELECTRONIC EQUIPMENT

4SHW/8 was in the SS Contest, he is from Florida and is now with WHFB in Benton Harbor. He's no newcomer to SS as he was the 15. Fla. winner in the 1956 SS. TIN reports a new "Michigan 6-Meter Net" in operation on 60.25 Mc. at 2300 Sun. Headquarters is requesting a survey of v.h.f. nets by states. Please advise me as to the existence and details of any such nets so that I can tabulate and forward the information to Hq. Traffic: W8OCU 234, NUL 210, ILP 164, DJN 117, YAN 108, QQQ 92, FWQ 90, K8NAW 71, W8FX 60, OCC 87, DAP 53, RTN 44, HKT 42, RVZ 25, NOH 23, OGY 33, RAE 22, WXO 19, DSE 18, EGI 18, K8CKD 8, W8SCW 6, AUD 5, WVL 5, MSK 4, QLX 4, FGB 1, RJC 1.

OHIO—SCM, Wilson E. Weckel, W8AL—Asst. SCM: J. C. Erickson, 8DAE. SEC: UPB, RMR; DAE and FYO. PAMS: FNN, HPP, HUX and HZJ. EXE is now 6MYS and will be looking for the Zanesville gang on 29.616 kc. ZAU has been on a six-month business trip. IKM spent two weeks in SC fishing. K8s DYJ and EJS received their General Class tickets. SV1 has 30 states on 144 Mc. Denison Univ. RC-Licking County Radio Amateurs elected K8DOM, pres.; K8SEKJ, vice-pres.; and K8SEKI, secy.-treas. Be sure to mark your calendar for the Dayton Hamvention to be held Apr. 18 and 19, 1958. The Dayton ARA's *K-L Carrier* states that v.h.f. certificates were awarded to AAL, BMO, BEC, DPW, GFN, GHX, KOT, MVL, NEE, QDL, SW, TEX and K8HUG. There were 35 in attendance at the club's first code and theory class. VTP had the mumps. Springfield ARG's Q-5 tells us that DKG is well pleased with his short rhombic; K8DVZ has a 60-ft. crank-up tower, a 3-band two-element beam and a Globe Champion. The Club has two code classes. The Ohio Valley ARA sent me their *DY Bulletin*, which is packed with DX dope. Everyone interested in DX should write 4KVX for details on how to obtain it. The Parma RC elected K8CCV, pres.; HCV, vice-pres.; and K8BWE, secy. The club station call is K8DTR and meetings are held at St. Edward High School in Lakewood. K8CCV has a new three-element Felrex 10-meter beam. A teen-age net has been formed in the Cleveland Area with UQZ as net control. The Cuyahoga County Amateur Radio Emergency Corps mobile stations took part in establishing all types of communications at the sports car races at Akron with the following taking part: W8, AEU, BDZ, BPE, BPN, EBJ, FKB, FQM, GHO, GRY, HZY, LHX, NRI, NZI, OYN, OKI, OXI, PVA, PVC, QLB, QXG, SQU, TFW, VBU, VJA, VZB, and K8s BYS, DOG and ETE. UKM, K8EQN and K8NHED have new SX-101 receivers. RNL has a new 75-ft. tower and a Lys o exciter. JJJ has a new NC-300. QAZ has a new 50-ft. tower and 10-meter beam. K8BNR has a new Ranger. AJW was Ohio winner in the 1957 Sixth Vermont QSO Party. The Columbus ARA's *Carascope* informs us that K8HHS, the son of K8HELL, was awarded a scholarship and is attending Grinnell College. BCK has a new SX-100. GHO has a new steel tower. TPU, VOW, IBX and DWP are working TDN and IPP worked his first JA station. UPB visited Youngstown, Cleveland, Sandusky, Mansfield, Pittsburgh, Wheeling, Marietta and Ironton to discuss AREC and e.d. problems. TDN is going mobile. Toledo's *Stack Gossip* states that TLC is the Ham of the Month, the Carmar ARA has been reactivated with VDR, ESN and TZO elected as trustees, the Toledo RC held its annual tazo night with about eighty attending, the e.d. held a mobile transmitter hunt with 25 participating, QCT has gone mobile, an auto accident put VSB in the hospital, TOTJ, formerly ODX, is a Silent Key, NPU has started her 20-meter s.s.b. net for YLs on 14.275 kc. at 10:45 a.m. KN8HDZ is a new Novice in MacComb, MI. MXO has a new 45-ft. crankup tower. TZO received an S6S DX award. FFK is rebuilding the station. HZN moved to Florida. HZJ, on a two-week trip, worked back home everyday via the Barnyard Net. SVL applied for V.A.-JF WRC awards. K8WBL has a new DX-40. K8BPCX has 75 countries. K8DDG is attending Ohio State U. K8BCX and MIY have new receivers. IJL is now a grandpa and TBPT is the grandma. WTO worked 30 countries on 20 meters in two weeks with 25 watts and a vertical antenna. KN8HAX has a new Globe Scout and is on 6 meters. It was with deep regret that I learned of the passing of FNN, our recently-appointed PAM, who, I understand, founded the Barnyard Net. K8Ns: HZN, IBD and IDH are new Novices in Canton. New appointees were QLI and WTO as QRS and SQU as QLS. Traffic: (Oct.) K8AEC 532, W8UPH 470, K8BPCX 203, BIZ 202, W8CFE 175, QJL 158, SZU 141, UPB 135, VTP 122, DAE 106, HNB 100, SVL 98, CSK 85, K8DIZ 55, W8CTZ 46, AL 31, GOD 28, WE 23, FFK 22, USU 22, RO 17, W9VBV/8 17, W8BEW 16, CGF 10, MXO 10, QIE 10, VVX 9, WAR 9, WTO 9, MGC 4, OLU 3, HZJ 2, STR 2, (Sept.) W8OPU 58, RO 10.

(Continued on page 114)



6 Meter, 5 Element beam; boom length of 108", with a forward gain of 9 db. Net wt., 9 lbs.

\$1295



6 Meter, 8 Element beam; boom length of 216", with a forward gain of 12 db. Net wt., 18 lbs.

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The hy-gain 6-meter beams are adjustable for maximum gain over the entire band, from our instructions. No further tuning is necessary. A Calibration Chart is supplied with each instruction manual. Factory preassembled, these beams feature heavy wall $\frac{1}{2}$ " aluminum elements of 6061T6 alloy, and $1\frac{1}{4}$ " diameter aluminum booms. They may be stacked for additional gain. Stacking bars for further gain for either model are available at \$3.95 additional.

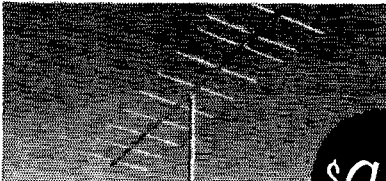


New pre-calibrated (GAMMA-XIAL) Gamma Match assembly with coaxially formed reactance cancelling capacitor built in, makes possible for the first time a perfect 1:1 SWR. Coax connector for 52 ohm feed included. Developed by hy-gain's engineering staff and used exclusively in the hy-gain single band beams.

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FOR THE 1 1/4, 2 & 6M BANDS



1 1/4 Meter, 10 Element beam; boom length of 80", with a forward gain of 12 db. Net wt., 2.5 lbs.

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These hy-gain 1 1/4 and 2 Meter Beams are factory pre-assembled; the elements snap into position for immediate use. Each features $\frac{3}{8}$ " aluminum elements of 6061T6 alloy, and 1" diameter aluminum booms. Extremely easy to put up and into operation, these beams may be stacked for additional gain. Stacking bars for further gain for any of the models are available at \$3.95 additional.



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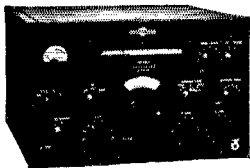
2 Meter, 10 Element beam; boom length of 112", with a forward gain of 9 db. Net wt., 5 lbs.

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(PHONE or WRITE W5HHT)

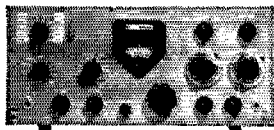
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from Collins*



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.
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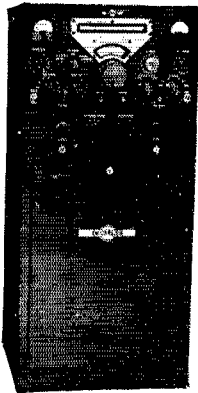
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Companion transmitter to the 75A-4. Unmatched performance in minimum space for a kilowatt. Extremely accurate 70E VFO, Pi-L output network and Mechanical Filter.
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The first mobile SSB transceiver in the Amateur field — 175 watts PEP, 14-30 mc. Fixed station use without modification.
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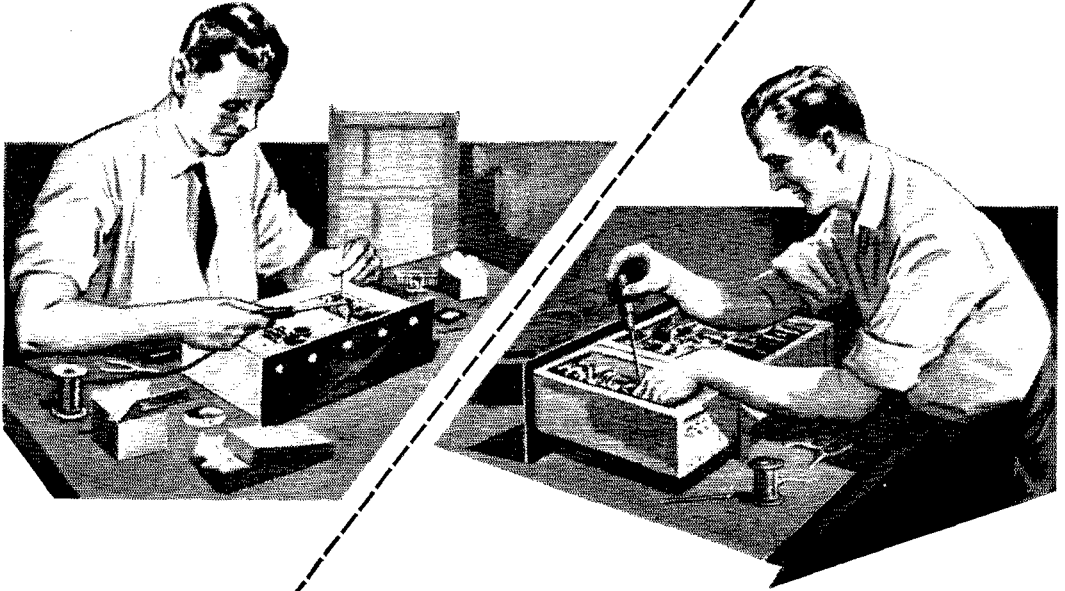
EASTERN NEW YORK—SCM, George W. Tracy, W2EFU—SEC: KGC, RM: BXP, PAMs: JIG and NOC. Section nets: NYS on 3615 kc. at 1900, NYSPTEN on 3925 kc. at 1800, SRPN on 3980 kc. at 1130, IPN on 3970 kc. at 1530, ESS on 3590 kc. at 1800, MHT (Novice) on 3716 kc. Sat. at 1300. Welcome to the Communications Club of New Rochelle as a new affiliate. WQL reports the Harmonic Hill Club had a stereophonic sound demonstration at its October meeting. Ex-K2GNY writes he will be on a DXpedition to Johnston Island about the first of the year using KH6CNU/KJ6 or KH6CMAI/KJ6. Look for him on c.w. from 7 to 28 Mc. Congrats to DG V, D1N, TEB, K2EDH, PIC and PUF for the fine showing in the Sept. F.A.T. Hudson Division Director OBU was a visitor at the November meeting of the Schenectady Club. A new Ranger and verticals from 80 to 10 meters enhance the shack of KQI. New appointment: K2SFY as EC. The Albany Club held its annual auction Nov. 8. Among those attending the Syracuse V.H.F. Roundup was K2OXV, whose XYL grabbed the main prize. K2HPN was mobile on 50 Mc. through Ohio, Kentucky and Pennsylvania. K2TCD says he has worked 90 countries with 65 confirmed and was pleased to get KC4USI in the Indian Ocean. The 6-meter opening found K2YWH working 25 stations in California, Oregon and Washington in two hours on Nov. 4. Did you miss it? A new printed circuit rig for 50 Mc. is being used by K2PRB. Reports received from Albany, Dutchess and Schenectady Counties indicate very successful S.E.T. participation. EFU says, "Build your mobile gear for easy conversion from 6 to 12 volts after taking it out of the old car and reinstalling the new one." The Union College Club, GSB, is building a new kw. rig using 4-250As in final. Traffic: (Oct.) W2PHX 202, K2HPQ, 154, VTW 122, W2EFU 115, ATA 82, K2YTD 73, QVA 35, QJL 20, UYK 16, HINW 12, RKY 10, BAB 8, CKG 7, W2ERO 7, K2YJL 7, KN2ZMH 1. (Sept.) W2ATA 19, K2BE 10.

NEW YORK CITY AND LONG ISLAND—SCM,

Harry J. Dannels, W2TUR—SEC: ADO, PAM: OBW, RM: WFL. Section Nets: NLI, 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. Four Stations earned BPL cards this month: KEB, K2PHF, VDT and K2SEK, the latter two on originations plus deliveries. VDT reports that his BPL was largely the result of delivering traffic for Brooklyn, Manhattan and the Bronx from his Queens QTH. These messages could have been relayed from their respective boroughs if stations had been available. How about it, Manhattan, Bronx and Brooklyn? KN2CQK, Oakdale, is now in charge of the Long Island Novice Net (LINN) on 3745 kc. New officers of the NYURC are LDM, pres.; R. Hodder, vice-pres.; K2VNT, secy.; K2LEE, treas. and E. Dusio, technical consultant. Your SCM regrets to announce the passing of AA to Silent Keys. BQM added four more countries to raise his all-phone total to 166. K2RJO is on s.s.b. with a 10B exciter driving his Viking II. PZE added a Johnson Directional Coupler to his rig. HVC and his son, K2CON, are on the air with an HT-30 and 75A-4. ASI and his son, K2DEM, added a three-element Tri-band beam and Collins phone patch. K2OZY is attending Michigan State University; K2OZE is attending the University of Pennsylvania; ex-K2PSV, now signing K9IWO, is attending the University of Wisconsin. K2RHG, Staten Island, is on 6 meters with a 20-watt home-brew rig. New officers of the Garden City HSRC are K2KRH, pres.; K2ORA, vice-pres.; and K2TZS, secy.-treas. The Fordham RC enjoyed an interesting talk on s.s.b. by JIO and K2CWQ. New calls at Columbia U. ARC are PKN, K2VXY and KN2ZVK. IVS received the final cards needed to complete his DXCC. K2EQH now runs 85 watts on 2 meters and the 143,460-Mc. MARS Net. CBT, trustee of the Huntington RC, DPO, joined Silent Keys. VVY added a Tri-band beam. HAE worked VS6DX on 15 meters to complete his WAC. K2HTX has a Viking Valiant active on all bands. K2s MEM, SEK and SSE have a social and traffic net called the Mega-cyclone Net on 3908 kc. from 1530 to 1630 Mon. through Sat. All stations are invited to participate. WN2JGQ is on the air with an AT-1 and NC-98. K2s HSY and OVN have received appointment as Asst. EC for their excellent work with the Kings County 2-Meter Net. The Kings c.d. and AREC boys are planning competition between the 10- and 2-meter groups with emphasis on message-handling accuracy, number of messages and percentage attendance. K2SIF is on the air with a DX-100, an HQ-129X and a three-element 15-meter beam. He has earned his WAS and has 57 countries worked. The Nassau County 10-Meter AREC group has changed its drill night to Mon. at 2000 on 28,720 kc. The net finished

(Continued on page 116)

Dependability



for building.... or rebuilding

Mallory has been a respected brand name in electronics for years. Long recognition and widespread acceptance are not easily earned—they come from continuous engineering and proof of performance.

Mallory vibrators, for example, offer up to twice as much life—from a completely new concept in contact design. This innovation also reduced driving power requirements and virtually eliminates mechanical noise.

Mallory research and development gave the industry Mallory FP capacitors. Featuring etched cathodes and

fabricated plates, these long-lived units hold their rated capacity longer—even under severe service.

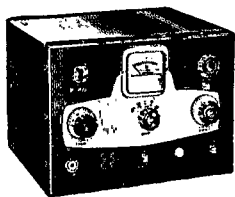
Good designs like these are part of Mallory's unceasing efforts toward complete dependability—toward making the best possible components for new circuitry or for rebuilding.

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Viking "Adventurer" CW Transmitter

Ideal 50 watt CW transmitter kit for the novice! Easy to build and safe to operate. Gives you practical construction experience. Designed for more than just the novice class. It stacks up favorably for flexibility, operating convenience, and real DX

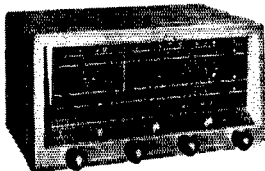
punch against transmitters costing far more! Compact; completely self-contained; single knob bandswitching 80 through 10 meters. Complete with built-in power supply, tubes, cabinet, wiring instructions & antenna suggestions.

Viking "Adventurer" Kit complete with tubes, less crystals & key. Net.....\$54.95

New Modulator Kit for Johnson "Adventurer"..... \$12.50

Hallicrafters Model S-38E

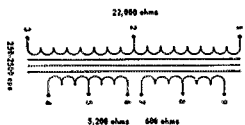
Broadcast band 540 to 1650 kc. 3 shortwave bands 1650 kc to 32 mc. Communications type controls for accurate tuning. Separate bandspread tuning control. Headphone tip jacks on rear. Built-in PM speaker. Oscillator for reception of code signals. 4 tubes plus rectifier. 105-125 volts, 50-60 cycles AC or DC. Amateur Net..... \$54.95



"Wonder Bar" 10 Meter Antenna

As featured in Nov. 1956 QST. Complete with B & W 3013 Miniinductor. Only 8 feet long for 10 meters. Shpg. wt. 5 lbs. Please include sufficient postage.

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Versatile Miniature Transformer

Same as used in W2EWL SSB Rig—March '56 QST. 3 sets of C.T. windings for a combination of impedances: 600 ohms, 5200 ohms, 22,000 ohms. (By using the center-taps the impedances are quartered). The ideal transformer for a SSB transmitter. Other uses: interstage, transistor, phone patch, line to grid or plate, high impedance choke, etc. Size only 2" h. x 3/4" w. x 3/4" d. Brand new. Fully shielded. At fraction of Government cost.

Amateur Net, each..... \$1.39
3 for \$3.49! 10 for \$10.75!

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another year of successful operation with 75 full members and 10 supporting, with 52 mobiles and 2 portable stations. The Fordham RC announces the issuance of a "Worked All Bronx" certificate. The AMPS RC is building printed circuit converters for 6 and 10 meters. K2BSU is a new member of the club. KN2EMD is active on 80 meters. K2HZC/LUR added an all-band vertical trap antenna to their antenna farm. New members of the Levittown ARC are K2VWF and WN2PRU. May 1958 be a successful year in all your endeavors. Traffic: (Oct.) W2KEB 2451, K2PHF 951, W2VDT 367, K2SEK 227, W2DRD 101, AEE 82, OME 38, K2RJO 37, TSE 32, W2GP 31, K2KSP 28, BH 26, W2PF 25, K2PMI 25, SSE 21, MEM 19, W2OBU 19, TUK 14, K2LUM 13, W2DUS 12, EC 11, JBQ 11, K2EQH 10, W2LPJ 6, JGV 5, K2CMV 2, DDK 2, DQD 2, W2DSC 2, K2ITZ 2, W2HAE 1. (Sept.) W2AEE 137, LGK 18, IVS 10, DSC 2. (Aug.) W2IVS 6.

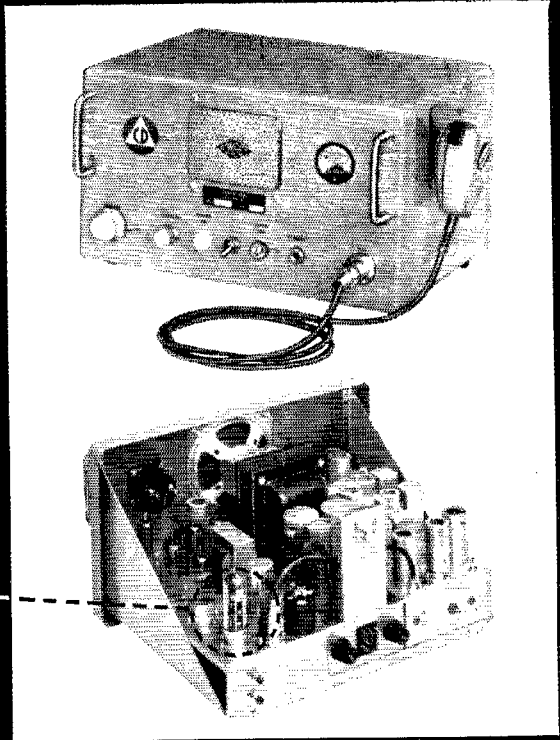
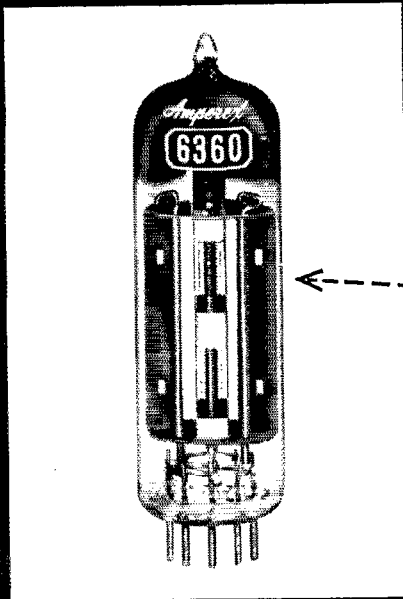
NORTHERN NEW JERSEY—SCM, Lloyd H. Manamon, W2VQR—SEC: IIN, PAM: VDE, RMs: BRC, CGG and NED, AOY, who used to operate BDD during the early thirties, is back on the air with a new DX-100. VDE is back on the air from a new QTH. K2LBF would like some information on conversion of the R-3A/ARR-2X 234-Mc. receiver to operate on 220 Mc. K2VAB and SBT are on the air working good DX with their Valiant. K2UQY is working some good DX on 40 meters. K2MFF has a new night job so his operating has fallen off a bit. NYI received his VA-JF certificate. VYB is QRL with work and college. WN2TKZ finds DX on 15 meters very intriguing. HLXU still is bothered with TVI. K2EQP is very active on the traffic net. K2KVR is net mgr. for the N. J. 6-Meter Traffic Net which meets Wed. and Sat. at 2300 on 51 Mc. Alternate net control stations are K2MIQ, QOS and PNN. K2MFX is off 6 meters, having sold his rig to K2UXV. K2LEO, ROZ and W2SHU are building 2-, 6- and 220-Mc. converters for a very reasonable price. K2POH has a new rig on 20 meters. QCY and K2MEU are moving to Florida. TTM and PWX traveled to Syracuse to attend the 3rd Annual V.H.F. Roundup. K2DSW has a new beam on 10 meters and a new 417-A 2-meter converter. K2DYW will head for Florida as soon as he sells his home here. K2SYR has a fine collection of colored slides of RRRA club members' stations. The Bloomfield Civil Defense group held its annual meeting and open house on Nov. 12. The Hill and Gulley Radio Club and Chowder Marching Society is a brand-new organization. Among its members are ZEP, WRG, K2ULB, QLQ and K2NVJQ. LRO operated in the Metuchen RACES Control during the recent New Jersey alert. K2OAM is looking for stations to start a 2-meter traffic net. K2RJD has a new NC-183D receiver. EWZ made BPL for October. GUV is all fired up with his antique IP-501A and IP-503 ship receiving gear. K2QYI received a certificate for being second in New Jersey in the Virginia Free For All. K2VVL has an HT-32 and a SX-100. WN2MRV is on the air with a new transmitter. RXL is the new NCS on NJN Thurs. evenings, replacing K2MFF. K2TNJ is fast becoming a real traffic hound. The NJN monthly report for October shows 27 sessions, 370 attendance and total traffic of 299. The following new slate of officers were elected by members of the Night Owl Net: KRE, pres.; K2MAH, vice-pres.; K2KGB, secy.-treas. This net offers a special certificate for contact with five or more members if you reside more than fifty miles from Passaic. If you work ten or more members within a radius of fifty miles of Passaic you also qualify for the certificate. K2GYQ, ex-SV0WA, is a resident of the section. Look for him mobile on 20 meters with his KWM-1. K2YWI is heard mobile on 10 meters. MPT moved to a new QTH in New Shrewsbury. GCV has a new Valiant and all-band vertical antenna. K2VIV now is Technician Class. The IRAC held two very successful hidden transmitter hunts to open the club season. The first hunt was won by TYC and RXH. The second hunt—well, they still are looking. DXD writes that he will be located in Argentina for a spell. The Bloomfield RACES group has resumed publication of its monthly paper, *The Signal*. Looks like K2ICE is planning to launch a new contest on 144 Mc., with a special certificate to be issued to all stations working either his station or two other stations to be announced at a later date. Rules and regulations will be forthcoming, we trust, real soon. Traffic: W2MLW 262, K2TNJ 257, BHQ 228, OAM 154, MIM 136, W2EWZ 126, RXL 96, RRC 87, K2EQP 84, KGB 80, QYI 55, W2EBG 51, OXL 51, K2MFF 31, RGS 30, MFX 19, SYB 18, VMX 14, CVW 9, CJX 4, NYI 3, K2JTU 2, VVL 2.

MIDWEST DIVISION

IOWA—SCM, Russell B. Marquis, W0BDR—On the
(Continued on page 118)

CIRCUIT BY GONSET

New 25-250 Mc
fixed-frequency Communicator
made by GONSET, Burbank, Calif.



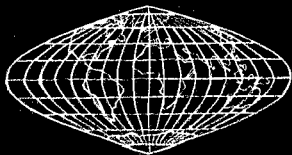
AMPEREX Type 6360
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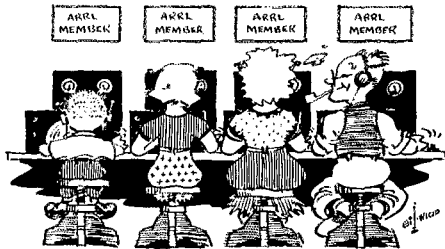


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evenings of Oct. 30 and 31 ten mobiles, directed by KØJY, assisted by the Cedar Rapids Police Dept. in Operation Halloween with the control station at the police station. The Clinton Club is outfitting a truck with a Globe King 400 and other accessories for use as a portable civil defense unit. The Burlington Club is setting up a club station for civil defense work. AEH reports that KØANF and EDM are working 220 Mc. KYQ and UNJ have been working with TV on 420 Mc. KØAHZ renewed his OPS appointment. ACC is a Silent Key. PP is active again mostly on 40 meters. FMZ is on s.s.b. with a 10B and 100-watt final. KØJDK has a new Johnson Valiant. BDR visited the Mason City Club. KØAGJ is a TLGN member. The Central High School Radio Club of Sioux City has been approved for ARRL affiliation. The Webster City Club has rented a room for use as a club station. Iowa showed increased activity over 1956 in ARRL's Simulated Emergency Test. The 75-Meter Phone Net held a special session to handle S.E.T. traffic. KØCLS made BPL again this month on originations and deliveries. Jerry now has a 2nd-class commercial ticket. The Central Iowa V.H.F. Amateur Radio Club (ZTW, pres.; KØHTF, secy.) is back of the new 6-Meter Iowa net. Of 18 members SMJ already is WAS on 6 meters, and a bulletin is being put out by KØBAN. Traffic: (Oct.) WØBDR 2951, SCA 2052, JCX 1189, LGG 936, GXQ 436, CZ 410, KØCLS 303, WØQYA 157, BLH 90, UTD 63, NGS 54, NYX 50, KØEXN 37, WØPZO 27, KØAHZ 19, WØREM 17, KØCYF 16, WØLWJ 16, WAD 16, BTX 12, IUY 11, PTL 11, SLC 11, SWD, 11 VWF 11, FMZ 10, KØBRE 8, WØUHO 8, UTX 8, KØCFB 7, GEH 5, WØEEG 4, GQ 4, FDM 4, KØGHZ 3, IGU 2. (Sept.) KØGXC 34, WØCQ 15.

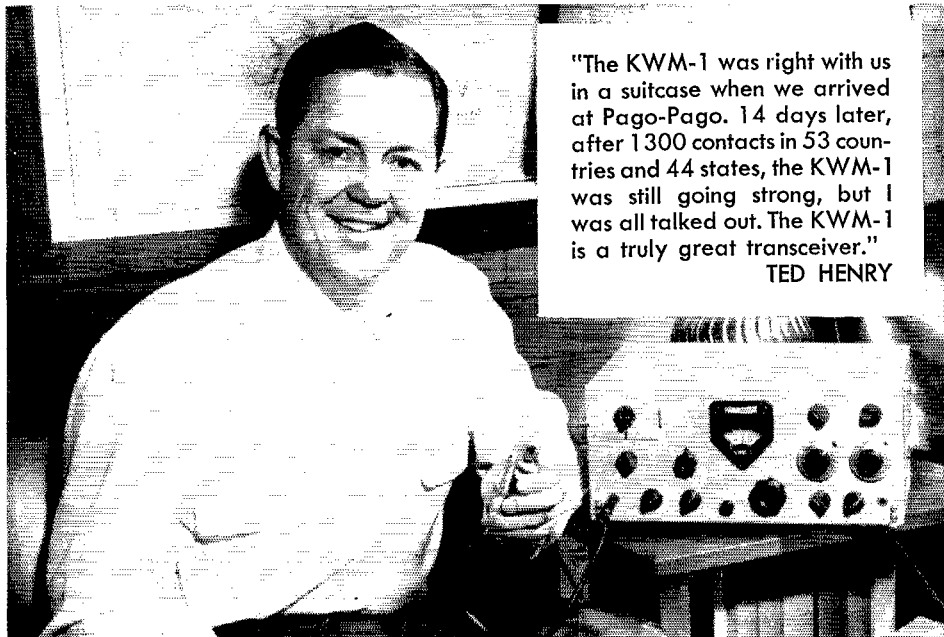
KANSAS—SCM, Earl N. Johnston, WØICV—SEC: PAH, RAI: QGG, PAM: LEW, V.H.F. PAM: ZJB. Because of the keen interest and activity on v.h.f., ARRL recommends the appointment of a V.H.F. Phone Activities Manager. We are happy to announce that ZJB will accept the post. Vince works HAJ, MVG, JAS, QDH, ETX, BDK, YUQ, UFP, AER, OZK, CTK, KØEKN, GIA, AQJ, ATS, WØAPG, BVU, JND, WØPZ, HXK, IOW, HTZ, NDE and DFU practically any time. Those interested in details on v.h.f. in this section may write Vince. An S.E.T.-C.D. and Red Cross Drill was held Nov. 10 at Wichita, ITO, working lots of DX on 20 meters, now has C.W. WAS on 80, 40 and 10 meters and about half on 20 meters. Jim also has acquired a CP-25 certificate. The Wheat Belt Radio Club met to make plans for its annual Christmas dinner. FDJ advises of a Technical Discussion Net on 3875 kc. each Sun. at 1400. This net is designed for MARS members to exchange conversion ideas, but all amateurs are welcome. Traffic: WØBLI 553, TOL 339, KØBXF 292, WØFNS 286, NLY 223, QGG 204, KØHSF 68, WØABJ 54, KNØKDV 53, KØBIX 49, HVG 33, WØUOL 33, IFR 14, QQQ 12, HL 9, FDJ 8, ICV 7, ITO 6, LZJ 6, LEW 4, ASY 2, WIZ 2.

MISSOURI—SCM, James W. Hoover, WØGEP—BVL is back on the air regularly after being away the last few months. CPI reported good fishing in the Gulf while vacationing in Galveston, Tex. KØIHY has finished building a Monimatch and grid-dip oscillator. KØDEX is operating from Branson, Mo., while attending college. GCL has been operating 75-meter phone recently. RTW has finished a Wonder Bar for 10 meters and reports it is working out satisfactorily. JHY is operating from KØNRL. EEE has a new 800-watt, all-band transmitter. The Bandhoppers Radio Club held its annual dinner with Field Day movies from the last four years as the main entertainment. TPB has been widely quoted by St. Louis newspapers and television in connection with radio reception and visual observations of Sputniks I and II. TPB is a member of the St. Louis Astronomical Society and the Vanguard Moonwatch group. MHS is completely inactive since entering college. ORF has been operating 20 meters exclusively for the last year. KØKXP, formerly KN2YUQ, has been operating with a Globe Chief and an S-40A receiver since receiving a General Class license in September. The Kansas City Amateur Radio Club gives a trophy to each three-time winner of its regular transmitter hunts. Highly successful auctions have been conducted by the St. Louis and Northwest St. Louis Radio Clubs. Traffic: (Oct.) WØCPI 663, GAR 528, YPQ 300, OUD 157, KIK 110, BVL 108, VJD 80, EBE 73, GEP 58, GBJ 35, KØDEFQ 31, WØMM 30, ÖVV 28, ZVS 26, KNØLSR 25, WØRTW 24, BUL 19, HUI 19, WFF 16, KØHBC 14, WØCKQ 4, IIR 4, KØIHY 3, KNØPJ 2, WØWYJ 2, KØEQW 1. (Sept.) WØWFF 67, UXT 15, KØDEQ 8, WØEEE 8, KØIFL 2, WØKA 2.

NEBRASKA—SCM, Charles E. McNeel, WØEXP—SEC: JJJ, PAM: MAO. The Nebraska State Convention held at Fremont was a great success with 150 in

(Continued on page 120)

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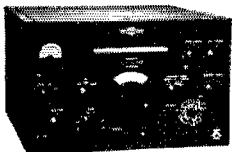
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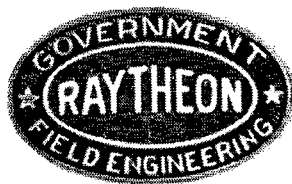
attendance. A good full program with a banquet and prizes in the evening was enjoyed by all and our thanks goes to the Fremont boys for such a swell convention. Plans are under way to make this an annual state convention held at some city in the State each year. Our Director, NWX, and our SEC, JDI, were in attendance. Reports from DDT, net mgr. for the C.W. Net, has 18 active stations now reporting. The net reports QNI 224, QTC 116. The 75-Meter Phone Net has re-elected ALAO as net manager for another year. This net reports 34 on roll call for October, QNI 418, QTC 49. The NSS reports QNI 196, QTC 63 with 10 stations on roll call Nov. 1. The Western Nebraska Net reports a good traffic count and QNI 516, QTC 48. The Nebraska Morning Net, K0DGV manager, reports the net going fine with QNI 379, QTC 73. Those 100 per cent QNI for October were K0DGV, SPK and VZJ. Traffic: K0DGV 245, W0DIT 163, ALAO 142, ZWG 115, EGO 38, K0BRQ 35, W0ZOU 31, FTQ 26, ZIF 25, KDY 24, QHE 17, K0HK1 15, W0BOQ 13, SPK 13, PDJ 12, HOP 11, ZWF 11, DQN 10, K0FBD 10, W0OCU 10, SAI 9, UJK 9, K0ELQ 5, W0KLB 5, K0LEF 5, W0AFG 4, VJZ 4, K0EPI 3, W0IAY 3, K0ELU 2, W0PUT 2.

NEW ENGLAND DIVISION

CONNECTICUT—SCM, Victor L. Crawford, WITYQ —SEC: EOR, RM: KYQ, PAMS: YHB and FHP. Traffic Nets: MCN, Mon.-Fri. at 0645 on 3640 kc.; CPN, Mon.-Sat. at 1900, Sun. at 1000 on 3880 kc.; CN, Mon.-Sat. at 1845 and 2130 on 3640 kc.; Conn. V.H.F. Net, Mon., Wed. and Fri. at 2030 on 146.674 Mc.; CTN, Sun. at 0900 on 3640 kc. The new Connecticut Traffic and Emergency V.H.F. Net is active at 2030 EST each Mon., Wed. and Fri. on 145.674 Mc. FHP has been appointed V.H.F. PAAL. Congratulations to AW, MQT, NJAL, TYQ, WZJ1 and YBH on making BPL in October. KYQ advises that CN held 27 sessions and handled 559 messages including 70 on the second session. Average daily attendance was 13. High QNI goes to GVK. RAN suffered equipment failure after 10 hours and 300 QSOs in the recent CD Party. FEA has added UQ2 and UA0 for new countries. The Hamden Amateur Radio Assn. provided three 10-meter and three 2-meter mobiles plus two base stations to help local police over Halloween. HGE is the new EC for East Hampton. YBH reports CPN met 31 times handling 332 messages with an average daily attendance of 32 stations. QNI honors go to KIAQB, DHP and YBH. 31: VTY, 29: TVU and VQH, 28: DAV and FHP, 27: BVB is recovering from an appendectomy. HAI is the new EC for New Preston. DHP is trying a little c.w. with his DX-20. REC is busy after DX. KIDQC is a new ham in Newington. CUT operated 2-meter mobile while on a vacation trip to Texas. EJH is pleased with the new window-sill antenna. He is active on 2 through 160 meters and has schedules with GWV and RLD on 160. MQT has a new phone patch. The Candlewood Amateur Radio Club elected ZBM, pres.; K2EHL, vice-pres.; ACR, secy.; NSG, treas. KAM reports the Milford C.D. acquired a large Army truck for use as a portable station. WHI reports a new net on 50.6 Mc. each Mon. at 2000 to 2200 EST covering Connecticut and surrounding states. MWB is active on IPN, CPN and 2 meters. AW received a VAFJ certificate. The CQ Amateur Radio Club met five times on 2 meters during October. Eight pieces of traffic were handled with a total attendance of 68. Appointments renewed: NEK and ULY as OPSs, BVB, EFW and NJM as ORSs, BYB and AMY as OOs, AKG, NJM and ULY as ECs. An SEC report was received from EOR. OES reports were received from ETF and FVY. FYF and DHP submitted OO reports. EFW reports that MCN handled 103 messages in 23 sessions. High QNI goes to IBE, 22: DTY, 21: REFJ 19. Traffic: (Oct.) WIAW 1520, YBH 954, TYQ 732, KYQ 391, AIQT 374, NJM 328, EFW 250, GVK 243, FYF 174, WZJ1 162, CUH 152, HDI 114, HID 90, VIA 69, DHP 54, FKJ 49, RFJ 49, LV 46, ULY 45, FHP 41, CJD 40, AAY 35, BYB 27, MWB 24, FCE 22, WPR 22, NQL 21, ZHM 18, KAM 16, YU 16, MDB 10, K1BFJ 9, W1EJH 6, GEA 3, HHR 3. (Sept.) W1YU 42.

MAINE—SCM, John Fearon, WILKP—PAM: VYA, RM: EFR. New appointments: CEV, VV and GKK as OPSs, SGH certificates have been issued to CEV, LXA and K1BAZ. QEE is now an engineer with UNIVAC at St. Paul, Minn. GZS is on 6 meters from Arundel. The NCSs of SGN are ZNL, LXA, HYD, UZR, FCS and CEV. KN1DIK is a new Novice in Unity. FWM is back on 80 and 40 meters from West Buxton with 50 watts to an 80Z. AWY now has a P&W 5100 with an FB signal. BXH joined the AREC. DTK got a deer at Ft. Fairfield. FTU is back on 75 meters from Waldoboro. ED has retired at Livermore. TBZ is active on 10 and 75 meters. ZNL puts out an FB signal on 75 meters with a Globe Champion. UVJ is experimenting

(Continued on page 122)



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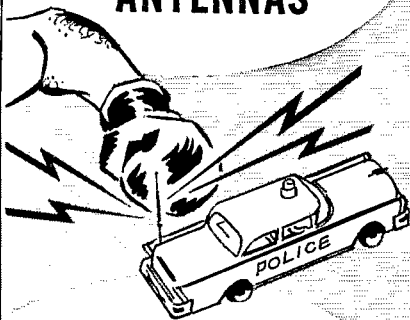
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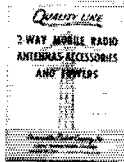
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with stereophonic sound. BHR is the new Radio Officer for Androscoquin County. CMO is on a hunting trip to Northeast Cary. ZLT is president of the Gardiner Radio Club. Cole and theory classes for Novices are held twice each month. ROM got a deer at Bingham. KNIDPG is a new Novice in Scarborough. NXX is at a new QTH in Gorham. OEN is back on 75 meters again after a long absence. Where have you been, Turner? EOP still has an outstanding mobile signal because of a "chicken wire" antenna that is really tuned. K2SOU visited Kennebunk Port, where he soon will retire. BRU is in Sarasota, Fla., with the call 4BU. A Happy New Year to you all. Traffic: W1LKP 284, C'EV 69, EFR 48, UDD 38, K1AKO 19, W1BDP 18, HYD 18, RJE 11, FV 10, OTQ 5, AHM 3, EWM 3, DVJ 2, UOT 1.

EASTERN MASSACHUSETTS—SCM, Frank J. Baker, jr., W1ALP—New appointments: LLY Sector 1D, FWQ Arlington, ADR Winchester as ECs; ZQM as ORS and OPS. Appointments endorsed: USA and BB as OOs; USA and ETH as OPS; USA, ALP, UIR and NF as OBSs; EGZ Harwich and BB Winthrop as ECs; UE as RM. Heard on 2 meters: ZSR, ZXC, K1CLL and KN1CNX. KWD has a new Gonset No. 3 for Weymouth. Heard on 75 meters: SGH, KGH, NCT, HZ, YQS and 510H/1 on Texas Tower No. 3. FNN is on 10 meters. CRO is in the Coast Guard. BNS bought a house. JXZ now is in Quincy. 60WD/1 is at Otis Air Base. YGF is hunting in VE-Land. EMG made BPL again. FJJ is manager of the Eastern States Net, which meets on 7080 kc. at 1730 daily. DIY needs Nevada for WAS. KN1DPI, new in Fairhaven, has a Globe Chief and a DX-100 RX. K1DCE is better after an operation. UKO worked UC2KAB on 15 meters. K1BUF was in the CD Parties. K1AYW has a Globe Scout 680 on 10, 15 and 20 meters. HZ is chasing DX on 15 and 20 meters. BB has a new 160-meter DX Test antenna and traded the 32V-3 for a 1-kw. HT32/HT33. KN1BAU reports a new net. MBPN, on Sat. and Sun. at 9:30 on 3723 kc. JGR and KCR have a bicycle mobile. KN1AYI has a Q Multiplier for his 8-53A. KBS has a new antenna. WK has a new beam for several bands. KN1DEY is new in Chestnut Hill. NF was active in reporting Sputnik I. The GBARS had JVG, of National, speak on new equipment. LAV has a new trap antenna. MRQ has RACES for Groveland on its way. HIL is slowly recovering from a heart attack and is on 6 meters with a Gonset and a four-element Omega match beam. KTG spoke at the GBARS on new 2-6-meter Gonsets. ADR and JLO are father and son. South Shore held a meeting. JSM went to the v.h.f. gathering at Syracuse with AQE and AHE. ZQM is experimenting on one-, two-, and three-element beams and a new mobile. The Braintree Club held a meeting. K1ACJ has VP-1 on all bands. AUG moved the rig out of the cellar. SMO took part in the United Fund Parade providing communications for the Marshall. TZ helped LIY and he has a Johnson 500 on the air. K1DRT is new in Brookline. THO, our 6-meter PAM, reports new active stations are: W1s DKN, FDR, GAX, HEF, HGN, HGO, IFW, ILE, KLO, LEV, LSW, LTC, LXW, MCX, OJB, SS, TQZ, TUD, VS, VIN and YFA and KN1s AEL AFW, AUH, AXG, BIL, BKU, BVF, CAN, CCD, CHT, CIB, CKO, CMU, CUP and CUV. CCD is ex-4YHO. ALP and DIY visited WU's new QTH. K6YRK, ex-ITON, lives in Hollywood and is sales manager for the Gonset Co. K1BUF is a new OBS on 7 Mc. BGW attended the DXCC get-together at the Harvard Club, worked JT1AA and took part in the RTTY SS Contest. AEE is very active on v.h.f. bands. The following Quincy hams helped out the police on Halloween: WK, ZWQ, WFQ, TUP, YJG, DXQ, FQA, ACB, DOM and LQ. The following Braintree hams were also out: AUU, DWI, AIME, MPT, QPH, ZSM, CTR, KPX, GLW, ERG, AAI, ZSS ZTB and K1BRH. The QRA and the Malden Club held auctions. The Framingham Radio Club held a meeting and a Halloween Party at ILP's. The T-9 Club met at KON's. New officers of the GBARS are OOP, chairman; EPR, secy.; ADL, treas. UTH/1 is up in Maine. KN1CZK is new in Lynn on 80-meter cw. The following took part in the Sept. F.M.T.: BW, DEI, HJP, HZA, JBI, JLN, PLJ, SMO, WK, TZ, GDJ, BB and AYG. IPA/I, at the Boston Red Cross Chapter House, was on during the S.E.T. BHD was very active reporting on Sputnik and had several write-ups in the papers. Several bills have been filed to get license plates for the amateurs in Massachusetts. The Federation of Eastern Mass. Radio Clubs is going to work on it and all hams and clubs are asked to give their full support. K1ATY is on 10, 11 and 40 meters. Winthrop drills are being held regularly. K1AIO is new in Norwood. DXQ was very active reporting on Sputnik I. JLN has a new Valiant. K1BAF has a Viking II. K1ADA has his General Class license, and a Globe Chief and an RME-4350. K1ACJ applied for OPS appointment. HFV has been endorsed as EC, and BDU as ORS. AAI is doing well on 2 meters with his 10-over-10 beam and an 829 and has worked all the

(Continued on page 124)



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MASSACHUSETTS QSO PARTY

Jan. 1 through Feb. 28

All Massachusetts amateurs are invited to take part in a QSO Party to be held from Jan. 1 through Feb. 28. The object is to promote interest in the license plate bill. Massachusetts stations will contact other Mass. stations and exchange license plate numbers. A station can be worked only once regardless of band.

Contacts with members of clubs belonging to the Federation of Eastern Mass. Amateur Radio Assn. will count 2 points. All other contacts will count 1 point.

A trophy will be awarded the grand winner and the next 50 places will receive certificates.

Logs must be mailed to W1VRK before March 10, 1958.

states in the W1-2-3-4-8 as well as the VE1-2-3 districts. KIBRH has a new daughter. Traffic: (Oct.) W1EAG 825, FJJ 213, EAE 136, MME 87, LIY 79, UKO 63, AUQ 55, CZW 30, TY 23, IBE 22, BY 21, UE 21, KIBUF 18, WICUW 18, TZ 18, ATX 12, BGW 11, K1AYW 10, WIZEN 10, K1ACJ 9, W1BB 8, HZ 8, KN1BAU 7, W1WU 6, DTB 4, ETH 4, SMO 2, K1AIO 1, W1KCR 1. (Sept.) W1AIME 62, KN1BAU 19, W1KBS 14, K1AIO 10, W1AOG 9, KN1AYI 9, K1ACJ 2.

WESTERN MASSACHUSETTS—SCM, Osborne R. McKeraghan, W1HRV—SEC: RRX, RM; BVR, 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 on 3870 kc. EKO has been appointed OO Class II. ORS endorsement goes to WEF; ORS and EC endorsements to LLN. The Hampden County Assn. held its annual business meeting at Rood Hall in Ludlow Nov. 2. A swell banquet was enjoyed by 70 members and guests. New officers are NY, pres.; ICW, vice-pres.; STR, clerk; and LRE, treas. Six new members also were elected to the board of directors. DGL has a new NC-300 and reports working some good DX on 10-meter c.w. KGJ has a new SX-100 and a new antenna. RM BVR reports varying attendance on WAIN. How about supporting your c.w. net, fellows? AGM has a new antenna for 75-meter phone work but is not going to abandon 11 meters. BVR is working on another bulletin and roster for the WAIN members. Ex-MIV is now K6BXP. Garden Grove, Calif., and is looking for contacts with West Mass. on 10 and 20 meters. 4UWA/1 is operating in Leominster and has been checking into WAIN. WEF reports he made 150,000 points in the last QD Party but is now very busy with studies at the U. of Mass. and will have to miss some of the future contests. RFU has been appointed V.H.F. PAM for West Mass. ISI has gone mobile. DRD has a new five-element 6-meter beam and rotator. The Central Mass. Assn. has invested in some measuring equipment for the use of the members. MJD has a new 20-meter beam on a 40-ft. tower. KN1DND is a new Novice in N. Adams. The following BCARA members attended the Albany Area v.h.f. meeting: FGV, UFA and FNP with their XYLS and CVI and CPN. RFU and VNH with their XYLS enjoyed a trip to the Syracuse v.h.f. time. LDE and UEQ continue to be the leading traffic men in the section, with LDE making BPL this month. Both are phone men. What about you c.w. traffic men? Traffic: W1LDE 710, UEQ 376, BVR 124, TAY 32, DGL 29, KGJ 15, AGM 10, DZV 10, DPY 4.

NEW HAMPSHIRE—SCM, John A. Knapp, W1AJJ—SEC: BXU, RMs: CRW and C'OC, PAM: CDX. The Granite State Phone Net's meeting time is 1900 Mon. through Fri. on 3842 kc. and on Sun. at 0900. NEN (traffic net) meets Mon. through Sat. at 1900 on 3685 kc. NH/RACES Net meets at 1300 Sun. on 3850 kc. PZI is doing PB on 10 meters using a home-brew 400-watt transmitter. K1AHE reports that K1DGS is getting good results on 40-meter c.w. using a home-made 7-watt transmitter. QGU has closed his station for the winter. In the new gear department: KOC with a 75A-4 receiver and a tri-band beam and EVN with a 75A-2, SSK and YXA are proud fathers of new jr. operators, both YLs. SSK's XYL is WVT. K1BCS took top score and award in the Virginia Free-for-All Contest while fixed portable at Lyndonville, Vt. DYE now holds a WAS certificate. K1BOO received his General Class ticket in September. He reports that the Manchester Central High Radio Club, K1CAL, is on the air. New endorsements: CDX as PAM and ORS, Wel-

(Continued on page 126)



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Here's a compact, 8x14x8", sturdy rig with well-filtered, built-in power supply. Pi-network matches most antennas from 52-600 ohms. Modified grid-block keying is employed for maximum safety. Has provisions for VFO input and operation. Kit form includes complete manual and all tubes and parts. Meter and cabinet carefully shielded for reduction of unwanted TVI.



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Amateur Net: \$59.95
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Globe Scout 680A Kit

65 watts CW; 50 watts on fone, plate modulated.

A compact, self-contained, handswitching transmitter for operation of the 6 through 80 meter bands, with built-in power supply. High level modulation is maintained. TVI-suppressed cabinet. Pi-network output on 10-80M; link-coupled on 6M, matching into low impedance beams. New type, shielded meter. Globe Scout 66 is identical, except handswitching 10-160M. Size: 8x14x8".



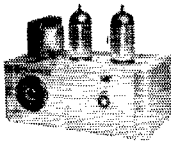
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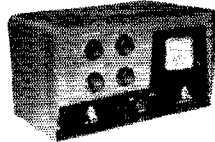
Designed for use with WRL Globe Chief; may be used with Heath AT-1, Johnson Adventurer, Knight 50 watt, etc. Permits radio-fone operation of CW Xmtr. at min. cost. Self contained. All connections to Xmtr. included. Detailed assembly manual.



Only \$1195

GROUNDING GRID

Linear Amplifier LA-1



Wired & Tested: \$124.50
Kit: \$99.50

Complete with well-filtered power supply, operates Class B or C, with grounded-grid Final. 200 watts input operated AM Class B. 300 watts DC input, or 420 PEP input, Class B linear SSB or DSB. Requires from 7-15 w RF driving power. 300 w class C for CW. Pi Net output circuit covers 80-10M bands, matches loads 30-150 ohms. 52 ohm Pi Link coupled output on 6M. Extensively bypassed, filtered and shielded for TVI.

Globe King 500C

A handswitching transmitter for 540 watts on fone and CW; 540 watts on SSB (P.E.P.), with 10W external exciter.

Outperforming any rig in its price and wattage range, the King handswitches 10-160M in a 31x22x14" handsome cabinet, especially designed for TVI-suppression. The Transmitter is relay controlled; includes a 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. King features grid-block keying for signal clarity. Pi-network matches most antennas, 52-600 ohms. Provisions for crystal operation.

\$4572 per mo. or Net: \$795.00

Globe Champion 300A

A handswitching, 10-160M, Transmitter for 350 watts CW, 275 watts fone, and 300 watts SSB (P.E.P.), with any 10W external exciter.

The single-switch handswitching Champion is extensively TVI-suppressed, filtered and bypassed. High level Class "B" modulation is sustained without usual clipping distortion through use of a new commercial type compression circuit. Pi-network output circuit, 48-700 ohms, built-in VFO, push-to-talk, antenna changeover relay, and improved Time Sequence keying are all features. 1000 volt plate capacity of Final tubes offer 38 1/2% safety factor. Only 12x21 1/2x17" in size, self-contained.

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GLOBE MATCHER SR.

ANTENNA TUNER AT-4

Net: \$79.50 Kit: \$69.50

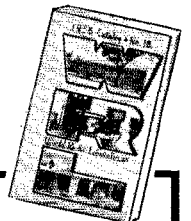
GLOBE MATCHER JR.

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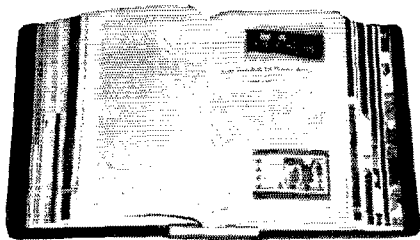


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LEAGUE**
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come to new hams K1s DLB, DGS, DGT, KN1s DQX, DQY and DQZ. We are sorry to have to report the passing of RYS and AVL. Traffic: (Oct.) K1BCS 330, W1CRW 100, QGU 90, PFU 29, DYE 26, GJM 20, AIJ 17, IIQ 16, YMJ 15, ENM 14, MTX 14, CDX 12, MOI 9, KVG 6, APQ 3, MKA 2. (Sept.) W1QGU 64, DYE 34, KVG 15.

RHODE ISLAND—SCM, Mrs. June R. Burkett, W1VXC—SEC: PAZ, PAMS; KCS and YNE. RM: BBN and BTV. PAM YNE announces the formation of the Rhode Island State Phone Net which began Nov. 23. YRC is manager of this new section net which meets Tue., Thurs., Sat. and Sun. at 1830 on 3915 kc. All stations are welcome. KCS has been appointed V.H.F. PAM and is planning section nets for the higher frequencies. The following appointments have been endorsed: YKQ, TGD and BBN as ORSS; ZPG and TGD as OPSs; BBN and JFF as ECS. DDD has made WAC. K1ABR is on all bands with a new Viking Ranger and also has a new 10-meter beam. MUL has been awarded a Clamdigger's certificate. TGD received his WAS. BVARC officers elected at the Nov. 2 meeting are ZEZ, pres.; AUT, vice-pres.; K1AUL, secy.; KNIBAL, treas.; HKN, corr. secy.; DOR, act. mgr.; and IHW, LVU, YMW, WMW and ZEZ, board of directors. EPARA Officers elected on Oct. 11 are ZPH, pres.; KNIBDN, vice-pres.; OLO, secy.; HLY, treas.; and VXC, act. mgr. KNIDPY, KNICSL and KNIDQS are new Novices in the NCR. The first annual bean supper sponsored by the CRA was held on Oct. 19. It was a pleasure to attend this fine affair. Traffic: (Oct.) W1GMH 97, VXC 59, TGD 26, CCN 13, WED 12, K1CYQ 10, W1YRC 6, YKQ 4. (Sept.) W1GMH 110, MIUL 53, WED 16, NCD 14, K1CYQ 4.

VERMONT—SCM, Mrs. Ann L. Chandler, W1OAK—SEC: SIO, RM: BNV, PAM: KKM, ELJ has his ORS and EC certificates endorsed. VTN sessions are fully active with 65 messages handled during October. GMIN members voted to change the net frequency from 3680 to 3555 kc. to avoid interference with the Ohio Phone Net. K1AKO has earned his GMIN certificate. Sorry to report the passing away of WOA on Oct. 20. Newly-elected officers of the BARC are WPY, pres.; EOY, vice-pres.; KDY, secy.; LMI, treas. A fine newsletter is edited monthly with keen cover drawings by WYP. GAE has been experimenting with orthodox and unorthodox tuners for a 400-ft. antenna and has found one that works! He has tuned in on Sputnikland! ARBC members in Chittenden County actively participated during the recent emergency test alert. A recent G.E. newsletter carried interesting stories and pictures of the 17 hams presently employed at Burlington's G.E. plant. The Mike and Key Club's newly-elected officers are EIC, pres.; ELB, vice-pres.; WOM, secy.; George Harvey, treas.; and TFB, act. mgr. UCU, State RO, gave a talk on RACES at the recent meeting. Ben Wissler, head of Middlebury College Physics Department, gave a talk on transistors. AVP visited at the meeting. MB enjoyed a trip visiting many states as part of her 4-H county leader work. K1BXV's project is making a one-element beam for 15 meters. WOD has his rig back to normal after lightning damage and is active on 75 meters. A new call in Ferrisburg is KNIDQB, PIC. MMN and TFB zero-beated with bow and arrow for deer. WLH is attending U.V.M. K1BKH has dropped the "N." TVT is operating on Elmec 67 and Gonset 660. JIZ and UNP enjoyed a pleasant visit from K1AKX and his NYL KNIBYO. EOY is DXing on 10 meters. ZEW's second call is K1DDN, which you'll hear from Pittsfield, Mass. The RARC (Rutland) meets every Sat. at 7 P.M. at the New Central Vermont Bldg. CGV has moved to Florida. CPW is putting a fine signal out on 6 meters. WN1NXB, of Poultney, wishes 6-meter men to write him information as to operation and activities on that band. KRV is trying out the 2-meter band with luck! FTP, MEF, M1MN and NH had fun at the v.h.f. get-together in Syracuse. ELJ, K1AUE and KN1BSN visited MMN and OAK. Traffic: (Oct.) W1OAK 224, KRV 115, AVP 70, BNV 34, ELJ 24, K1BGC 16, W1GAE 6. (Sept.) W1KRV 37.

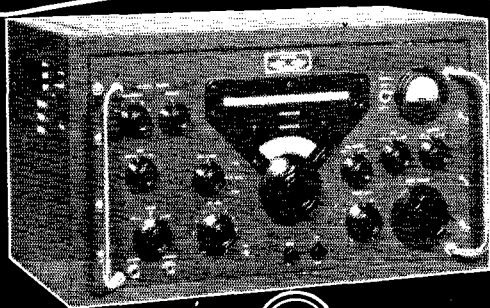
NORTHWESTERN DIVISION

IDAHO—SCM, Rev. Francis A. Peterson, W7RKI—Congratulations. You have survived a year with me as SCM. Thanks for your help. Since volunteers for various ARRL posts were not very plentiful, this year many more will be appointed to get action in the State. Every county should have an EC. Each city and club needs an OC. Nearly all hams reported hearing Sputnik. The Pocatello Club held an FB S.E.T. and recorded it to the helpful surprise of all. VQC is working lots of DX, but can't copy the Farm Net. HE, GMC and NH re-

(Continued on page 128)

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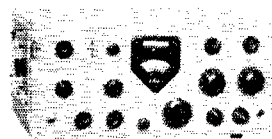
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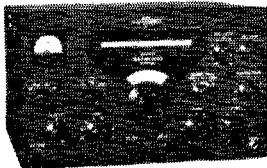
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KWM-1 Combines PTO 175 Watt SSB/CW transmitter and extremely accurate and sensitive receiver in a compact case only 6 1/4" x 14" x 10"! Designed for convenient mobile and/or fixed station. Packs for 12 VDC, 28 VDC, and 115 VAC. Available frequency ranges 14 thru 30 MC. For Amateur and commercial service.

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75A-4 The Ham-band receiver that is the standard of comparison! Ask the man who has one — then, you will want to order yours! (From Harrison, of course, if you want the best deal, with the easiest terms.)



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KWS-1 Clean, efficient SSB, AM, and CW signals with plenty "talk-power" that punches thru! For Amateurs who feel they deserve the pleasure of having the best, it's a good investment—you'll be surprised at how little it costs per year to enjoy "The Cadillac of Hamdom." Get yours today. We carry them in stock!

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- **DIRECT FREQUENCY READING**
Long slide-rule dial exposes a single linear scale for each of the 30 one-megacycle bands. Tuning dial reads direct to exact one KC.
- **HIGH STABILITY**
Excellent for SSB, FSK, Diversity, fixed frequency, etc. reception.
- **PERMEABILITY TUNING**
- **EXCEPTIONAL SENSITIVITY, SIGNAL/NOISE RATIO**
- **STEEP SKIRT SELECTIVITY**
Mechanical and crystal IF filters give ideal rectangular pass-band.
- **CRYSTAL CONTROLLED DUAL CONVERSION**
- **CLIMATIZED**
-20° C to +50° C, up to 95% relative humidity.
- 115/230 Volt, 45 to 70 cycle. 85 Watts.

PLUS a host of other desirable features — internal break-in relay, crystal calibrator-checker, improved noise limiter, RF input-Af output level meter, AGC, panel selector for 3 mechanical filters, standard 10 1/2" rack panel, etc.

Collins 51J-4 Receiver, complete with tubes, dust cover, and one 6 KC Mechanical Filter. Mounted in 21" x 12 1/4" x 13" cabinet.

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Plug-in Mechanical Filters: 1.4 KC (for CW), 3.1 KC (Clipped voice), 6 KC (Full audio range)
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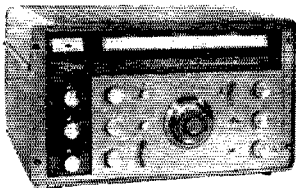
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Ten dial scales for coverage of 160 to 1 1/4 meters with National's exclusive new converter provision with the receiver scales calibrated for 1, 2, 1 1/4 meters using a special 30-35 mc tunable IF band.

THE "Dream Receiver." Check the features below:

* COVERAGE

BAND DESIGNATION AND LENGTH		
160 meters	1.8 to	2.0 mc.
80 meters	3.5 to	4.0 mc.
40 meters	7.0 to	7.3 mc.
20 meters	14.0 to	14.4 mc.
15 meters	21.0 to	21.5 mc.
11 meters	26.5 to	27.5 mc.
10 meters	28.0 to	29.7 mc.
6 meters	49.5 to	54.5 mc.*
2 meters	143.5 to	148.5 mc.*
1 1/4 meters	220 to	225 mc.*

* Usable with Accessory Converters.

* CONTROLS

RF Gain and AC ON/OFF; AF Gain and RF Tube Gain Switch; Tone Control; AM-CW-SSB-ACC Switch; CW Pitch; Main Tuning; Calibration Correct; Antenna Trimmer; Crystal Calibrator ON/OFF; Limiter; IF Selectivity; Crystal Selectivity; Crystal Phasing; Band Switch; Phono-Jack.

● ADDITIONAL FEATURES, MANY EXCLUSIVE!

High stability • sharp, medium and broad selectivity • Under 1.5 microvolts sensitivity • complete tuning and audio systems • full tube complement • longest slide-rule dial ever • 3-position IF selector • Separate linear detector for SSB • Hi-speed tuning dial with 40-1 ratio • Exclusive RF gain provision for CW • Provision for external control of RF • Muting provisions for CW break-in • Calibration reset from front panel • Dual conversion all-bands • Crystal filter with phasing control • wide-range tone control • Selectivity at 6 db down 500 cye, 3.5 kc and 8 kc from front panel • Crystal filter at 2215 kc provides notching plus 3 bandwidth positions plus 3 IF selectivity positions.

Suggested price, without trade-in, only \$39.90 down. Cash price \$399. Slightly higher West of the Rockies. Get Particulars of the NATIONAL "Old Receiver Round-Up" Contest. Drop a line to Ward, W2FEU

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newed their appointments. IY is raising beams and other assorted antennas. EYR is pushing up his DXCC score while handling phone patches. RKI got thrown off the air by a mouse across the re-ethers. JHY burned out his filament transformer. WNR, Ellis, is an FB NCS. Talk up ARRL and get your news in to the SCM. Traffic: W7GMC 280, EMT 74, VQC 25, NVO 20.

MONTANA—SCM, Vernon L. Phillips, W7NPV/WX1—SEC: KUH, PAM: EOL, RM: KGG. The Montana Phone Net meets Mon.-Wed.-Fri. at 1800 MST on 3910 kc. Simulated Emergency Tests were conducted throughout the State. SMY/M and LBK supplied communications for a search party. IVN is the call of the Boy Scout Radio Club of Polson. Other new calls in Polson are HNL, W7HJUZ, W7HIVU, TBA and WNTIEI. A new call at Thompson Falls is KN7ATM. KN7AJQ is a new call at Brady. TPE is starting a new series of code and theory classes for prospective amateurs at Wolf Point. RSJ is working at KEYZ in Williston, N. Dak. The Electric City Radio Club's hidden transmitter hunt was won by AU, OIP, GOY and NPV vacationed in California and Arizona. RZY is building an RTTY Auto Call. RSK has a mast up for cubical quads for 10 and 15 meters. DXM and TPE have new 15-meter beams. Traffic: W7INM 31, NPV 20, OIQ 19, TYN 11, LWJ 10, CQC 9, TNJ 9, SPK 8, YPN 8, LBK 7, EEO 5, IDK 5, OOG 5, TGM 5, CTM 4, HLI 4, TPE 2, YQZ 2, YUB 2, ZUK 2.

OREGON—SCM, Hubert R. McNally, W7JDX—Beth Taylor, NJS, has been appointed PAM for Oregon and also has been elected YLRL pres. NGW has been relieved of duties as V.H.F. EC for Multnomah County and has been appointed V.H.F. PAM for Northern Oregon. We expect to have a V.H.F. PAM for Southern Oregon soon. Activity is increasing in both sections and distance makes two necessary. ZQM reports good AREC activity in Grants Pass. PQJ sent a nice OO report for October. DEM is getting a new Telrex beam. LT is busy on MARS. AHX is rebuilding the rig and has a new antenna. OLU had bad luck with the receiver but should be back on soon. BLN has his Coos County gang in full swing. HAZ has a new SX-101 and has s.s.b. ideas. JDX is sporting a new Globe King to make big holes in the ether. QNI sneaked out on OSN for 15-meter DX. PPG is NC for the Tillamook County C.D. Net on 50 Mc. Places showing increased v.h.f. activity are Medford, Grants Pass, Roseburg, Coos Bay, Salem and Portland, mostly 50 Mc. except in Southern Oregon. It looks like the SCM will have to go on the road again seeking OES applicants. AJN had a nice report for OSC for October, likewise YQJ for the OARS Net. TLC still is battling out traffic as a Slant 6 but should return home before too long. WNV is busy improving his code speed. We regret to hear of the sudden death of KQN, of Astoria, who was very active in v.h.f. work. Traffic: (Oct.) W7TLC 1040, APF 190, JDX 114, CUW 102, LT 47, OMO 39, ZBO 38, GUR. 28, ZFH 27, AJN 25, DEM 15, RXO 3. (Sept.) W7TLC 912, OLU 52, DEM 22.

WASHINGTON—SCM, Victor S. Gish, W7FIX—Kitsap, Skagit and Whatcom Counties AREC units reported activity during the S.E.T. AVM reports there were two AREC-RACES drills during October with five participating in the S.E.T. K7FAE had lots of DX and made BPL on originations. HNO once again is a civilian. PGY is building a new and bigger power supply for the final and thinking of s.s.b. to get away from QRM while trafficking. FZQ is very active on WSN, has become a MARS member and made application for ORS appointment. FRU still is busy on the nets each night. Word was received that FWD had suffered a stroke but we do not have information on how bad it was or how Fate is getting along. The WSN elected USO as Net Manager for the coming year. LVB still is bemoaning ITV, QRN and general disturbances from appliances. NWP has a new NC-173 and is active on WSN and RACES. JC bought a house so he can bore holes for antenna lead-ins. BXH, hydro-racing in "Rascal I," logged Sputnik on 20 Mc. AMC has been on the sick list but now is better. UQY has been traveling—to Cincinnati and then to New York. BDK and PUA are cooperating on getting some 1206 Mc. gear working. WNTIEU is looking for code practice stations in Washington. WVU, at Moses Lake, is interested in AREC and RACES. JNC has just completed a 10-meter mobile transceiver which will be described in the next edition of *Engineers Handbook*. Washington still is in need of Emergency Coordinators and all clubs are requested to nominate one for their area. Hope you all had a very Merry Christmas and that the New Year brings you nothing but happiness. Traffic: W7BA 1083, PGY 1137, VAZ 862, K7FAE 275, W7FZQ 262, UWT 132, FRU 120, AIB 96, APS 78,

(Continued on page 130)



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PACIFIC DIVISION

HAWAII—SCM, Samuel H. Lewbel, KH6AE—KH6KS gave the s.s.b. gang a new country for s.s.b. two-ways by operating portable KB6, Canton Island. Not to be outdone KH6AE added still another new country on s.s.b. when he was operating portable KW6 on Wake Island. Now that EU is pau with the movie crowd on Kauai we expect to hear him back on the air. KR6LN, with Hal Newsome, ex-K4DKG, operating, sent in the first monthly report received from that area. KH6AJF continues to be the only regular traffic station reporting. KH6CEX now edits the *HARC News*. This gives the former editor more time to work on the new 833 linear final. KW6CE is now on s.s.b. with a 10-B exciter driving a Valiant. Your SCM recently visited the shacks of KW6s C.A., C.B., C.E., C.J. and C.M., all active on Wake Island. Traffic: (Oct.) KH6AJF 552, KR6LN 118. (Sept.) KH6AJF 464.

SANTA CLARA VALLEY—SCM, G. Donald Eberlein, W6YHM—SEC: NVO, PAM; OP: RM; ZRJ. Following is the OBS schedules for SCV with times, frequencies and stations: Mon., 2000 PST, 50.4 Mc., K6HGV; Tue., 1900 PST, 7190 kc., K6HGV; 2000 PST, 7265 kc., K6HGV; 2100 PST, 7260 kc., K6DHO. Wed., 1900 PST, 3743 kc., K6HGV; 2000 PST, 3819 kc., K6HGV. Fri., 2100 PST, 7260 kc., K6DHO. Sun., 2100 PST, 7260 kc., K6DHO. Any other stations interested in handling OB schedules at other times or frequencies please contact your SCM for details. Welcome to VMY, ex-2MHE, Frank, a former Asst. Director of the Hudson Division is operating with a Ranger and an HRO and holds OES and OO Class III and IV appointments. Also welcome to QMO and PIIS, who moved from the San Francisco section. Jeri will have taken over as manager of NCN by the time you read this. K6GZ takes top traffic position this month with a good total. Bob reports a tape in use at his QTH now with RTTY and re-perforator to be in use soon. Any station wishing to take high speed on the tape recorder and play back or retransmit at a slower speed should get in contact with Bob in San Mateo. K6DYX reports tape-recording traffic from K6GZ and retransmitting by playing it back to key his rig. OI reported losing a finger in a power saw while making a Hi-Fi cabinet. PBC, a new OES, reports detecting a time difference in 20 and 40 Mc. from Sputnik. He has a 432 Mc. beam under construction. Traffic: (Oct.) K6GZ 888, DYX 531, CGA 528, W6PLG 451, BPT 436, K6GID 232, W3ZLO 143, YHM 88, YBV 46, K6DHO 38, W6OII 32, K6HGV 19. (Sept.) K6GID 92.

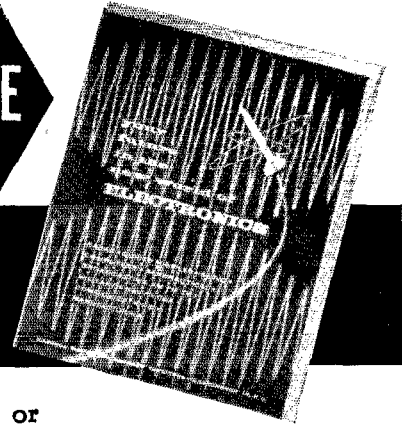
SAN FRANCISCO—SCM, Fred H. Laubscher, W6OPI.—This Section is undergoing many changes. According to all reports members seem pleased with our progress so far. The various clubs are experiencing much activity throughout the area. The S.E.T. has come and gone and through it we have all learned a great deal. I, for one, wish it were possible for me to thank each one personally for the splendid operating job that was done in cooperation with Frank Johnson, of CXO (American National Red Cross). We are all sorry to see our Jerri Bey, QMO, leave this section, but in her departure we know the good wishes of all of us here follow her. In her new job as Manager of NCN this office will do all in its power to help by asking all who can do so to help Jerri by checking in to NCN as often as possible. The SFRC elected BIP, pres.; PGY, vice-pres.; K6UDT, secy.; GGC, delegate to the CCRC; K6OHG, OST, AHH, GGC, CTH, board of governors. A great team if there ever was one! The Catlin RC is now an ARRL affiliated club. Congrats, fellows! HAMS has a c.w. station on the air under the call MLK. There was no report from Eureka this month; guess Ed Kirkwood must be extra busy these days. K6EKC, of Fortuna, says a couple of prospective Novices joined the club recently. Hamilton air Force Base is about to become the home of a brand-new ham club. Sgt. Fowler, (AF6AIR) is in the process of organizing same with its own call sign, club house, code practice sessions, etc. This section has begun the work of putting into effect our new approach to AREC. A synopsis will be ready for print soon. Don, AAQ and Letha, HMD, send their regards from ARRL Headquarters en route through the New England States. A special note to OMS: YLRC members have topped them all in their wonderful party at Sigmund Stern Grove. A grand time was had by all! Traffic: W6GIC 16, GQA 5, OPL 3.

SACRAMENTO VALLEY—SCM, LeVaughn Shipley, K6CFF.—The Northern California Net (NCN) now has a new manager (QMO), of San Francisco. Maybe she can

(Continued on page 132)

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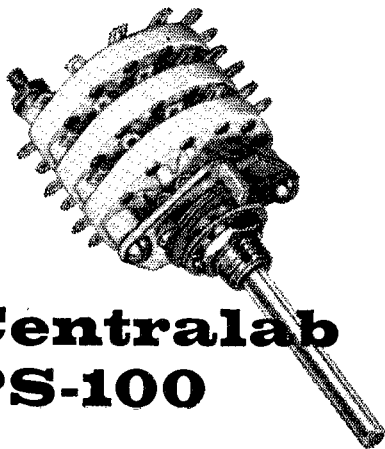
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induce some of our local women operators to get into traffic work. CMA reports that all efforts to reorganize the Central Valleys Net (CVN) have failed. The remaining three members of CVN—CMA, K6SXA and K6YBV—are now checking into NCN because they handle most of the traffic for CVN anyway. The Sixth Regional Net (RN6) seems to be doing an FB job and has liaison stations from NCN and SCN, along with check-ins from Nevada, Arizona and New Mexico. There seems to be a lot of new fellows around and they should have plenty of good traffic material before long. Some of our newer, would-be traffic men get scared when they listen to a net. They seem to get the idea one has to copy 25 w.p.m. in order to join. This is not true! Simply ask the sending station to slow down (QRS); he will be more than glad to do so. We can look forward to some real FB reports from the Tehama County Amateur Radio Club. The club has distributed special forms to all of its members so they can report activities regularly. These forms will be summarized by the secretary, K6RFT, and submitted to the SCM each month. Listen for K6KHZ on 40 meters. This is the club station of the Tehama County group. K6SXA qualified for BPL again this month. Traffic: K6SXA 329, W6CMA 270, K6YBV 161, W6ZF 8.

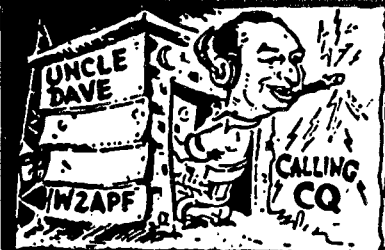
SAN JOAQUIN VALLEY—SCM, Ralph Saroyan, W6JPU—May I take this opportunity to wish all of you a very Happy and Prosperous New Year. LOS was in the Veterans' Hospital for a very thorough check-up. K6KFW has a new HT-32 and is putting out a very fine signal. KN6NKZ says that without an audio filter, the Novice band is a mess. WYB is a new ham in Los Bunos, and can use some news from the West Side. While vacationing in Mexico, PPO ran into a hurricane, and had a hotel fall on his Cadillac. He said he wished he had been at sea, it would have been less expensive. KN6VLG has worked 40 states on 40 and 15 meters. WN6NQM is on 15 meters with a DX-100 running 75 watts. A quad is in the making. K6CME is moving to Philadelphia. K6ATX paid a visit to LLO. ADB and SKH. K6TSI is now located in Turlock. K6OCR is on 75-meter s.s.b. K6RPL has a 90-ft. crank-up tower. HAB is on 432 Mc. K6GVG has a model 26 RTTY. K6SNA lost his beam when his tower gave way. NTV is working out on 432 Mc. It's time to think of the next Fresno Radio Hamfest, so save your dollars for another bang-up time. I keep harping on one subject, *send in your reports and news*. I need news from Bakersfield. See you next month. Traffic: W6ADB 76, K6EJT 63, W6ERL 28.

ROANOKE DIVISION

NORTH CAROLINA—SCM, B. Riley Fowler, W4RRH—SEC: ZG, PAM; DRC, V.H.F. PAM; ACY. Indications are that many ARRL districts in the State took part in the S.E.T. Districts 5, 6, 7, 11, 12, 13 and 29 have reported that they participated. Congratulations to the Emergency Coordinators in these areas. Others who took part in the Test, are asked to please contact me so that you may receive credit for participation. A new appointive field force of ARRL has been created. As noted above, the V.H.F. Phone Activities Manager is ACY of Jamestown (Greensboro). Phil has long been active in v.h.f. work and we are delighted to add him to the field forces of ARRL in the section. Phil works both 6 and 2 meters and is well known in the v.h.f. field. I have a feeling that much activity will result from Phil's appointment. We in North Carolina have too long neglected the use of these frequencies. Each of you make an effort to utilize these bands. I am informed that very low power is necessary. Congratulations to ED on the splendid write-up in his local paper. Fellows, we need more of this type publicity. Let the public know what you are doing. Each of the 42 counties with RACES programs should continually inform the public of this public service. Every AREC net in the State should be publicized. Give it a try, fellows. ARRL has a very valuable publicity booklet, write for it. Use it to let all Tar Heels know what you are doing. Traffic: K4DNW 520, J5C 206.

SOUTH CAROLINA—SCM, Bryson L. McGraw, W4HMG—With pleasure we give credit to the South Carolina Net for its fine operation during Operation S.E.T. The following liaison stations checked into the SCN Net with traffic: K4s IRW, AVU, EGI, BVX, EJR, GAT, FGD, HDX, JF'N, HID, W4s MWII, ANK, CHD, NTO, ZAP, AKC and PED. These stations handled a total of 247 messages from 6:30 p.m. to 10:30 p.m. ANK, PED, NTO and AKC were NCSs for the entire operation. The Rock Hill Club is to be congratulated on its very fine hamfest. Fine talks were given by the Director, PAM and others. DAW is our newest ORS. K4IEE now is mobile with nice signals along

(Continued on page 134)



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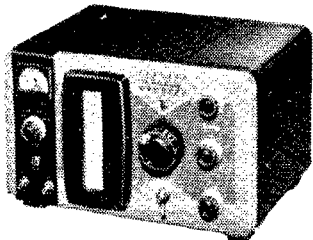
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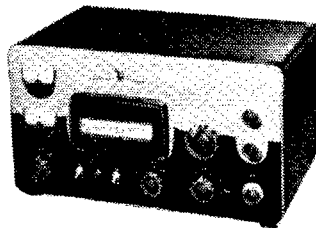
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HEATH AT-1, vy clean	37.50
HEATH DX35, like new	49.95
HARVEY-WELLS TBS50	74.50
VIKING I de TVI'd	169.50
TECRAFT TR144, 2 mtrs.	45.00

RCVRS.

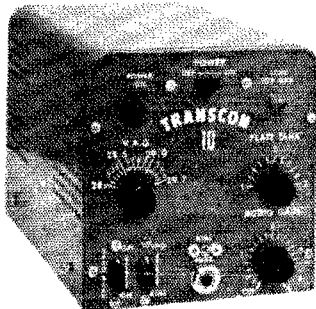
COLLINS 75A4, vy fb.	\$595.00
HALLICRAFTERS SX99	129.50
HALLICRAFTERS S19R	29.95
HALLICRAFTERS SX42	149.95
HOWARD 460, good	29.95
NATIONAL NC 183D/spkr.	335.00
NATIONAL HRO60T	395.00
NATIONAL NC173 w/spkr.	119.95
ZENITH, transoceanic	75.00
BC348H, w/pwr. sup.	59.95
BC779 (Super Pro)	79.95

W R L EQUIPMENT

GLOBE SCOUT 680, 65 watts CW, 50 watts phone	Kit 89.95	Wired 109.95
GLOBE CHIEF, 90 watts CW	Kit 54.95	Wired 67.50
GLOBE MATCHER, JR., antenna tuner, 100 watts	Kit 11.95	Wired 15.95
WRL VFO 755, bandswitching, built-in pwr. sup.	Kit 49.95	Wired 59.95

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Famous make, 2 speed, 5" reels
TAPE RECORDER
with microphone, one 5" tape
64.97



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6 or 10 meters. VFO or Xtal Xmtr. Broad Band Converter 6 or 12 volt pwr. sup. Push to talk. Transmit-receive relay. 4 watts using car radio supply.

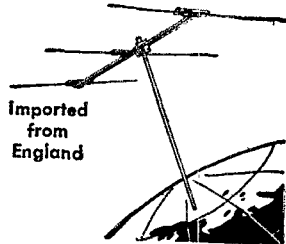
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3 Band Mini-beam giving 10, 15, 20 mtrs. One feeder, one antenna, fits any 2" pole

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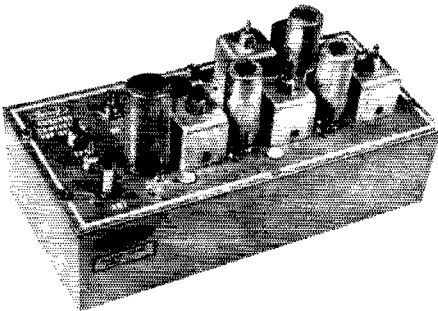
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MODELS for ANY Receiver

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CC-144	2 meters
CC-220	1 1/4 meters

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1/10 μ v signal provides more than 6 db above noise!

Tuned antenna trap attenuates IF feedthru . . . rejection ratio more than 10,000:1!

RF gain control to limit cross modulation!

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Noise figure better than 4 db. with pass band of 4 Mc.

TRACK THE SATELLITES!

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SPECIFY IF FREQUENCY

AT YOUR DISTRIBUTOR'S or
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with K4AII, who packs the big signal. ZRH and K4AII are most active with RACES. Thanks to FFH on his speedy handling of the information regards Sputnik II. VJ1 now is on with a full gallon on s.s.b. and sounds excellent. FAV is doing wonders with his vertical all-band job. IW now has plans for the 20-meter G4ZU that saves many hours on construction. KN4RWN now is an AREC member. K4CWO needs Delaware for WAS. K4DJW is the proud papa of a new YL. We hear that K4QVN works the good ones via 10 meters. We are sorry to lose K4LFW because of a transfer but hope to work him often. K4RLX now is de luxe with the big gallon. K4ANI now has a new home plus a de luxe ham shack. DOA is giving 2 meters a workout with results. How about the information on the 6-meter net in the Spartanburg Area, fellows? HMG finally is getting a ham shack with all the comforts of home. K4ASA is working good DX with his hopped-up Super Pro and fine custom DX-100. Traffic: (Oct.) K4BVX 284, W4AKC 237, K4AVU 118, JFN 81, W4CHD 56, PED 40, K4RVC 28 DGE 2, (Sept.) K4JFN 61.

VIRGINIA—SCM, John Carl Morgan, W4KX—There were 101 Virginia stations known to have participated in the Free For All of Sept. 14-15. About 99 per cent of them were on c.w. The number of logs submitted was 107, including 25 Va. Top Virginia scorers in order: KFC, K4CAX, K4EYL, TFX and CQL. "Operation Satellite" found VN manned continuously from 1030 Nov. 3 through 0700 Nov. 4 by ZAL, RHA, LW and K4ELG. SHJ, the new 4RN Mgr., says Virginia is leading in attendance for the fifth straight month. LW reports VSN is heading for a record year, both in attendance and traffic. OOL reports the Shenandoah Valley ARC was active reporting election returns, and also assisted in the Lions Brook Sale and Community Chest Kickoff. YVG reports that the Tidewater Mobile Club again furnished communications for the International Boat Regatta. JJJ says the Richmond Club has issued 348 VAFJ certificates through October. VPI Club Station K4KDJ is being kept warm by CXQ et al. WBC records some ten active members of the PVRC 2-Meter Net. FLX says the new Army station is sparking lots of interest. There are two more Bedford hams-in-waiting and five aspirants. Welcome to K4SCW, ex-KH6AVO, and his NYL. KH6AWL, now at Ft. Eustis, K2GAS is in Arlington while attending G.W.U. CQI moved to Warrenton. K4PCT, K4KGW and K4QET made General Class. JLK says NQM was the first ham to read Sputnik and feed information to the Pentagon. CVO visited many air-acquaintances on a Western Trip. K4LPR has been blasting 160 meters with 17 1/2 watts. KN4QIX reports averaging about one QSO per day. K4DPX finally tuned his DX-100. Traffic: (Oct.) W4QDY 538, TA 322, SHJ 107, K4ELG 103, W4LX 92, K4JKK 79, W4LW 65, APM 64, K4GWO 44, MEV 43, W4KX 42, K4KDJ 38, JLO 37, EZL 34, W4PVA 28, YVG 28, RHA 25, CXQ 16, CVO 13, C'V 10, APM 7, BGP 6, I RG 6, K4PTG 5, LPR 4, W4WBC 1, ZM 4, BRP 3, OOL 3, K4BYS 2, W4LK 2, KN4QIX 2, W4JUI 1, K4OYS 1, (Sept.) W4OOL 7, KN4QIX 6, (Aug.) W4APM 7.

WEST VIRGINIA—SCM, Albert H. Hix, W8PQQ—Asst. SCM: Festus R. Greathouse, 8PZT. SEC: KXD, PAM: FGL, RMs: DFC, GBF, HZA and PBO. V.H.F. PAM: K8AON. The League has created the appointment of V.H.F. PAM in order to stimulate and increase a tivity on our high-frequency bands. K8AON has accepted this appointment. Activities pertaining to 6 and 2 meters and higher frequencies should be reported and coordinated with him. Please give Jim a hand in getting this organized. GCN has a 4-1000-A linear on s.s.b. with a three-element Telex beam on 20 meters and is working much DX. YBZ has push-pull 813s kw. s.s.b. on 20 and 15 meters and also is working good DX. FQJ has an HT-32 on s.s.b. KN8HPL is a new Novice in South Charleston and is on with a DX-40. KN8GLH is on 40 and 15 meters with a DX-100 and is working some good DX. Phil has 39 states toward WAS. CSG spent a week end on active duty at Fort Meade. YMN is now with United Fuel in Charleston. BTU, HDB, HNK, JCB, ORD and SSA attended the Appalachian Electric Power Co. Hamfest for employees at Clayton Lake, Va. They were guests of W2MYJ/W4HYE. SSA has new micromatch 236 r.t. watt-meter. DDB will be on soon. NYH is still on the night shift. Many West Virginia hams have monitored Sputnik. K8BRM is a new OBS. K8IID took high score for West Virginia in the recent Virginia Free-For-All Contest. Traffic: W8HZA 105, PBO 48, BWK 46, HID 31, K8CSG 22, W8PJI 21, NYH 15, K8CNB 13, W8ESH 8.

(Continued on page 136)

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PERFECT 1:1 SWR

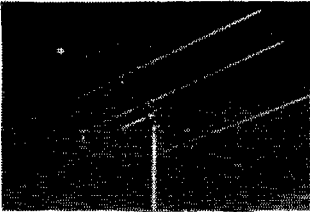
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Hy-gain "monobander"

GAMMAXIAL

Gamma match system!

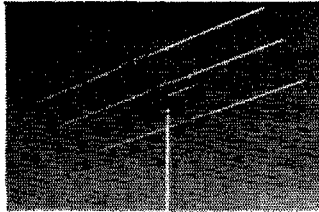
10 METERS 3 ELEMENTS



Weighing only 18 lbs., this Antenna is small enough to be rotated by any TV rotator. Elements are adjustable for maximum gain over the entire 10 meter band. Easy to assemble in short order, with no further adjustments necessary. Boom is 104' in length; longest element, 17' 10"

Amateur Net: \$1995

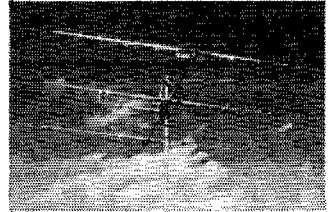
15 METERS 3 ELEMENTS



Still small enough to be rotated with the heavy duty TV rotators, this ruggedly built antenna is adjustable over entire 15 meter band. Extremely simple to put up and into operation. Rugged Boom/Mast clamp also used to support the elements. Wt: 30 lbs. Boom length 142"; longest element, 23' 10"

Amateur Net: \$2995

20 METERS 3 ELEMENTS



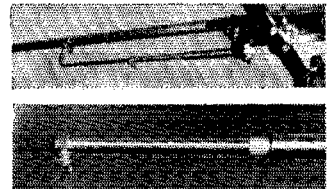
This heavy duty, full-sized twenty meter array is really built to take it. The elements are adjustable over the entire 20 meter band, and they are telescoped three times to minimize element sag. Approximate net weight is 48 lbs. Boom length of 212"; longest element measures 35' 9".

Amateur Net: \$4995

Carefully engineered, incorporating the latest design principles for top performance, the hy-gain monobanders are factory pre-tuned and pre-matched. Complete with easy-to-follow instructions for assembly, these beams sold with 1 year guarantee. Features include large diameter elements and ruggedly built Boom/Mast clamps. Booms hot dipped galvanized steel for max. strength with minimum wind resistance. Elements 6061 T6 alloy.

Now a feature of all three monobanders, the new, pre-calibrated (GAMMAXIAL) 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 included. Developed by hy-gain's engineering staff and used exclusively in the hy-gain monobanders.

Average Gain: 8½ db. Average F/B Ratio: 24 db.



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GLOBE CHAMP 300A • \$28.47 per mo.
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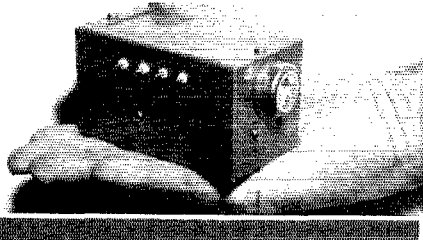
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Delivers 225 and 450 volts
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(1/10 weight of
equivalent Dynamotor
Power Supply)

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(90-watt output from
2" X 2" X 4" unit)

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City.....Zone.....State.....

COLORADO—SCM, B. Eugene Spoonmore, WØDML—SEC: NIT, OBS: KØBTU, OOs: OTR and RRV, OES: KØCLJ. We were glad to have had Dom Bartol, jr., back even if for a short time. He has moved to Walker AFB, Roswell. VYF was a recent visitor to Fort Collins. UPS has a new pair of glasses and MMT has a newly-broken pair of glasses. KØJTI has a new Technician Class license. KØDTK and Professor Harrison conduct code and theory classes each Tue. evening at the club hall, Greeley. KØCOI recently moved to Dillon, Colo. KØDCW recently was initiated into the Denver YLRL Club. The call of the Larimer County Amateur Radio Club is KØLTE. The new station call of the Pueblo Amateur Radio Assn. is KØLTE. FRW is a new member of the LCARC. KØEBV has made two television appearances on Channel 6 in Denver, making contacts while the program was being broadcast. Several of the fellows have received complimentary letters from the Bureau of Standards for Sputnik tracking, among them SGG, KØWDZ, at the National Guard Armory, Pueblo, is getting things in shape with new transmitting and receiving equipment. The local AREC Net, Montrose, meets the first Mon. of each month. AMR has a new high-gain tri-band beam. Traffic: (Oct.) WØKQD 886, IA 768, KØBCQ 616, WØQOT 158, KØDCW 133, DCC 78, WENA 66, KDXF 58, WNIT 45, 9KWDZ 20. (Sept.) WØIA 747, KØBCQ 562.

UTAH—Acting SCM, Col. John H. Sampson, jr., W7OCX—The Ogden City-Weber County Emergency Net meets Thurs. at 2000 MST on 29.510 Mc. LQE, former SCM, has the ham rig in a trailer house at Wendover in addition to his mobile. He operates c.w. and phone from both set-ups. The UARC is contemplating the formation of a mobile unit. NHQ has been active with a building program consisting of complete mobile and fixed 2-meter stations all starting from scratch. He estimates a time requirement of four months. LQE paid the Ogden Club a surprise visit. He expects his CAA assignment soon to transfer him to a new area, possibly to school. This is the last report from your Acting SCM. I have appreciated your support and have enjoyed working with you. Your new SCM is QWH in Salt Lake City. He can do most for us when we give him 100 per cent support. Traffic: W7OCX 2.

NEW MEXICO—Acting SCM, Allan S. Hargett, K5DAA—SEC: K5DAA, PAM: DVA, OO: LEF. The NMEPN meets on 3838 kc. Tue. and Thurs. at 1800 MST, Sun. at 0730; the Breakfast Club meets on 3838 kc. Mon. through Sat. at 0700. NMN meets on 3633 kc. Mon., Wed. and Fri. at 1900 MST. Please check in on these nets as often as possible. Albuquerque had two flood emergencies during October, one during the S.E.T. WNU was elected as fixed station for the Caravan Club. Albuquerque, Roswell, Carlsbad, Gallup and Farmington were very active in the S.E.T. A. L. Budlong, IRUD, gave a nice talk in Roswell on Oct. 22. RKG received WAC. CIN reports a nice time was had by all at the annual dinner in Farmington. Traffic: W5DWB 293, K5FHU 104, DAB 16, W5CTN 15, K5CEV 10, W5VC 9, K5GYZ 3, DAA 3, LOV 3.

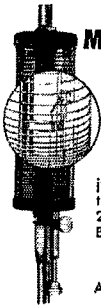
WYOMING—SCM, James A. Masterson, W7PSO—SEC: MNW, RM: BHH. The Pony Express Net meets Sun. at 0830 on 3920 kc., with AMU and MWS alternating as NCSS. The YO Net meets Mon., Wed. and Fri. at 1830 on 3610 kc., with BHH, DXV and NMW alternating as NCSS. Several Casper stations copied signals from the Russian satellite, Sputnik II. HYW needs only Zone 23 for his WAZ. TQO, a 17-year-old Casper ham, has made DXCC on 20-meter c.w. As far as we know this is the fourth such award in the State. HYW, PGS and PSO hold the other certificates. UPB has moved to a new QTH in Casper and is putting up a 50-ft. tower to support his 6- and 10-meter beams. GS worked KC4USA. Wyoming hams listed in the 1958 Ham Register include AXG, HX, ILL, HYW, LVU, PSO, UPB, VTR, HRM, KUB, OSH, PMA, KFV, PGS, PPB, DXV, YSF, AEC, NKR, UZR, VBP and NAW. Traffic: W7BHH 11.

SOUTHEASTERN DIVISION

ALABAMA—SCM, Joe A. Shannon, W4MI—A hearty welcome to two XYLs who have just joined our fraternity, KN4SDF (Lucy) the XYL of VYI, and K4ILL (Joan) the XYL of K4HQS. KN3AYS is now an Alabamian working 40 meters from Tuscaloosa. HYQ is a regular on AENB from Albertville. K4MMO is acting net manager of AENJ in Birmingham and sporting a new DX-100 and 10-meter beam. AENX is

(Continued on page 138)

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."

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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

MASTER ALL-BANDER

- Covers 10 thru 75 and all intermediate frequencies.
- Silverplated single turn contact, positive spring.
- Eccentric cam contact, easy selection of turns.
- Automatic lock prevents damage to coil.

Size - 2 3/4" Dia x 1 3/4" Long



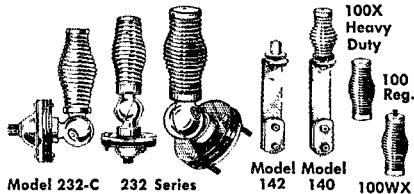
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- Precision made
- 2 1/4" Diameter

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.



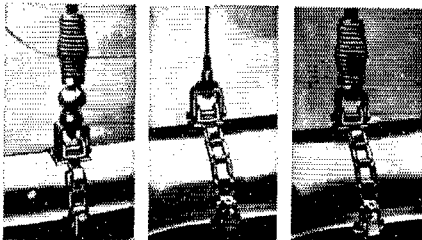
Model 232-C 232 Series

Model 142 Model 140

100X Heavy Duty 100 Reg. 100WX

BUMPER MOUNTS

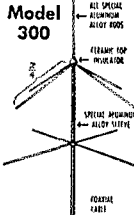
WITH NEW X-HEAVY DUTY CHAINS



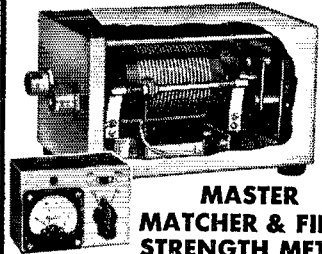
No. 444 \$17.80 No. 445 \$7.95 No. 446 \$13.45
Adjustable to any bumper. No holes to drill, easy to attach. High-polished Chrome Plated 3/8"-24 thread, to fit all antennas. Precision engineered.

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.



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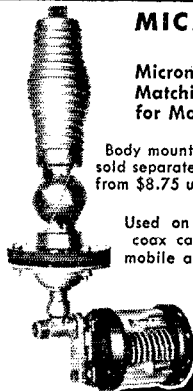


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- Precision made
- Maximum efficiency
- Positive lock—will not corrode

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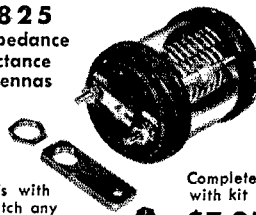
MICRO-Z-MATCH No. 825

Micrometer Impedance Matching Inductance for Mobile Antennas

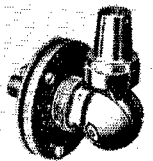
Body mounts sold separately from \$8.75 up.

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.

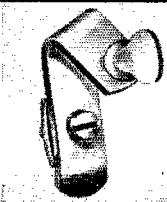


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No. 321 BODY MOUNT

Swivel base body mount, less spring. Specially constructed diagonal ball joint for maximum strength. Amateur Net **\$7.95**



No. 10H TENA HOLD

Protects antenna, prevents whipping. Easily attaches to car.

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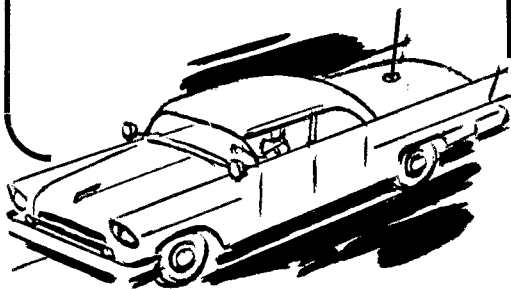
10 or 15 Meters, 4 ft. \$15.00 each
20, 40 or 75 Meters, 6 ft. 18.00 each

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Phone: Orchard 5-4999



active again in Auburn, as reported by K4JBW. AWA asks that interested teenagers check into AENT, our section teenage net, daily at 1630 and Sat, at 0800 on 3905 kc. The new club in Selma is growing and operated a station at the Dallas County Fair as a project. K4KJM has built up a group of regular listeners to his Official Bulletin transmissions. More newcomers: K4LYA, K4HPX (Ethyl), the XYL of K4HAG, W5TKQ and his XYL (Laura), 5IKR, on 6 meters. K4AYK is an active ANBP member in Coatspa. TKL celebrated the installation of the new Globe King by working one station on each band—each on the first call! YFN has developed a topnotch AREC group in Huntsville. How about other ECs reporting progress? We welcome EMP back to Montgomery after working as K5DHH for some time. W4MI has worked 35 states on 6 and RLG reports 34 on 6 meters. K4HQ5 reports 39 worked on 6 meters. Traffic: W4RLG 296, K4AOZ 107, W4KIX 58, WOG 48, K4LOE 47, BTO 46, W4ZSQ 46, K4GBO 31, W4MI 27, K4KJZ 22, JWB 18, KJD 17, W4YRO 16, HYQ 13, K4JBW 12, KJP 12, W4RTQ 12, AWA 11, K4KQN 11, HJM 10, IPF 10, BWR 8, KJP 8, W4U8M 8, CIU 7, GZM 7, K4AYK 5, W4GNU 4, K4IOX 4, W4TKL 4, K4MMO 3, W4VUO 2, K4ANB 1.

EASTERN FLORIDA—SCM, John F. Porter, W4KJG - SEC: 1YT, RM: LAP, PAMs: TAS and JQ. The Florida Hurricane Net meets every Sun, on 3695 kc, at 0700 EST. Net Manager YJE welcomes all. K4BNE is the new Net Manager of FMTN, K4AKQ is Asst. Mgr. KP4ZW is now at Pinnacle AFB. The Florida certificate is now ready and the gals are looking for contacts. K4JJZ has a new HQ-110 and Heath SW bridge. K4LTX has a new 75A-4, Pacemaker and Viking KW. K4MTP has a new Viking Ranger. K4PAE has a new NC-300. ZCD has a new SP-600JX. K4DRO now has 102 countries worked and also has received his YLCC certificate. The Hialeah Radio Club is starting a 2-meter project and will support the local c.d. zone Control station. The Dade Red Cross station, K4IWT, handled over 178 messages during the S.E.T. The station was manned by twelve AREC members working in 3½ hour shifts. K4IXG is working Miami and the West Coast on 2 meters nightly. I would like to receive recommendations for a candidate to take over as V.H.F. PAM. New appointees are K4JJZ and ZCD as OBSS. There are openings for OPS, OO, OES and ORS appointments in our section. If interested, drop me a card or radiogram for information and the necessary forms. A card or radiogram will also get you a supply of station activity report cards, ARRL operating aids and information on our AREC program. Certificates for our section nets have been mailed out and as others become qualified they will receive theirs. The following stations took part in the September F.M.T. and scored as follows: Average error in parts per million—BMR 25.9, BJI 30.0, GEJ 34.5 and K4QPT 49.4. The South Miami Radio Club held its semi-annual dinner at Delmonico's with over 40 attending. Traffic: (Oct.) W4PJU 372, K2QFW 191, IWT 176, KDN 164, W4HCQ 161, EHW 158, DVR 114, 1YT 108, K4BNE 98, W4LMT 93, K4AHW 79, W4WS 66, PZT 63, W4FZ 59, KP4ZW/4 58, W4TAS 54, BNM 48, K4AKQ 48, W4ZCD 46, K4AYX 44, W4BWR 37, K4HNC 35, ABE 28, W4AHZ 27, K4PAE 27, OSQ 16, ILB 13, JNE 13, JJZ 12, CO2UG 12, W4SJZ 11, K4EXN 9, W4QCP 9, K4MTP 2, DRO 2, K4BJI 1. (Sept.) K4DRO 2, W4BJI 1, KN4LXR 1.

WESTERN FLORIDA—SCM, Edward J. Collins, W4MS/W4RE—SEC: HIZ, EC: MFY, RM: AXP, JLW has a visit by lightning and is off temporarily. K4QQO is on 6 meters with an FB signal. KN4RMO passed the General Class exam. K4KIF is putting out a big signal on 6 meters and studying towers. EQR lost his plate transformer but is back looking for Louisiana on 6 meters. K4PIQ is working on phone patches. K4HYL builds swell pre-amps for the gang. HBK does his DX on week ends when Junior College permits. GMS has a receiver in his car at F.S.U. HC2BH has a swell rig and beams ready for when the K4 call arrives. AXP has been out Texas way. K4OXB finally has gone to horizontal polarization. JV has a long wire and "Lazy Hs" on 14 Mc, and drags in the DX. PAA tried to work "Mutnix" by calling CQ Dog Xray. K4PJC had a bad foot but kept the 6-meter rig going. K4ALI, the Pensacola Amateur Radio Club, is now on 6 meters to keep in touch with the gang. DAO-DEF devotes his spare time to helping beginners. MS has cleared up 131 TVI cases for the gang. QK stays on 75 meters for the Hurricane Nets. UUF now has a v.f.o. going on 6 meters. K4LAE and K4IYQ put out nice 6-meter mobile signals. K4ECP has moved to the country and puts an FB signal into town with a beam on 6 meters. K4QOJ is studying for his General Class exam. KN4RTV is having a big time on 15 meters and study-

(Continued on page 140)

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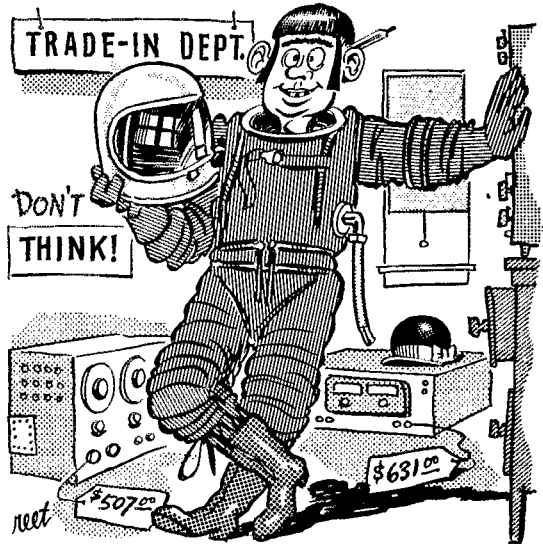
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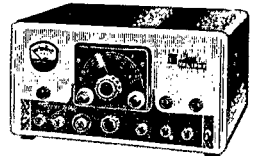
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ing for his General Class exam. 5VQG/4 renewed his ticket and was assigned K4SIU. K4KOS has an FB mobile installation. KN1BTI has finished his hitch in the Navy and has returned to New Hampshire. CNK is back on 6 meters. Another newcomer to Pensy is KN4SGD. FHQ sits behind the reliable kw. on 7 Mc. and keeps skeds. JPD enjoys the SX-101 and 5100 for ragchewing. PQW is pushing 6 meters in the club. K4OWW works 6 meters with an indoor antenna. K4EHI has receiver trouble and wants a new tower. K4AGM tries to raise her state total on 6 meters when home from F.S.U. for a week end. We are sorry to hear that CCY has been ill and glad that he is on the mend. K4NBF is very active from the Sandley Field Amateur Radio Club. OKB and PJP are the guiding lights. The Pensacola Amateur Radio Club operated a rig on 2 meters from the Interstate Fair. K4KBQ is now secy. of the Pensacola Amateur Radio Club. The club's booth at the Interstate Fair handled 186 messages, plugged civil defense work and used a mystery lamp which lighted as they stood near the exhibit as an attention-getter. A Very Happy New Year to all of the Western Florida gang from MS, AXF and K4AGM.

GEORGIA—SCM, William F. Kennedy, W4CFJ—SEC: K4AUM, PAMs: LXE and ACH. RM: PIM. GEN meets on 3995 kc. at 1830 EST Tue. and Thurs., 0800 on Sun.; ATLCW on 7150 kc. at 2100 EST Sun.; GSN Mon. through Fri. at 1900 EST on 3595 kc. with PIM as NC; the 75-Meter Mobile Phone Net each Sun. at 1330 EST on 3995 kc. with UTH as NC; the Atlanta Ten Meter Phone Net each Sun. at 2200 EST on 29.6 Mc. with VHW as NC; the Ga. Teen-Age Net each Thurs. at 4:30 P.M. on 3810 kc. with K4HVK and K4IOV as Net Control; the Georgia Peach YL Net each Thurs. at 0900 EST on 3985 kc. with UMM as NC. We hams in Georgia sure hate to list two fine hams in Georgia under Silent Keys—James E. Artman, jr., GEN, and Bob Cobble, BWN. They were known and loved by all. The S.E.T. went over in excellent fashion in Georgia with 114 full members participating and 17 ECs reporting in. Twenty mobiles checked in with five emergency power units participating. SCM CFJ handled 238 messages to the Regional Red Cross office in Atlanta. K4AUM, our SEC, did an excellent job of conducting this test in Georgia. ETD copied 48 Bulletins from W1AW last month and transmitted 93 times on 5 frequencies in 19 days. More cities are needed on GSN. Those needed are Gainesville, Waycross, Thomasville, Albany and Savannah. K4HOU made 375 contacts in 37 sections in the October CD Party. K4KIV reports his ham days are numbered now that his NYL, KN4SDL, has her Novice ticket. PDP is not on the air much these days as his new jr. operator is holding him down. Emory U. is taking most of K4CFO's time. I wish each of you a Very Happy New Year. Traffic: K4FCT 427, LVE 272, MCL 198, W4PIM 189, ETD 86, K4BAI 60, W4DDY 39, BXV 32, K4HOU 32, CFN 14, KIV 11, W4PDP 2, K4CFO 1.

WEST INDIES—SCM, William Werner, KP4DJ—SEC: AAA. Breves noticias de Mayaguez via KP4WT: TIN esta muy activo en c.w. CG con su mobile hace muy buenos comunicados con los muchachos de la Isla, durante sus viajes a San Juan. WT visita MARS station en Ramey AFB, con varios familiares. AFK pronto lo tendremos en 3925 kc. El Radio Club del Distrito de Mayaguez suspendio temporalmente sus actividades "fiesteras" por haber todos pasado la indeseable visita de la "Asiatica" pero pronto Dios mediante volveremos a renovarlos. WT tiene un T-240/SRT-10 como transmisor, con el cual trabaja los 40 metros para el informe del tiempo. CO esta de regreso de sus estudios. AFL esta de regreso de Espana. DV de San Juan visita Mayaguez. Las letras de WT para MARS son AH2AX. Nets now in operation are the Antilles Weather Net, 7250 kc., 7 A.M., and 3815 kc., 5:30 P.M. daily; the P.R. Amateur Emergency Net, 3925 kc., Wed. 7 P.M. and daily for traffic and ragchewing; Mayaguez District Emergency Net, 3950 kc., Tue. 7 P.M. KD is gunning for JT1AA zone 23 to complete WAZ. New from Ramey AFB: New officers of the Ramey ARC are ADS, pres.; ALO, vice-pres.; ABE, secy.-treas. ALO is awaiting the arrival of an SX-101 and an HT-32 to get on s.s.b. Currently active on s.s.b. are QEB and ADV. ADS and AIO are active on 20-meter c.w. AIW is on 10 meters working DX. ADS has an eight-element beam on 15 meters. AJN changed QTH from Isabela to Ramey and will be on 10 and 15 meters. New from the AF ROTC ARC: FAE received BC-779 for MARS activities with the call AH2AZ. The club has put up a 30-ft. mast for an 80-meter Windom and is building a 15-meter beam and a 40-meter doublet. WP4s AKE and AIA operate FAE on 40-meter c.w. every afternoon. AJY, in four months of operation on 15- and 20-meter c.w., has made WAC

(Continued on page 142)

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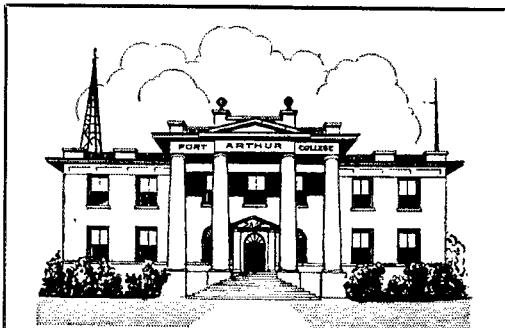
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WAS-46, and 28 countries including a ZK2. AJY uses a DX-20 and an S-86. WP4AKI is now KP4 and has a DX-35 on 15-meter phone. AJZ and his XYL WP4AKJ received tickets four months ago and have made over 400 c.w. contacts and 250 on phone on 15 meters. They use a Globe Chief and WRL screen modulator. Both are members of the RCC. Officers at KP4FAE are AJZ, trustee; AJY, advisor; AAM, chief operator; ABA, asst. chief operator; AKH, QSL manager; AIQ, administrator. News from Guantanamo ARC via KG4AL: New officers of the Guantanamo ARC are AS, pres.; AL, secy.-treas.; AU, QSL Mgr. The Club plans code and theory classes Mon. and Thurs. nights. Schedules with the States are handled on Tue. and Fri. SEC AAA represented amateur radio at a meeting of all government agencies who have communications systems. BZ operates from KP4DC for e.d. schedules with Thomasville, Ga. AJI spends much time on 10 meters since he raised a three-element beam to 40 feet and installed a TV rotator. AIW operates 75-meter mobile from his bicycle using a BC-669 packet. RD put up a tri-band beam. RE says YD was unable to report to the net because he is rebuilding the transmitter. ABD is on 75 meters with a quarter-wave antenna. ZK received an ARRL Public Service certificate for his work in Hurricane Betsy in 1955. RM sends greetings from Buffalo, N. Y. ACQ is getting out line with a 16-ft. vertical on 20 meters using 30 watts. AAM, San Juan P.C. operated from KP4DC at Police Hq. for the two days of the S.E.T. on Oct. 12 and 13. WP4ALY, a new station in Rio Piedras, advises that he has a DX-35, NC-173 and a three-element beam on 15 meters. W2BCC, IT&T engineer, is installing microwave equipment to link P.R. and Santo Domingo. The Radio Club of P.R. celebrated its Anniversary Dance at the National Guard Officers' Club on Oct. 19. ABN, NCS of the P.R. V.H.F. Net operating on 50 Mc., calls roll every night at 8 with the following stations reporting: CA San Juan, 1T Villa Nevarez, ABN Caparra Heights, ACH Puerto Nuevo, AHK Puerto Nuevo, AHX Bayamon, ABP Rio Piedras, AAB Hato Rey and AHF and AHG Manati. The average power is 35 watts and transmitters are DX-35s, TBS-50s, Globe Scout 680s and Techcrafts. ABN is installing a Techcraft transmitter and Gonset converter for mobile operation. At his home QTH ABN has a new four-element 6-meter beam. Traffic: KP4WT 54, DJ 2.

CANAL ZONE—P. A. White, KZ5WA—The SS *Flying Enterprise II* transited the Canal on Oct. 30 northbound but W2ZXM/MIM was not aboard. There was an amateur aboard, however, W6GAI/MIM, operated on 10 and 15 meters by Fran Thoupson. RV and VR boarded the ship at Balboa with their son and daughter and made the trip through the Canal with Fran. HC8GI, from Galapagos Islands, sailed his yacht, the *Symbol*, into Balboa on Oct. 27 for a few weeks stay before continuing to Florida. Bud was the speaker at the CZARA meeting in November. VR has been tuning them in with a new NC-300. CC has joined his brother, RM, in keeping daily week-day schedules with their dad, K4AEE, in Miami. KA started in the CQDX Contest on 20 meters, but burned the rig up so she is now confined to 10 and 15 meters for awhile. UJ is now on double side-band. JS has been appointed v.h.f. station for the Canal Zone and will look for calls on 6 meters. Stations active in the S.E.T. were RU/M, QA/M, EP/M, JJ/M, RM, RV, VR, BG and KA. A new operator is AL. Traffic: KZ5VR 88, KA 18, WA 17, RM 15.

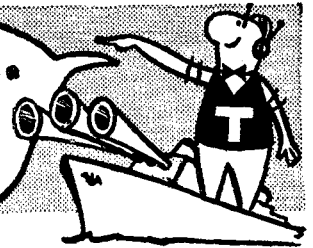
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LOS ANGELES—SCM, Albert F. Hill, jr., W6JQB—SEC: LIP, RAMs: K6BVD and ORS, RM's: BHG and GIP. New appointees this month are YMD as OO, K6EPY and K6OQD as OPS, CTS as ORS and KXE as OES. BPL cards to GYH, ZJB, K6OQD, K6MCA and K6OZJ. Congrats! ZJB, in Barstow, now has two operators, K6RTP and K6RIG. KN6ZVH is Mute on the SS *Dart Mariner*. AM grabbed off one new country on phone and one on c.w. BES is QRL traveling from Florida to California. K6GTG is working on a 430-Mc. TV rig. GYE made WAC after 25 years. He claims the longest WAC on record! Nice going, Virgo! K6UOD made a First Master Trafficler certificate on 6 meters. K6COP is fighting vertical antenna troubles. K6EPY received his WAS certificate. Congrats, Curly! WII is sporting a new RME-4301 s.s.b. selector. LVQ and K6GGS report very good S.E.T.s this year. A new call heard in Rialto is KN6AVT. The San Gabriel Valley Radio Club did a bang-up job on the satellite tracking with VZA, DAO, QYY, SRE and many others. New officers of the Ramona Radio Club are ORS, pres.; LWI, vice-pres.; K6QJV, treas.; K6ZSC, secy.; TMY, K6HEF and W8MLZ, directors. Traffic: (Oct.) K6MCA (Continued on page 144)

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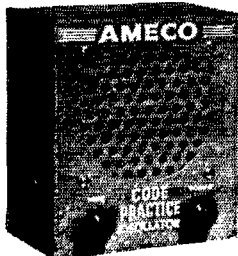
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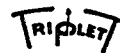


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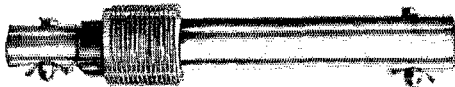
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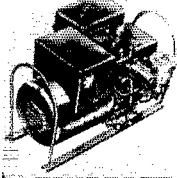
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*79. W6GYH 560, K6OZJ 543, W6ZJB 454, K6OQD 442, W6BHG 162, K6MION 95, W6QLM 74, K6JQB 70, W6INH 61, V5H 56, K6GGS 41, GUZ 40, W6NTN 35, K6COP 23, W6USY 20, K6EPY 19, HVC 16, PLW 12, W6CMN 9, MEF 8, K6EA 7, W6SRE 6, YSK 6, AM 4, K6HOV 4, REQ 3. (Sept.) W6HJY 153, K6GUZ 24, W6USY 22, K6HYC 14, W6YSK 14.

ARIZONA—SCM, Cameron A. Allen, W7OIF—SEC: YWF. PAM Arizona Emergency Net. 3865 kc.; ASI, PAM Grand Canyon Net. 7210 kc.; LUJ. On Nov. 1 DWT became PAM for the AEN. UVR has the noise problem licked and will be on the air soon with a fixed station. There was a fine turnout for the S.E.T. Members of the AEN handled traffic around the State. The Phoenix 6-Meter Net covered the Salt River Valley. AOU, DRI, DRC, IMP, YKK and K7AGL were active. Out-of-state traffic was relayed to the West Coast by YWF. The Arizona Amateur Radio Club elected YWF, pres.; QZH, vice-pres.; WFY, treas.; DWT, secy.; FEW, program; GPY, membership; and KOY, publicity. The AARC held another transmitter hunt and picnic. DWT was first, followed by UXZ and RIJ. There was a much larger turnout than for the first one. PMZ has a new 10-meter beam. Traffic: W7FKK 154, YWF 97, CAF 8, OIF 6.

SAN DIEGO—SCM, Don Stansifer, W6LRU—The following ARRL appointments are in force in this section as of Jan. 1, 1958: Asst. SCM: EWU, SEC: KUU, Asst. SEC: LYF, San Diego City EC: EWU, Asst. EC 75 meters: BGF, Asst. EC 10 meters: K6HJQ, Asst. EC 6 meters: K6GEL, Asst. EC 2 meters: K6QJP, County appointments: 10 meter EC: WYA, 2-meter EC: MUJ, EC Eastern Area: EOT, Northern Area EC: FVA, EC South Bay: HFQ, EC Chula Vista: HRI, EC Imperial Beach: KSL, EC La Mesa: BR, EC Vista: K6LKG, OESs: K6BPI, W6s JVA, LRU, MUJ and WYA, OESs: K6s BTO, OWV, UJL, W6s LWT and WNN, OOs: K6s EC, GHM, IPV, W6s SK, BKZ, CAF, LRU, MCY, MUR, WNN and ZVQ, OPS: CHV, RM: EOT, ORSs: W6s EOT, LYF, K6s UOD and UQF. If there are any errors in the above, please notify your SCM. KBT has resigned as County EC to devote full time as Red Cross Communications Chairman. Welcome back to KVB in Vista. BKZ is the new chairman of the Council of Radio Organizations, with K6DBJ as secretary. The Helix Club held its annual dinner and installation of new officers. The November DX Club meeting was held at the new home of K6IPV. K6KGS got a new receiver from Santa. K6PGO now is mobile on 75 meters. The North Shores Club now meets at the home of EWU. VMS, a new club made up of San Diego City amateurs who are combined AREC and c.d. members, is RACES licensed and all members will become RACES sub-licensed. K6UOD, in Yorba Linda, becomes the first Orange County station to make BPL in five years. K6CAL is a new member of the Upper Ten Radio Club. K6OLS reports on many fine activities of the new South Bay Amateur Radio Society. A WAS contest is in progress and code practice plus workshops are being held. K6UDJ is rec. secy. and K6OLS is the corr. secy. Hope that 1958 will be a good year for each of you. Traffic: W6EOT 558, K6UOD 508, BPI 170, W6KVB 104, MUJ 9, K6UJL 2.

WEST GULF DIVISION

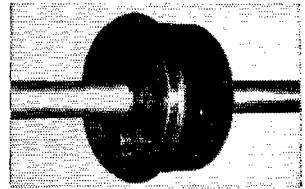
NORTHERN TEXAS—SCM, Ray A. Thacker, W5TFP —Asst. SCM: Bruce Craig, 5JDQ, SEC: BNG, PAMs: K5AEX and IWQ, RM: ACK, EGB proudly announces her mother's new call as KN5MTF. A new club has been organized at Baylor U., temporarily using the call AYX/5. OOs reporting a busy month were BKH, AUJ, DXW, K5AUZ and K5MBB. OES reports were received from K5HTH and DCQ. GY is an old-timer recently returned to the hobby. He says he has made more contacts from August to date than during his entire spark days from 1914 to 1926! 4OZG/5, chief operator at K5WAB, has been transferred to W-4-1 and, K5DFO, of the San Angelo ARC, reports the club's first annual swapfest was a huge success! KN5MOP, of San Antonio, took the prize for coming the longest distance. RTH took the "pre-reg" prize and K5JAY, of Abilene, won the transmitter hunt. Watch for the dates for next year. Attention all teen-agers: Write to K5LWI in Waco for information on an interesting project. A most gratifying visit was had with the members and visitors of the Abilene ARC. There was a very nice turnout in spite of foul weather. Many thanks for the invitation to be your speaker. I had the pleasure of meeting ANL, BKH, ATA, FZV, SDB, UFP, GFL, K5s CEN, JAY, AWQ, KOV, LGT, BPL, LKQ, EBH, JFT, BKE, MEW, LWE, HGR, DSM, JDP, JHY, HGO and KN5s MIN and KLC. Again, thanks for a very nice ex-

(Continued on page 146)

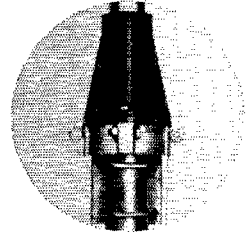
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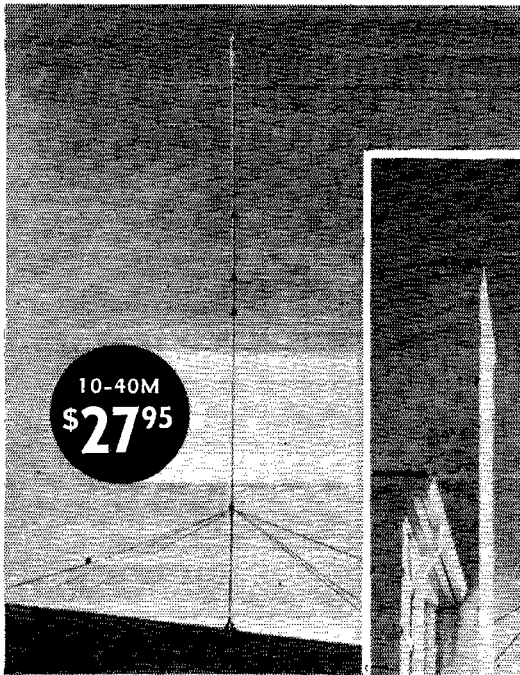
Shown here are two of the great new hy-gain trap verticals, the 14-AV (for 10-40M), roof mounted, and the 18-AV (for 10-80M), side-mounted, each using the sensational Insu-Traps to isolate the various sections of the verticals. 14-AV develops 1/4-wave resonance. 18-AV develops 1/4-wave resonance on 40-80M; 3/4-wave resonance on the 10, 15 & 20 M bands. Each uses new Capacity Hat principle to increase radiating efficiency, and new nylon base insulator for self-support. Less than 2:1 SWR on all bands, single 52 ohm feed line. Combination Guy Wire and Radial Mount Kit available for 14-AV for rooftop mounting. 18-AV comes complete with side-mount bracket fixtures and nylon guring kit, all parts completely weather-treated.



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Also available (not shown), is the model 26-AV vertical for the 2 and 6 meter bands, complete with new decoupling sleeve and ground plane. Overall height and length of ground plane: 5 ft. . . . and the model 12-AV Trap Vertical (for 10, 15 & 20M), using the Insu-Trap principle to isolate sections and develop 1/4-wave resonance. Combination Guy Wire and Radial Mounting Kit available for rooftop mounting the 12-AV.

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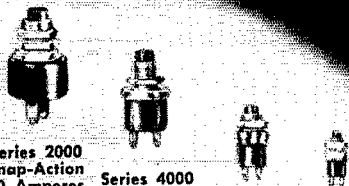
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CROSS-COUNTRY SWEEPSTAKES

perience, Abilene. I hope to get more club invitations. Traffic: K5WAB 1702, W5ACK 215, BKH 214, K5WAT 199, W5BOOC 134, K5EMR 134, BTX 66, DOI 31, W5TFP 30, GY 24, K5HHT 24, W5ASA 14.

OKLAHOMA—SCM, Richard L. Hawkins, W5FEC—Asst. SCM; James K. Booker, 5ADC, SEC; LXH. PAMs: EJK and MFX, RM; JXM. It is with great sorrow that I report that K5AOV suffered a fatal heart attack Oct. 30. Leo was a superb c.w. man and will be missed by all. New officers of the Enid ARC are MFX, pres.; K5CAY, vice-pres.; KN5LYK, secy.-treas. K5LAP is the new call of an old-time operator in Lawton. MRK and GOL got lost in the wilds of Wash. County and had to be rescued by K5BBA. A new station in Bartlesville is KN5MUB. K5BSU and K5BSV have a new Thunderbolt and a tri-band beam. We need a V.H.F. PAM. How about some of you v.h.f. operators submitting an application? The Slow-Speed C.W. Net, SSZ, has moved the net time to 2130. KY is going s.s.b. K5BNQ and LWL have an antenna farm on the roof. KCG and NLZ have new SX-100s. EHC sold his big rig. PAA made WVAC. K5LAP received A-1 Operator and 35-w.p.m. CP certificates. K5CAY has been appointed Asst. EC of Garfield County. GRM, of Enid, also became a Silent Key. Oct. 25 because of a heart attack. KN5IZH and KN5JTW are sweating out their Generals. Several of the clubs were active in the S.E.T. Enid, Lawton and North Fork were the ones I heard. Any club planning a hamfest should let the SCM know in time to include in this report. It must be at least two months in advance. Traffic: W5ESB 200, JXM 143, EJK 119, K5EGS 112, CAY 75, DVE 74, W5QVY 71, FRC 70, MRL 56, K5LAP 48, W5KY 42, K5CBA 37, MFX 30, W5CCK 26, K5RAS 12, W5GOL 12, K5KPS 12, BNQ 11, W5BBA 10, K5KTW 9, W5IER 8, K5DLH 6, W5PNG 6, EHC 1.

CANADIAN DIVISION

MARITIME—SCM, D. E. Weeks, VE1WB—Asst. SCM; Aaron Solomon, 10C. Six-meter activity is in the news this month with HT reporting having worked W6NLZ on both phone and c.w., while WIQCC/VE1 worked the same station on s.s.b. Russ also reports that he has just made what is believed to be the first Canada-Europe s.s.b. contact on 6 meters when he worked G3COJ cross-band (6-10) on Nov. 5. ZZ/mobile has made several W6 6-meter contacts. DB has a new GPR-90 receiver. HC is now operating s.s.b. on 75 meters. The North Shore Club now has a club station in operation. HJ has made more than 1000 contacts since

FOURTH ANNUAL VE1 CONTEST

January 25-26, 1958

All VE1 amateurs are invited to participate in a contest sponsored by the New Brunswick Amateur Radio Association. The highest-scoring contestant will be given an engraved cup, the New Brunswick Amateur Radio Association Trophy, and will have permanent possession of same.

Rules: 1) The contest will begin at 8:00 p.m. AST, Saturday, Jan. 25 and end at 8:00 p.m. AST Sunday, Jan. 26. 2) Any and all amateur bands may be used. Phone-to-c.w., phone, c.w. and cross-hand contacts are permitted. 3) The same station may be counted but once for credit, regardless of band worked. Mobile, portable and home stations covered by the same station license constitute the same station. 4) The general call will be CQ VE1. 5) Exchange signal report, county and province and operator's name. Local QTH is not required. 6) Logs should show band, signal reports, county, province, time and date. 7) Score one point for information received and one for information sent. Multiply total points by the number of individual counties worked in the three provinces concerned, to determine final score. 8) Decisions of the contest committee will be final. Logs must be postmarked by Feb. 8 and should be in the hands of the committee not later than Feb. 15. Send them to W. H. Smith, VE1FC, Contest Committee Chairman, 173 Broad Street, Saint John, New Brunswick, Canada.

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early in the year. ZM reports good results with his new three-element beam on 20 meters. RR/W3 is now active from Washington, D. C., and can be heard on 20 meters. Doreen (ex-VE1ABT), now operates as VE3-CGO from Ottawa. YJ has his phone endorsement. WR is now operating /VE3 from Toronto. Don't forget the
(Continued on page 148)

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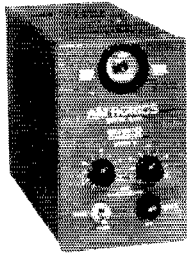
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4th Annual VE1 Contest which will be held on the week end of Jan. 25-26, 1958. Traffic: (Oct.) VE1FQ 229, UT 41, FH 24, ABJ 20, ADH 19, VO2AH 13, VE1ME 10, OM 10, DB 8, AEB 7, YJ 5.

ONTARIO—SCM, Richard W. Roberts, VE3NG—Some 400 amateurs and their wives attended the Ontario ARRL Convention held at the King Edward Hotel in Toronto. The chairmanship was under your SCM, NG, assisted by two delegates from the five clubs in the Toronto area. Among the visitors to the convention were 2BE, Canadian Division Director and WIHQ, of ARRL Hq. Winner of the high-speed c.w. copy was GI from Ottawa. Eighty-two members were initiated into the Royal Order of the Wouff Hong by a fine team consisting of RU, KA, NG, KM, HB and RH. The Novice was BCR, BJV has recovered from the flu. CE now can hear 'em as well as work 'em. DLS won himself a Merit Award from the sister state of Virginia for the Free for All Contest held recently. The Quinte ARC held a successful auction recently. KM and his NYL Inez attended the convention in Toronto. AFI has a new tower. EGZ has a new quad. U1 is on 15 meters. BTI has 91 countries. AAS is going to VE2-Land. BPR attended the v.h.f. do at Syracuse. CAB is rebuilding. NP sends an FB report on the activity of the Kingston RC during the Civil Defense Exercise. NG, with his tape recorder, was one of the first to record the Sputnik signals. Closely following were AML and DGQ. DDN is s.s.b. DDL is being heard again after a long absence. BMX has a new tower. BIV was home on leave in time for the convention. DSG edits the Nortown paper, *the Bulletin Board*. Feature of the Convention was two hidden transmitter hunts. Winners were DHG on 2 and VE2SC on 75 meters. KM and BBD were the hidden boys. Mr. William Beech, M.P. from Ottawa, was a guest at the recent Ontario Convention. VD will be on again soon after a long lay-off. AVS visited Pennsylvania; he also has applied for his WAS. The Northern Ontario group is having a tough time with other stations operating on the chosen frequency of 3755 kc. at 1915 Mon. on Fri. Give them a break, fellows. VE2s included. These lads are a long way north and are having it tough. Their net is known as the MUSKEG Net. The West Side RC has elected the following: CWN, pres.; AIB, vice-pres.; DBV, secy.; BTW, treas.; GC and AZY, activities. AVS visited GI in Ottawa. DNJ is headed for G-Land. Ed Tilton, V.H.F. Editor of QST, spoke to the Ottawa RC. VE3s, read the editorial in November QST re plates. DUU won the v.h.f. ABA cup for his v.h.f. efforts and DAA won another cup for the same but under 25 watts power. Traffic: (Oct.) VE3BUR 107, DPO 79, NG 73, AML 71, EII 57, BEQ 49, DTB 42, KM 33, GI 32, TM 27, BZM 24, DQA 14, AJR 11, CE 11, DWN 8, DZA 7, RW 7, APL 5, EAM 5, DUU 3. (Sept.) VE3CE 10.

QUEBEC—SCM, Gordon A. Lynn, VE2GL—This report completes more than ten years of such reports as SCM, and I now relinquish the reins of that office to my successor, DR, whose name and address you will now find on page 6, and on whose behalf I bespeak support. Your reports will be required by him as they have been by me, and to those faithful reporters of the past ten years goes my deepest appreciation. ATL again makes BPL on originsations, this time totaling 110. ABE is maintaining regular c.w. skeds on 80 meters and also is working 10-meter phone. AWK reports that his transmitter was seized by his landlord because of the complaints of some tenants! DR reports that October traffic was very light. CP had 193 contacts in the W/VE Contest and 160 in the CD Party. AGN is using a new rig with a 2E26 running 28 watts. EC, who has not missed a report to me in over ten years, reports skeds with AEM, KJ and APP. ZI, AFJ and ABN are on from St. Tite (Lavolette). UP is a newcomer on 3.7 Mc. Traffic: VE2AGN 186, ATL 170, ABE 148, DR 59, CP 29, EC 19, GL 14.

ALBERTA—SCM, Sydney T. Jones, VE6MJ—The Northern Alberta Radio Club recently elected KC, pres.; DZ, vice-pres.; IM, secy.; AU, treas.; EA, act.; HM, LY, BW and ZF, directors. It has been decided to hold supper meetings in the future and all are welcome. Get in touch with the secretary, Jim Stevenson, phone 554446, for dope on the location of these interesting meetings to be held as usual on the 3rd Fri. of each month. HM recently was presented with a gift by the boys in VE3-Land in recognition of his efforts in handling traffic over many years. Charlie was taken by complete surprise while being interviewed on the local TV station program "Talk of the Town." The Central Alberta League at Lacombie elected the following officers: JD, pres.; PD, vice-pres.; YM, secy.; BT, treas. By the time this report appears in print it will be a New Year. Your SCM wishes one
(Continued on page 150)

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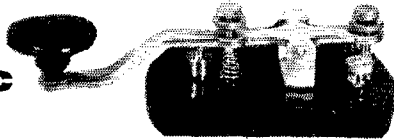


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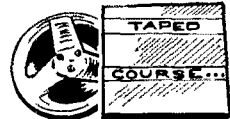
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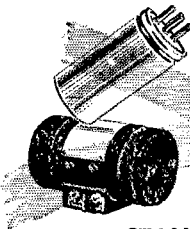
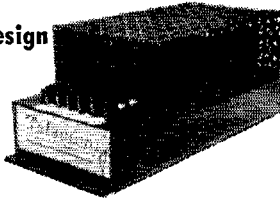
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and all "The Compliments of the Season." Traffic: VE6HM 134, OD 10, MJ 7, BL 6, RR 6, TT 5, PV 2, SS 2, ES 1.

MANITOBA—SCM, James A. Elliott, VE4IF—The ARLM held a hidden transmitter hunt followed by a Weiner roast. It was great fun and conditions were perfect. Prizes went to WS, IF and CX. A most interesting talk was given by CS on loop antennas at the last club meeting. MA is working on new modulation; he also is building a v.h.f. rig. XW and his XYL were visitors to Winnipeg. VG spends most of his time on hi-fi. 3EMC is on 75 meters looking for VE4s. RO is planting thousands of trees and hopes to have an antenna farm. LO has been travelling. TT and ST had visitors from VP9-Land. PE is putting up a three-element beam for 10 meters. SA worked the hands while on holidays in Flin Flon. SX is working DX on 10 and 15 meters. PU is doing well with 10-meter mobile. TC is DXing with a DX-100 on 10 meters. BP has been quite active on 10 meters. Your SCM would like to hear from all VE4s who are working v.h.f. The Manitoba C.W. Net again is underway on 3700 kc, with RF acting as net manager. A new radio club has been formed at the Winnipeg Technical Vocational High School with more than 40 members. Plans are underway to affiliate with the ARRL. Traffic: VE4AY 19, GE 18, QD 12, VJ 10, KN 9, IF 8, AN 2, LF 2, EC 1.

SASKATCHEWAN—SCM, Lionel O'Byrne, VE5LU—Officers of the Saskatchewan Club for '57-'58 are PL, pres.; BG, vice-pres.; HQ, secy.; AJ, treas. The club station, AA, is active again. Some of the gang have been listening to Sputnik 1. Saskatoon has 12 members in a 2-meter net. Officers of the RARA for '57-'58 are KK, pres.; GH, vice-pres.; GU, secy.; TO, treas.; with Steve Yaeger as associate member on the executive committee. JW has returned after a prolonged absence. KJ has moved to Tyvan. W7NXA and his XYL, with W7NNC, all of Seobey, Mont., were Regina visitors. We all look forward to seeing the news for our section in QST so let's make it worthwhile by sending in some material for the column. It will be greatly appreciated. Traffic: VE5DR 12, LM 10, CI 6, CB 5, HF 5, GO 4, RE 4, QL 3, BI 2, IG 2, JK 2, NR 2.

Q Multiplier

(Continued from page 40)

from the receiver. This indicates the frequency of oscillation is somewhere on or near the i.f. Swing this into zero beat with the b.f.o.

Final Adjustment

One of the best ways to make final alignment is to simulate an unwanted heterodyne in the receiver and adjust the Q multiplier for maximum attenuation of the unwanted signal. To do this, with the b.f.o. on tune in a moderately weak signal. A broadcast station received with the antenna disconnected will do. The b.f.o. will beat with the incoming signal, producing an audio tone. Adjust the b.f.o. for a tone of about 1 kc. or so.

Back off on control R_1 until the oscillator becomes regenerative. By alternately adjusting the tuning control, C_1 , and the regeneration control, R_1 , a point can be found where the audio tone disappears, or at least is attenuated. Some slight retouching of L_2 may have to be done in the above alignment, since the movement of any one control tends to "pull" the others. The optimum situation is to have the tuning control C_1 set at about half capacity when the notch is in the center of the passband.

If you happen to get a super active transistor and the regeneration control does not have the range to stop oscillator action, increase the value of the series resistor R_2 . Conversely, if the unit fails to oscillate, reduce the value of R_2 .

While you are making the above adjustments,

(Continued on page 152)

THE C & G 7-BAND ANTENNA SYSTEM IS PROVING ITSELF!

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Roy Devish, W7AZI, says; 'I didn't know how much fun being a ham really is until I got my model 200. I can change bands quickly with no tower climbing or elaborate switching.'



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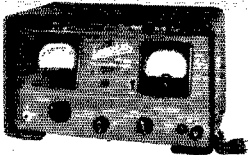


Over the years I've invested considerable money in this wonderful hobby. Been worth it, too, for I've had lots of fun—and learned a lot about radio. Just last year while in QSO a ham upstate told me about the boom in commercial and public-safety 2-way radio. He said he was cashing in on his ham radio experience by doing regular maintenance and FCC checks on commercial rigs.

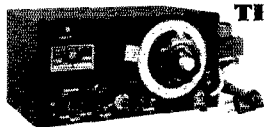
After pulling the big switch I started reading QST—and saw Lampkin Laboratories' ad for their free booklet "HOW TO MAKE MONEY IN MOBILE-RADIO MAINTENANCE." I sent in the coupon . . . and learned how easy it is to get into 2-way radio maintenance. Now I have a high-paying business in my own shack!

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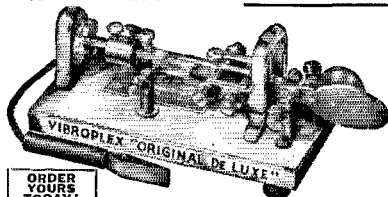
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152

you should notice that the audio tone can be peaked as well as nulled. If it can not be peaked, a little more practice with the controls on your part should produce this condition. We found that the best null was produced with the regeneration control turned only a few degrees. Optimum peak position was obtained with the regeneration control almost at the point of oscillation.

Power Supply

(Continued from page 29)

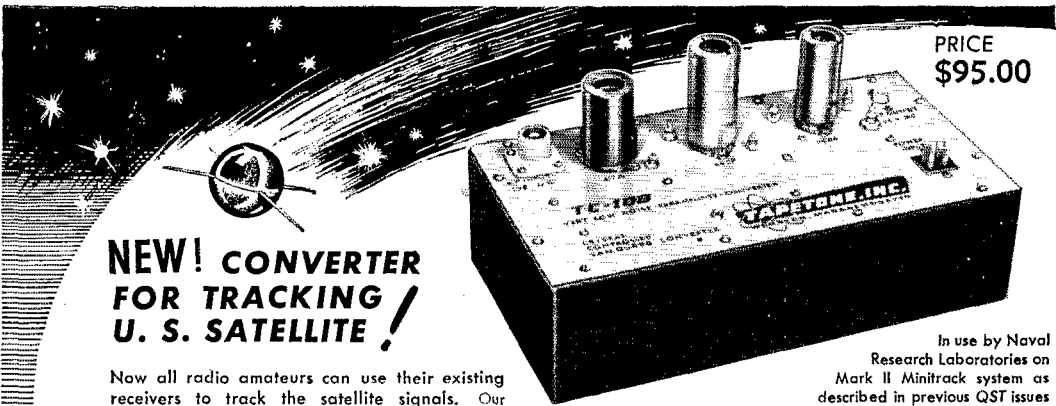
mercury-vapor rectifiers were used at first for the high-voltage supply. However, these took up almost as much space as the plate transformer. It was also necessary, of course, to provide a special filament transformer (or filament windings on the plate transformer) and the power required for the filaments does not contribute to r.f. output. More recently we have had excellent success with high-voltage silicon rectifiers. At the present time, rectifiers of this type are quite expensive, but for those who can afford them, the saving in space, weight and battery drain is appreciable. A photograph shows high- and low-voltage rectifiers mounted on a terminal board attached to the transformer frame. This unit is capable of delivering 750 watts at 2500 volts, and 325 volts at 100 ma. It weighs less than 20 lbs. and occupies less than a cubic foot. For screen currents up to 100 ma., 50-ma. 130-volt selenium rectifiers should be adequate for the low-voltage supply. The high-voltage rectifier stacks are Sarkes-Tarzian type 280SM. Each stack has a rating of 130 ma. at 2500 volts, so the d.c. output rating is 390 ma. at 2500 volts.

How's DX?

(Continued from page 75)

- KP4ADR, P. O. Box 242, Rio Piedras, P. R.
- KR6BW, F. A. Reed, 6131st Opns Sqdn., APO 235, San Francisco, Calif.
- KR6CY, Patricia E. Reed (via KR6BW)
- OA6M, F. L. de Romana, P. O. Box 98, Arequipa, Peru
- OQ5QS, Box 459, Stanleyville, Belgian Congo
- OQ8VN, J. G. van Neer, Box 9, Usumbura, Ruanda-Urundi, Belgian Congo
- PY2OB, Box 22, Sao Paulo, Brazil
- TF2WV, M. T. Fricklas (W2FGD), APO 81, New York, N. Y.
- TF2WCK, APO 81, New York, N. Y.
- UA9DN, V. Semenev (via UA9DL; see preceding text)
- UB5KAB, L. P. Yulenko, Box 27, Stalino, (Ukrainian S. S. R.)
- VE8NB, J. Chouquette, Federal Electric, Box 330, Edmonton, Alta., Canada
- ex-VK1RW-VK9AJ, E. Lerpiniere, 7 Greenstead Rd., Newby, Scarborough, Yorks., England
- VP1MC, J. Gibson, El Cayo, Br. Honduras
- VP8CC (via RSGB)
- VP9DW, Long Point Cottage, Somerset, Bermuda
- VQ4EO/m (see preceding text)
- VQ8s AM AS (via VQ8AF)
- ex-VQ8GB, L. Mazery, VQ4GT, Box 140, Nyeri, Kenya
- VR2DO, Box 334, Suva, Fiji Islands
- VU2CR, 79 Neil Rd., Jabalpur, India
- W2SGL/PQ8/MM (via W3OB)
- WG6AHL, C. F. Morehouse, Barracks 15001, Room 852, Guam, Guam, M. I.
- YO3RF, G. Crain, Box 73, Bucharest, Roumania
- YS1LA, L. Andreu, jr., Box 346, San Salvador, El Salvador
- YS1MS (see preceding text)
- ZB1US (via ZB1E)
- ZC4BL, Box 219, Limassol, Cyprus

(Continued on page 154)



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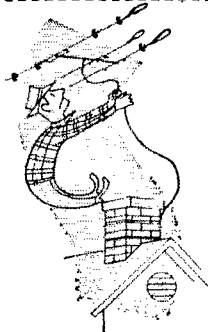
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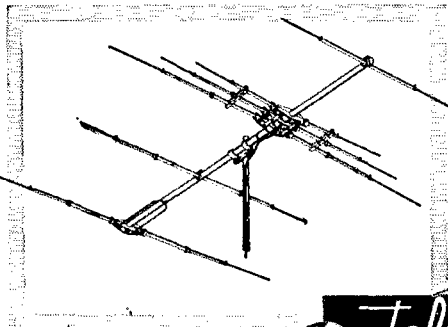
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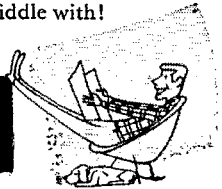
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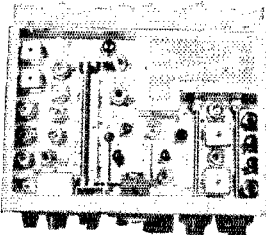
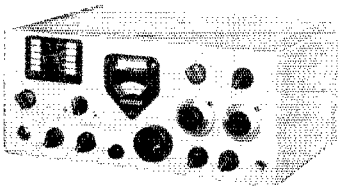
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ZC6UNJ, via U. N. Hq., Field Svc., New York, N. Y.
ZD2GWS, W. Slinger, Buea, Nigeria
ZD4CO, D. P. Darker, P. O. Box 3445, Accra, Ghana
ZE1JUM (via ZE4JH)
ZK1BS (see preceding text)
ZS4KC, 9 Bizana Ave., Virginia, O. F. S., South Africa
ZS8I, Box 35, Leribe, Basutoland, South Africa

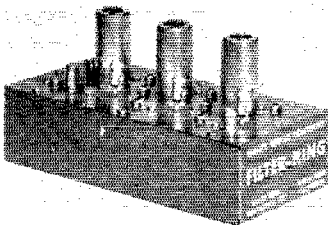
Whence:

Asia—As tired old 1957 died away HLs 2AA 2AF 2AJ 2AM 9KT and others were on hand to help W/K brethren celebrate removal of Korea from the ITU/FCC Ban List. Long time no QSO the Land of Morning Calm! DXers whose ears are regularly attuned to WIAW bulletins were first on the HL draw. K0CSW minus HL9KR; neighboring HL9KT is multiplopped by OMs Don (ex-W2JUS) and Roy, Cambodia, Indonesia, Iran and Vietnam still are holdouts on a taboo table which once included some twenty DXCC countries W4LVV notes that UAB0AI of Buryat-Mongol is less than two miles from Mongolian People's Republic, about 200 miles from the site of JT1AA. A little UAB0M/JT field work could give Ludyk a rare one! A do-it-yourself English course and an n.b.f.m. exciter may give the phone gang a JT1AA tumble if OK1JX's plans carry through W6YY dispatched additional crystals to CR8AC (ex-CR4AL) for 15- and 80-meter activity KR6BW (W6PWQ) laments, "Forty c.w. is impossible here due to all sorts of commercial QRM. In a week's listening I heard only two JAs." K7ADJ journeys to Israel in March with hopes of a little DX work at the juicy end A spurge of 14-Mc. c.w. activity by 25-watt RAF club station V861V is observed by K6LZL VU2JA alerts W7NBB for AC4AX emanations on 14,105 kc. around 0200 GMT Via W1ELR we learn that G3LSO leaves the ZC4AM staff for V9 reassignment (excellent Maldives rumor subject for sensationalists); also that Aden's V9PAD should be more active after RAF staffmen lift a siege of transmitter troubles W6KG reports on 20-c.w. meetings of the YK1AT fan club, OK1MB presiding Construction of that big RAF base in the Maldives proceeds apace. V5IHJ, through Ws IWPO and 6DZZ, expresses expectation that several delicious V9s thereby eventually will become available After launching over 10,000 QSLs from Formosa, Leo of BV1US informs WGDXC of his return to Ft. Bragg, N. C.

Europe—1C1NS does well in the hot seat at HV1CN with a BC-610 on 14,100-14,200-ke. phone, mostly around 0600-0700 GMT. This is amateur radio's first clean shot at Vatican City QSOs within memory of man. SM5ARP, via W1WPO, indicates that Domenico is on the staff of that mammoth new Vatican short-wave broadcasting layout inaugurated last fall W1FII will be visiting in Spain till midsummer, while fellow New Englander W1PNR returned from the Continent after interesting personal visits with such DXers as Gs 2MI 2FUX 4ZU, SM5BAF and UA1KBB VE3BYV welcomed G3JQ back to the DX whirl after a ten-year ham hiatus For details on *Diploma Faltes de Valenciu*, a certification based on securing QSLs from three Valencia EA5s (over thirty available) EA5DY suggests you write P. O. Box 453, Valencia, Spain W4PNK finds that OK3s HMI and MIM are brothers, the former a recent DXCC applicant ZBIUS (K6JCW) expects to operate in Malta for about two years with 55 watts and a four-element 28-Mc. beam. Jay confesses, "A sneaky way to get DX—the DX!" He also mentions plans for a "Get Acquainted with Malta" on-the-air shindig set for early February during which all available ZBIs will be active on DX bands. P7CO says G3IAMW soon will sign a ZB1 call, too. Power input for ZBIs, incidentally, is limited to 150 watts and you can select your own suffix upon licensing W2AOY's first QSO with F8II occurred in 1937, No. 2 in 1957. Crist for a lively records search: Who has logged QSOs with 1) a given operator, and 2) a given call sign, furthest apart in time? DL4XZ filed successfully for AKRL's WAS diploma, while ex-DL4CD returned home to Puerto Rico to sign his KPLAF's call for the first time DL6ZZ awaits QSLs from Ala. and Tenn., still needing QSO with Kentucky, of all places, W4GXB still noting that Gus has had about 6000 QSOs, 1975 with W/Ks, since activating in 1950. DL6ZZ has been hamming since 1932 and prefers 15- and 20-meter work around 2230 GMT F8FC and ON4AU hope to pull a PX1FC encore next summer with enough personnel to avoid overwork and yet maintain a round-the-clock schedule over a two-week period. "We do not intend to remain at the transmitter up to 14 hours straight next time," declares F8FC in lines to W1WPO One-sixty-meter specialist GM3KIII reports his call being pirated on 10 and 15 meters as evidenced by QSLs from the States. He writes W1UED: "I would be pleased to arrange 160-metre schedules with U. S. stations, cross-band if necessary." DL4AAP (W6GHHM) scattered 3502 QSOs among 115 countries during his late-'57

(Continued on page 156)

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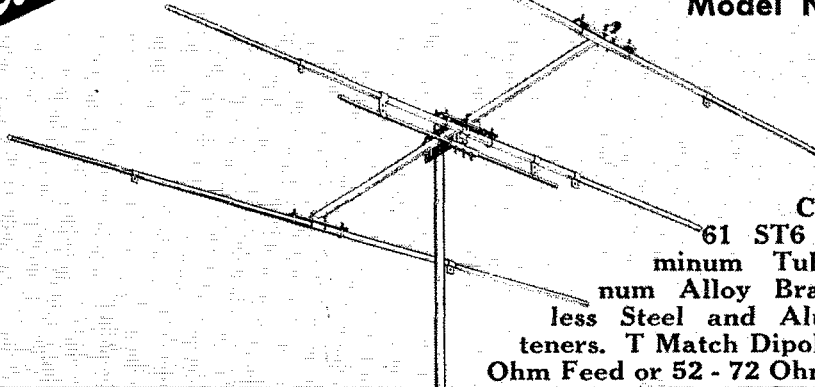
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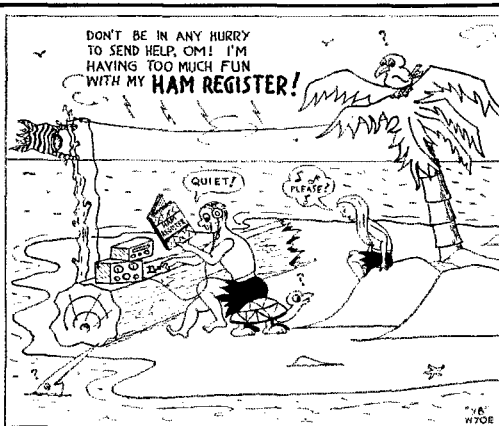
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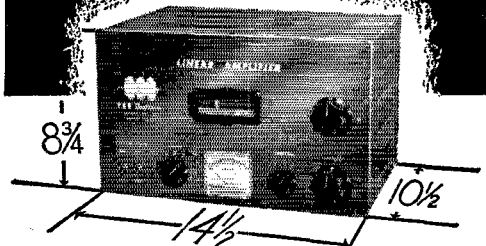
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Crete invasion as SV0WQ, OVARA stalwarts were particularly impressed by Stew's best-hour tally of 141 contacts. . . . W1BDI relays results of last May's USKA (Switzerland) Helvetia-22 DX Test. Top U. S. scorers in order are Ws 3GHS 1ADM 1BFT 10JR ITX 2EQS 1BDI 3AYS 3NCF 1JMI and 8KPL; W3GHS's winning tally consisted of 40 QSOs, 30 multipliers and 3600 points. The 531 contacts and 313,326 points of HB9NL led all Swiss entrants, and DJ1BZ headed non-Swiss European contestants with a 15,266-point performance. In other areas EA9AP, LU6 6DX 7AS, KP1s CC DH, YV5HL, VE1EK, ZS5U and VO2NA made strong showings. . . . OT EI5A comes home to Kildare after seven years in darkest Africa.

Africa — VQ1EO's trans-Africa safari is about to roll. W1IYC advises. "Operation will be on 20 and 15, low-power s.s.b. No calls will be answered on the operating frequency, for battery drain will not permit lengthy QSOs or battles with GRM." . . . Boiled owl WITS finds VQ2RG doggedly hunting Utah and Nevada for you-know-what on 21- and 28-Mc. e.w. . . . Check with SARL regarding a fee increase for WBCN and AAA certifications. . . . W9WVR overheard CR6AI chatting about CR5AR Portuguese Guinea possibilities on 14-Mc. e.w. . . . FE8AE calls the roll of French Cameroons hamdom; FE8AG is active on 14, 21 and 28 Mc., e.w. and phone; FE8AH likewise; and FE8AK is QRV on 7 and 14 Mc., voice and code. . . . CN8FM (W9FJY) discusses Ifni DXpeditionary intentions with W2HML while that place grows rarer and rarer. . . . The Sixth Harvard-Peabody-Smithsonian Kalahari Expedition left for the Kalahari Desert, South West Africa, on November 3rd. When not engaged in anthropological studies and routine expeditionary communications, technician W9TVK hopes to put a G-66 and G-77 on DX bands until this May or June, call unspecified. . . . W1E1R, through YL ZS1RAL, supplies Vermont WAS QSOs for many a ZS on 14-Mc. e.w. . . . RSSR (Southern Rhodesia) installed and operated ZEIJUM for the Manicaland Agricultural Show at Umtali in late '57. Using gear loaned by ZEs JC and KP, operators ZEs JK JN KJ and ZE4JH pooled talents to give the local folk a three-day demonstration of the finest hobby of them all. . . . Rodriguez Island, fresh addition to your ARRL DXCC Countries List, is not too widely known. A dependency of Mauritius, the island lies at 19°41'S-63°23'E, some 350 miles away. It's of volcanic origin (twelve discrete flows), forty square miles in area, and its highest point is Mt. Limon, 1290 ft. Fishing and agriculture support an approximate population of 15,000 (1953) mainly concentrated in the towns of Port Mathurin and inland Gabriel. Discovered by the Portuguese in 1645, colonized by the Dutch in 1691, appropriated by the French, and finally by the British in 1810, Rodriguez is a worthy DXpeditionary objective and now is reported represented by VQ8AS on 20 e.w.

Oceania — ZC5AB joins the North Borneo key-clicks clan on 20 with a 35-watt c.c. rig, a long-wire radiator and an HRO-MX receiver. KH6CMAI says John seeks specs literature on the latter. Neighbor ZC5AL tells WITS he's after the Dakotas and Nebraska for WAS around 14,020 or 14,040 kc. at 1400-1500 GMT, plus an occasional 21-Mc. fling between 1330 and 1700. . . . In their planned Johnston Island doings KH6s CMAI and CNU designate the call KH6CMAI/KJ6 for 20-meter work exclusively, KH6CNU/KJ6 for operation on other bands. Mac's motion for a "carpet-bagger's DXCC" is seconded by KL7BPK, another ever-orbiting DX chaser. KH6CMAI vents a condemnation of tail-ending: "Just lost two QSOs because some lid with a two-letter call kept breaking in every ten seconds to assure me he was standing by on frequency. I thought OTs are supposed to set the good example for us youngsters!" . . . YL K86AF, abetted by W8NGO and others, sought to sign a VR5 call before discontinuing Pacific operations. At present the Friendly Islands aren't very. Near by, KS6AD feeds a two-element beam with a DX-35 on 20 e.w. . . . FK8s AC AE AH AJ AM AS AT, YJ1DL and assorted XYLs got together in Noumea for a champagne fete upon FK8AO's departure for France. . . . W7RT's NZART (New Zealand) WAP certification — issued by DX pundit ZL2GX — is world-wide No. 113, No. 34 for the U. S. A., and No. 1 for our seventh call area. . . . Note on a rare one from W6RLP: "While perusing an old log for my operations in the Philippines immediately after WW-II I came across a QSO on Oct. 9, 1945, with KA1KN near Manila, 'Rod, W9BRD' was operator." Small world. . . . Club Oceaniagrams, first NCDXC: PA0RJJC is to become a Biak JZ0, and VK0PK is expected to remain at Mawson for another two years. Now WGDXC: VS5ET will try s.s.b. courtesy W6UOU.

Hereabouts — G5RV, that fellow with all the Caribbean call signs, worked some 600 chaps in 19 hours of PJ5AA and PJ5CA operation last fall. W1BDI finds that Louis holds one of the new Netherlands Antilles "vacation licenses" which are valid for two weeks of PJ hamming each year. If you choose to qualify, check with VERONA for details. G5RV hopes to add VP1, VP2 and VP3 to his collection of RV-suffixed calls. . . . "DXers are invited to attend the annual Northern-Southern California DX Clubs

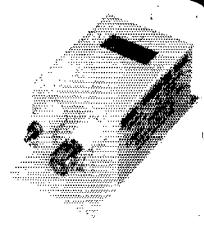
(Continued on page 158)

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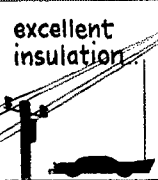




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Conference to be held at the Hacienda Motel, Fresno, on January 18th-19th," announces W6YY. These clambakes have become classic — check with John for further details W4LVV threatens to submit a photo of his 100-plus conglomeration of "DXCC²" QSLs (p. 71, November 1957 QST) but W8KPL could beat him to the "How's" desk by trimming up his 107/90 DXCC-member-countries status KGLZI encountered Ws 1GW1 and 5RBU operating KG1BB, W5CBU manning KG1DT, and W2FGD at the key of TF2WBU Many VP8s are due to do their yearly QTH shuffle, W9WHM promises a rundown when available. John wonders if he's the first ex-Novice to crush the 200-countries-confirmed-on-phone elite U6DEMI, professional radio op-technician 'way down south, wants to correspond in English or Spanish with Yank lettermen W1CTW's new National Co. colleague, K1DOB, is ex-W6GIMX-AG2AF-KA2EH-F8AB-DL4AD. Cal and pals had a ball at the W1-DXCC brawl held en masse in Mass. last October K2UFT bumped into W4EMR in the cockpit of Guantanamo's KG4AL Convalescing from a coronary condition, W6AJ claims to find relaxation in snatching rare ones away from the high-power pack W6QAC reports EXT2TG regularly seen in the U. of Cal. bailiwick "My location is 35 miles from Siberia and the UAØ QRM is really bad," writes KL7JDO (W6JDO). "See you from the Cape Prince of Wales!" W6CF and XYL KGOWQ account for 347 countries between them. Bud is ex-W9CF-W9CSB and beats RTTY keys when DX is slow As KG1DQ, W1UDQ labors toward WAE and DXCC from Thule with a BC-610 on 14 Mc. W8HWN has a dandy 28-Mc. terminated rhombic focused on South America for skeeds with his sister, a missionary in Peru. "What a signal he lays in down there!" comments W8KX. "But Bob is not DX-minded." Doubtless he'll get DX-minded some day when he has only a sooty city dipole — 'twas ever thus! KH9QD's QST beer can vertical does well on 40 and 80 OY1R, VK9AS and YJ1RF QSL hints are hunted by W1CYY W7DJU bemoans the obvious lack of dummy antennas among dummy testers Credit for those November W6AM photos should go to W8HCW of Electro-Voice, Inc. Not exactly jumping from a frying pan into a fire, Northern Lights of the Anchorage Amateur Radio Club states that KL7BFW will join the staff of KC4USB Club and society abbreviations in the preceding DX pages represent contributions by the DeRidder DX Club, Hamfesters Radio Club, International Short Wave League, Japan DX Radio Club, Northern California DX Club, Ohio Valley Amateur Radio Association, West Gulf DX Club and Willamette Valley DX Club. Much obliged!

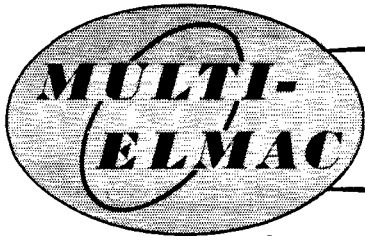
Ten Years Ago in "How's DX?" — Your January 1948 column reminds operators at the DX end that they conduce the mores, that DX hogs will thrive and prosper so long as boorish operating pays off in juicy QSLs Ten-phone DX fever hits an all-time high with such items as C1s CH CS JC, FQ3AT, Jg 8AAJ 8AAM 9ABX, KG6AW/VK9, MB9AM, MDs 5TS 7RJ, PK2RK, W2WAV/C9 and ZC6NF available. ET11R, F48AA, UA9s CF DP and UH8AA tempt 28-Mc. code nerherants On 20 s.w. all the fuss is over AR8AB, Cg 6H1H 9JW, EPs 1AL 3D, FTs AB AN, HE1EO, HAHC/16, I0s AB USA ZJ, KAAs 6FA 7CC, LU7ZA, MB9s AB AG AM, MID1d, MID5s AA DA KW PC SF, OX1G, PKs 4KS 4FO 5LK 6NG 6XA 7VK, RAEM/AM, TA38C, TRIP, Franz Josef's UA1KED, UH8AT, UI8AR, UJ8AD, VS7s AC AP ES NX, YU7BR, Yg 7ANN/C1 98QS/two #TKK/VK9, XAFQ, XU6GRL, Y05J, YR5s AH PK PV, YU7KX and ZC1AL Eighty features F48BC and a pack of Europeans, while 7-Mc. DX doings center around GD3UB, HRIAT, UA3BD/UC2 and VP7NK A snapshot of that rare Tonga duo, VR5s IP and PL, dominates the art complement, and poor Jeeves is in an awful stew!

Novice Roundup

(Continued from page 51)

4) **Scoring:** Each exchange counts one point. Only one point may be earned by contacting any one station, regardless of the frequency band. The total number of ARRL sections (see page 6 of this QST) worked during the contest is the "section multiplier." A fixed scoring credit may be earned by entrants who hold ARRL Code Proficiency certificates. If an entrant does not hold a CP award he can apply for credit by attaching to his Roundup report a copy of qualifying run from W6WGP, January 2 or February 5, or from W1AW, January 20 or February 18. CP credit equals the w.p.m. speed indicated on the latest certificate or sticker held by the entrant. The final score equals the "total points" plus "Code Proficiency credit" multiplied by the "section multiplier."

(Continued on page 160)



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5) *Reporting:* Contest work must be reported as shown in the sample form. Reporting forms and a map of the United States will be sent gratis upon request. Indicate starting and ending times for each period on the air. All Roundup reports become the property of ARRL and must be postmarked not later than March 17.

6) *Awards:* A certificate award will be given to the highest-scoring Novice in each ARRL section.

7) *Disqualifications:* Failure to comply with the contest rules or FCC regulations shall constitute grounds for disqualification. ARRL Contest Committee decisions are final.

Happenings of the Month

(Continued from page 81)

bilities are probably more attractive at present than in our microwave bands.

Future Growth

As we have indicated, there are approximately 160,000 FCC-licensed amateur radio operators and stations at present. During the past several years, the amateur service has grown by approximately 12,000 each year, and the rate of growth is rising slightly. Assuming the continuance of the present growth curve, we can thus conservatively predict the amateur service will reach the figure of 200,000 licensees by the end of 1960, and approach 300,000 ten years from the present time — that is, in 1967.

If the amateur radio service is to be maintained, and encouraged to continue its healthy growth, suitable frequency space must be provided. There is little or no room in the amateur bands below 25 Megacycles for expansion. In that portion of the spectrum it is not a question of how many kilocycles per station, but how many stations per kilocycle. The amateur service has been able to exist there only by developing or adopting receiving selectivity techniques on the order of 100 cycles or so for radiotelegraphy, and by an increasing trend to single sideband methods for voice emissions. The growing occupancy of amateur bands between 25 and 890 Megacycles is a result not only of a rapidly increasing interest in u.h.f. techniques but also of the overcrowding on lower frequencies. The present amateur assignments in the region between 25 and 890 Megacycles are satisfactory for the continued growth and development of the amateur radio service.

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By PAUL M. SEGAL

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November 25, 1957

Scientific Telemetry

(Continued from page 45)

lite will also carry a radio receiver which will be interrogated upon command from primary IGY ground stations. The cosmic-ray instrumentation in the package includes a magnetic tape recorder for the purpose of recording cosmic ray information during each orbit. Upon interrogation from the ground, the second transmitter will be turned on and the tape-recorded information sent over this transmitter. The higher-power transmitter

(Continued on page 162)

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40 M	7151 to 7199	FT-243	
40 M Dblg.	3576 to 3599	FT-243 & DC 34/35	
15 M	7043 to 7083 X3	FT-243	
15 M	5276 to 5312 X4	FT-243 & DC 34/35	
2 M	8056 to 8165 X18	FT-243	

AMATEUR

BAND	XTAL FREQ. RANGE	TYPE	AMATEUR NET \$1.99 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	
6 M	8334 to 9000 X6	FT-223	
2 M	8000 to 8222 X18	FT-243	

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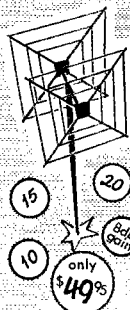
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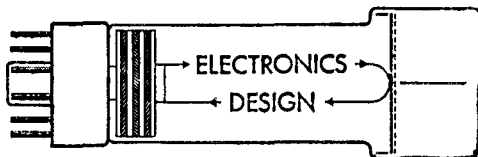
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will again operate on 108,030 megacycles with a radiated power of approximately 60 milliwatts. As in the case of the first payload, the low-power transmitter will operate into a linearly polarized antenna, the high-power one into a turnstile.

C. VOLUNTEER TELEMETERING RECEPTION OF DATA FROM OTHER SATELLITES

Scientific experiments planned for other satellites provide no continuous telemeter signals and will transmit information only upon interrogation. These satellites will be used to study such scientific problems as the earth's magnetic field, upper air densities, earth's cloud cover, radiation balance, etc.

General participation in the collection of data from this second group of satellites is impractical. However, limited participation by volunteers located near enough to a primary station to receive the data which is initiated upon command may be of value as a back-up to the primary recording.

D. GENERAL INFORMATION APPLYING TO ALL SATELLITES

The orbit of each US-IGY satellite will make an angle of approximately 35 degrees with respect to the earth's equator and should thus at some time pass directly overhead for amateur observers located between 35°N and 35°S latitude. The strength of signals received by observers will depend upon the altitude of the satellite (which can vary from 200 to 1500 miles for a successful launch), the over-all sensitivity of the receiving system, and the deviation of the satellite from a true overhead transit.

Soon after each successful satellite launching, orbits will be determined and information made available. Amateur observers interested in serious efforts to record satellite telemetry signals would be wise to establish contact with local organizations subscribing to news wire services, such as newspapers or radio and television stations. An organization of amateur observers for visually tracking the satellite is in existence and known by the name of Moonwatch. Cooperation with any local Moonwatch or Phototrack group would be mutually helpful. Such sources can provide information as to when and where to be seeking satellite telemetry signals and will avoid many hours of frustrating and unfruitful searching.

To be at all useful to the scientific experiment-

(Continued on page 164)

Beams FOR THE Deans
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See Page 147 in the November issue of QST

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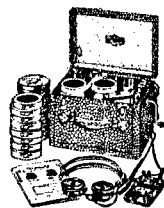
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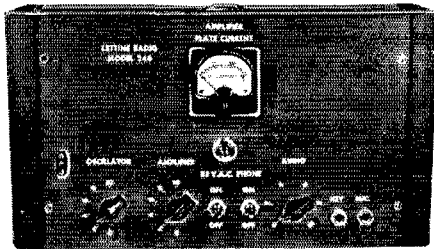
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ers, an amateur recording must also provide in addition to the recorded satellite telemetry signal the following information: (1) the date on which the recording was made, (2) the exact time of day at which the recording was made including A.M. or P.M., time zone (or Greenwich time) and whether daylight or standard time, (3) exact location from which record was made, preferably including latitude and longitude, (4) recording speed, number of channels and their use, (5) what special information the observer may believe the tape to contain, (6) name and address of the observer if he wishes the tapes and their interpretation returned.

Amateurs or organizations making tape recordings of the information described in the bulk of this article should retain them until instructions have been received as to where and how they should be sent for reduction. This information will be carried over station WIAW of the American Radio Relay League and on as many communication nets around the earth as possible.

All correspondence relative to the Lyman-alpha environmental satellite telemetry signals or to recordings that have been made should be addressed to U. S. Naval Research Laboratory, Washington 25, D. C., Attention Code 4105. Recorded tapes should not be sent without further instructions.

Individuals or organizations planning to record signals from the Cosmic-ray-meteor satellite are invited to send post cards to the Jet Propulsion Laboratory, Amateur Radio Satellite Tracking Project, 4800 Oak Grove Drive, Pasadena, California, U. S. A. The most interest now lies in gathering telemetered information outside of the Continental United States. Preferably, it is hoped that much information can be gathered in widely separated regions of the earth. The satellite signals should be receivable in a band approximately 40 degrees either side of the Earth's equator.

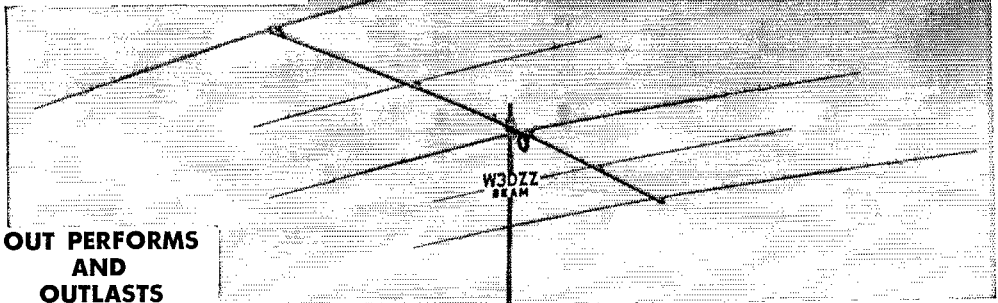
One final discussion regarding the value of amateur recordings will be included to cover the event of a satellite having a short active life. This could arise because of launching errors, gross errors in thermal calculations resulting in premature battery failure, or equipment failure in the satellite. This is not intended to paint a grim picture, for each component designer has confidence in his equipment but the launching vehicle, the satellite and its equipment are new adventures into the unknown. In the event of a satellite with a short active life, the scientific experimenters would be interested in all available information which could assist in determining wherein failures occurred. For this reason any telemetry record tapes obtained in the early life of a satellite should be carefully preserved until the fate of the satellite is determined.

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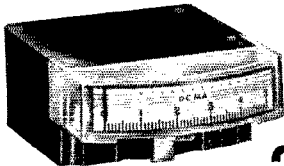
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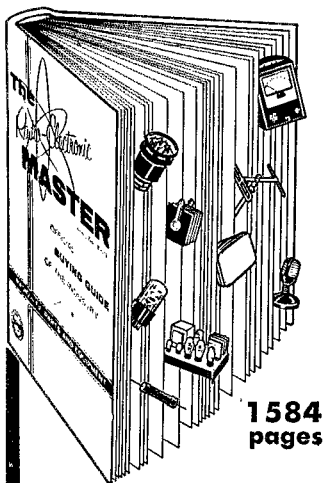
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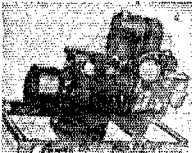
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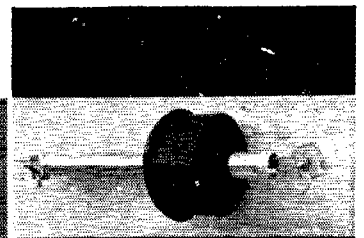
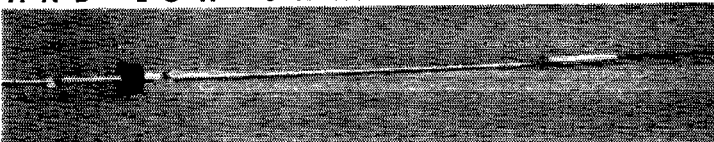
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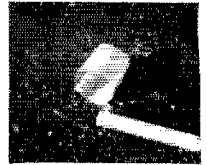
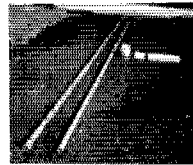
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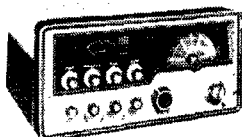


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HAM-ADS

(1) Advertising shall pertain to radio and shall be of nature of interest to radio amateurs or experimenters in their pursuit of the art.

(2) No display of any character will be accepted, nor can any special typographical arrangement, such as all or part capital letters be used which would tend to make an advertisement stand out from the others. No Box Reply service can be maintained in these columns nor may commercial type copy be signed solely with amateur call letters.

(3) The Ham-Ad rate is 30¢ per word, except as noted in paragraph (6) below.

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(7) Because error is more easily avoided, it is requested copy, signature and address be printed plainly on the side of paper only. Typewritten copy preferred but handwritten signature must accompany all authorized insertions.

(8) No advertiser may use more than 100 words in any one issue nor more than one ad in one issue.

Having made no investigation of the advertisers in the classified columns, obviously commercial in character, the publishers of QST are unable to vouch for the integrity or for the grade or character of the products or services advertised.

QUARTZ—Direct importers from Brazil of best quality pure quartz suitable for making piezo-electric crystals. Diamond Drill Carbon Co., 248 Madison Ave., New York City 16.

MOTOROLA used FM communication equipment bought and sold. WBECO, Ralph Hicks, 204 E. Fairview, Tulsa, Okla.

WANTED: Cash or trade, fixed frequency receivers 28/42 Mc. W9Y1, Troy, Ill.

MICHIGAN Hams! Amateur supplies, standard brands, Store hours 0830 to 1730 Monday through Saturday. Roy J. Purchase, W8RP, Purchase Radio Supply, 327 E. Hoover St., Ann Arbor, Michigan. Tel. NOrmandy 8-8262.

WANTED: Rare wireless gear, books, magazines, catalogs before 1922. Send description and prices. W6GH, 1010 Monte Dr., Santa Barbara, Calif.

WANTED: All types aircraft & ground transmitters, receivers 3MT-13, 4C7, RC-1, R5, ARN7, BC6J0E, ARN6, B788C, ARC3, BC342. Highest prices possible paid. Dames, W2KUW, 308 Hickory St., Arlington, N. J.

ATTENTION Mobileers! Leece-Neville 6 volt 100 amp. system alternator, regulator & rectifier, \$45.00. Also Leece-Neville 12-volt 100 amp. system, alternator, regulator & rectifier, \$85.00. (Good condition. H. A. Zimmerman Jr., K2PAT, 115 Willow St., Brooklyn 1, N. Y. Ulster 2-3472.

CASH for your gear. We buy as well as sell. Write for cash offer or trade. We stock Elmac, Gonset, Hallcrafters, Hammarlund, Johnson, Lycoe Master Mobile, Morrow, National and other ham gear. H & E Electronic Supply, Inc., 508 Kishwaukee St., Rockford, Ill.

WANTED: Receiver R5/ARN-7, MN-62 or transceivers, RT18/ARC-1, AN/ARC-3, BC-788C, 1-152C Collins Bendix equipment, test sets, dynamometers, inverters. We pay highest prices. Advise quantity condition, price in first letter. Aircraft Radio Industries, Inc., 15 East 40th St., New York City, Tel. LEXington 2 6254.

MULTI-BAND Antenna, 80-40-20-15-10, \$19.95. Patented. Send stamp for information. Lattin Radio Laboratories, Owensboro, Ky. SAN FRANCISCO and vicinity. Communication receivers repaired and realigned. Guaranteed work. Factory methods. Special problems invited any equipment. Associated Electronics, 58 South P St., Livermore, Calif. W6KPE, Skipper.

RECEIVERS: Repaired and aligned by competent engineers, using factory standards. Instruments. Authorized Factory Service Station for Collins, Hallcrafters, Hammarlund & National. Our twenty-first year. Douglas Instrument Laboratory, 176 Norfolk Ave., Boston 19, Mass.

RADIO magazines, Buy, sell or trade. Bob Farmer, Plainville, Texas. **HALLCRAFTERS,** Central Electronics, ham gear—others, Swartzlander Radio Limited, Fremont, Ohio. Call Jerry, W8EPI or write.

TECHNICAL Manuals TM11-273, 120 pages covering BC-312 receivers and BC-191 transmitters, \$2.50. ID-60/APA-10 Panel-adapter maintenance manuals, \$2.75. Both postpaid in U. S. A. Electroniaart, Bronxville, N. Y.

"PIG-IN-A-POKE?" Not if you visit Ham Headquarters, USA, and take your choice from the hundreds of "Like New" bargains in the world-famous Harrison Trade-In Center! See photographs, p. 137, March QST, and p. 133 April QST. Great value, huge inventory, tremendous turnover means lower overhead! Terms, Trades, BCNTU, 181 Harrison, W2AVA, 225 Greenwich St., New York City.

RECORDING & Brochure: Limited Edition. A tribute to Radio and Morse operators. "The Saga of Telegraphy" is a historical story of communications men and their progress since 1844. It highlights courageous deeds performed by them. Available in two parts: 33¢ record, playing for 15 minutes, includes narration and code. Brochure is the written & illustrated story. Special price to amateurs: Brochure, \$1.00; Recording, \$3.00 or both for \$3.75. J. R. Graham, W4RJX, P. O. Box 1556, Arlington 3, Va.

QSL'S? SWL'S? Finest and largest variety samples 35¢ (refunded). Callbooks (Winter), \$4.50. Subscriptions to radio publications, "Rus" Fakers, W8DEL, P. O. Box 218, Holland, Michigan.

QSLs, Taprint, Union, Miss.

QSLs "Brownie," W3CJ1, 3110 Lehigh, Allentown, Penna. Samples 10¢; with catalogue, 25¢.

QSL-SWLS, Mendie, W0KXL, 1507 Central Ave., Kansas City, Kansas.

QSL-SWLS, Samples 10¢. Malgo Press, 1937 Glendale Ave., Toledo 14, Ohio.

QSLs Twenty exclusive designs in 3 colors. Rush \$3 for 100 or \$5 for 200 and get surprise of your life, 48 hour service. Satisfaction guaranteed. Constantine Press, Bladensburg, Md.

QSL Samples, Dime, refundable, Roy Gale, W1BD, Box 154, Watford, Conn.

QSLs, Neat, Attractive, Samples 10¢. Woody's, Box 164, Asher Sta., Little Rock, Ark.

QSLs, Sharp! 200 one color, glossy, \$4.75; Multi-color samples dime. K9DAS QSL Factory, Edward Green & Sons, Box 197, Frankfort, Ind.

QSLs, Reasonable, 3 Week Delivery, Samples dime (coin). Dick, K6GJM, Box 294, Temple City, Calif.

DELUXE QSLs—Petty, W2HAZ, Box 27, Trenton, N. J. Samples, 10¢.

QSL-SWLS, High quality, Reasonable prices, Samples, Bob Teachout, W1FSV, 204 Adams St., Rutland, Vt.

QSLs: Glossy, Samples 10¢. W1OLU Press, 30 Magoun, Medford, Mass.

QSLs of distinction! Three colors and up. 10¢ brings you samples of distinction. Uncle Fred, Meshoppen, Pa.

QSLs, SWLs, VIII's, XYL-OM's (Sample assortment approximately 9%) Covering designing, planning, printing, arranging, mailing, eye-catching, comic, sedate, fatigulous, DX-attracting, prototypal, snazzy, up-to-agoed, cards, Rogers, K0AAB, 737 Lincoln Ave., St. Paul 5, Minn. Also glamorous, pulsating (Wow!)

QSL-SWLS that bring returns! Samples 25¢ (deductible). C. Fritz, 1213 Briargate, Joliet, Ill.

QSLs, Plain and fancy samples 10¢. Fred Leyden, W1NZJ, 454 Proctor Ave., Revere 51, Mass.

CREATIVE QSL and SWL Cards. Are you proud of your card? If not, let us print your next order. Write for free samples and booklet. Personal attention given to all requests. Bob Wilkins Jr., KN6ZMT, Creative Printing, P.O. Box 1064-C, Astacadero, Calif.

QSLs, samples dime. Gay Krenz, Fall Creek, Wis.

QSLs, Samples, dime. Printer, Corwith, Iowa.

QSL-SWLS, 100, \$2.85 up. Samples 10¢. Griffith, W3ESW, 1042 Pine Heights Ave., Baltimore, Md.

DELUXE QSLs, Petty, W2HAZ, Box 27, Trenton, N. J. Samples 10¢.

QSLs of distinction. Three colors and up. 10¢ brings you samples of distinction. Uncle Fred, Meshoppen, Penna.

QSL-SWLS, 100, \$2.50. Samples 10¢. QSO file cards, \$1.00 per 100. Rusprint, Box 7507, Kansas City 16, Mo.

RUBBER Stamps for hams, sample impressions. W9UNY, C. W. Hamm, 542 North 93rd St., Milwaukee, Wis.

CANADA Only. Sample QSLs, QTH's, letterheads, envelopes, greeting cards, calendars, 25¢ refundable. Derrick Cards, 11 Temple Avenue, Toronto 3, Ont.

QSLs: Cartoons—cartoons. 100, all cartoon varieties, colors, glossy, \$5.00. Rush order for surprise. Chris, W9PPA, 365 Terra Cotta, Crystal Lake, Ill.

QSLs, samples, Eddie W. Scott, W3CSX, Fairplay, Md.

QSLs, Glossy, Samples, 10¢. W1OLU Press, 30 Magoun, Medford, Mass.

QSLs, Samples, 10¢. SPA Print, Box 181, Hot Springs, Ark.

CASH Paid! Sell your surplus electronic tubes. Want unused, clean transmitting, special purpose, receiving, TV types, magnetrons, klystrons, broadcast, etc. Also want military, and commercial lab test and communications gear. We swap, too, for tubes or choice equipment. Send specific details in first letter. For a fair deal write, wire or telephone: Barry Electronics, 512 Broadway, New York 12, N. Y. Tel. WALKER 5-7000.

RARE Opportunity! Bound volumes QST complete. Vols. 1 through 31 (1915-1947 inclusive). Includes special QST Bulletin issued after end World War One. Excellent condition. Best offer to Mrs. K. B. Warner, 73 Mohawk Dr., Vest Hartford, Conn.

DOES it quicker, does it better: Dixtal Antenna Connector. Newest and easiest, no soldering with this connector. This is it for centered antennas using coaxial transmission lines. \$4.75 net. Lakeland Electronics, 1327 Leonard Ave., Muskegon, Mich.

DELTA-TENNA ground planes, commercial quality 2 mtr., \$19.95, 6 mtr., \$21.95; 10 mtr. \$29.95. Also out to any commercial frequency 450-20 Mc. Western Gear, Dept. Q, 132 W. Colorado, Pasadena, Calif.

IMMEDIATE answer to your request for new listings of reconditioned equipment and our new complete amateur catalog. We give you a realistic deal always on all brands, new or used. Check our offer first. We deal quickly, easily and on a personal basis. Our terms tailor-made to your budget. Stan Burghardt, W9BJV, Burghardt Radio Supply, Watertown, So. Dak.

FOR Sale: Collins 30K1 400 watt transmitter, like new cond. W8VYE, Orville Wood, Camden, Ohio, Tel. 243.

WANTED: BC-221, BC-318, BC-312, BC-342, BC-610-E, ARN-7, BC-788, ARN-6, APR-4, ARC-1, ARC-3, ART-13. All types surplus or amateur transmitters, receivers, test equipment taken in trade for new Johnson Viking Ranger, Paetnager, Vallant, Hallcrafters, Hammarlund, National, B&W, Gonset, Elmac, Telrex, Fisher Hi-Fi, etc. Write Tom, W1AEN, Altronics-Howard Co., Box 19, Boston 1, Mass. Tel. Richmond 2-0048. Store: 60 Spring St., Newport, R. I.

ETCHED—Circuit material, supplies, instructions, free catalog. Etched circuit, P. O. Box 2582, South Bend 14, Ind.

WANT good transmitter, 150 watts or more. N. R. Thornton, Madison, ME 1, Indiana.

IRE Proceedings 1956 and 1957 run for sale, \$12 per year. F. Thiede, 169 Buckingham Road, West Hempstead, L. I., N.Y.

DISTRESS Sale! Need the cash, O.M.S! For parts or you must job: (1) partially wired Handbuilt single 813 500W VFO rig, less PA meter. Location 2200W modulator-driver-8A with CVM-4 Verbatim xfrmr, 2-811A, SA-driver PS. (3) dual PS 450 M 300, 1500-2100 M 300 (8-49). New quality parts. All assembled, shielding panels, etc. Cost approx. \$415. Will sacrifice for first \$205 check or money order. Crated. F.O.B. Tyler, Texas. Yearly, 1810 Blossom Lane, K5HZZ

WANT: HRO50T1 coils and scales E, F, G, H, J, AC, AA, AB. Also calibrator 50XC2 and S-1-J 3. State condition and lowest price in first letter. Mr. Marshall, 455 Washington Ave., Dumont, N. J.

HAMS! In Central Illinois It's Knox Electronic Supply, Galesburg, Ill.

VIKING 500 for sale, factory wired, less than 10 hours' use. Cost over \$950. Delivered \$700 takes it. W2FKH, 343 Fayette St., Bridgeton, N. J.

FOR Sale: Viking Vallant, factory-wired, new, perfect. Has latest circuits. Going kilowatt. First \$350 takes it. Want full set of inked code tapes for TB-10 code keyer and D104 mike. Don Campbell, Wales, North Dakota.

WANTED: BC-610E, BC-614E, JB70 Junction Box, RC-939; ART-13, BC348, BC312, BC342, ARC-1, ARC-3, other military and aeronautical surplus. Give condition, name price. We pay C.O.D. James S. Spivey, Inc., 4908 Hampden Lane, Bethesda, Md.

WANTED: ART-13, BC-610E, BC-614E, RC-939, JB-70 Junction box; BC-312; BC-342 and other military surplus. Advise what you have, condition and price. W4VLC, Riffert, Box 878, Bethesda, Md.

VAN SICKLE, Gene, W9KJF, invites you to shop his fabulous new electronic supermarket for latest gear at lowest prices. Van Sickle Radio Supply Co., 4131 N. Keystone, Indianapolis, Ind.

WANTED: Used receivers and transmitters: Will pay cash or trade. 10% down with up to 24 months to pay. In stock; new 75A4s, KWS1s, KWM-1 SSB mobile transceiver, Johnson, WRL, B&W, National, Hallcrafters, Elmac, Hammarlund, Gonset, Central Electronics; Mosley, Hy-Gain and Gotham beams. Write for list of bargains in reconditioned receivers and transmitter with new guarantee. Shipped with approval. Write Ken, W9CZG, Ken, W9CZG, for your best deal. Ken-Elis Radio Supply Co., 428 Central Ave., Fort Dodge, Iowa.

SELL: Motorola FM transmitter-receiver units, \$35; RCA-MI-7502 AM receiver units, 27-40 Mc., \$8.50; DM34 Dynamotor, \$1.50; DM-36 dynamotor, 50c. Ralph Villers, P. O. Box 1, Steubenville, Ohio.

FOR Sale: KWS-1 and 75A4, property of the late W3ALX. In a like-new condition, complete with instruction manuals and in original cartons. Loaded with extras, such as new style tuning knobs, heat reducing shields, matching speaker and additional 800 cycle mechanical filter for receiver. Prefer cash and carry deal: \$2000. Write W3ANZ, Joseph Wonderly, 816 N. Klown St., Allentown, Penn.

SSB for sale or swap for SX-42 or equal receiver, SSB transmitter, 200W DC input, with all tubes and power supplies, and Bud 1247 relay rack. Very neat job inside and out. Designed after the 20A. Best offer over \$150 or SX-42. Want SSB slicer, W3CDE, Jerry, Masonstown, Pa. All queries answered.

DUAL Voltage power supply; 900 volt transformer with dual chokes. Gives pure 750 at 300 Ma., 400 at 200 Ma. Metered, fused, well built. Trade or new or good condition DX-35, Sam Havens, W6GFO, 1335 Edwin, Beaumont, Texas.

SELL: Johnson Pacemaker in brand new condition. Price \$325 F.O.B. Collingswood, N. J. W. L. Becker, W2UEH, 462 Woodlawn Terrace, Collingswood 7, N. J.

SWAP: Sensitive scintillation counter for Hi-Fi amplifiers, speakers, baffles, tuners or tape machines. Must be top quality. WJYJH, 1384 Alamo, Memphis, Tenn.

SELL: SSB-20A exciter, QF circuit, factory wired, plus VFO, \$200. NC-98, \$100 or everything for \$275. Jim Haynes, Box 6, Trinity College, Hartford, Conn.

PAIR Vocaline transceivers and GP ant. \$30; 82V1, \$2.40; NC300; speaker, six meter converter, \$325; SSB final, pair 811As, 400 watts, with power supply. For 20A or similar exciter, all coils included, \$85; 125/ALC5 with all tubes, \$10; Radio Shack power supply, 550V DC, 250 Ma., new, \$14; Two xfrms, 1350V DC 1 amp, \$8.00 ea. B&W GD meter, \$22.50; B&W coax switch, 550A, new, \$7. Many others. Write for list. Shipped express collect. WPTWL, Box 97, Republic, Mo.

FOR Sale: Central Electronics 20A, \$220; "B" Slicer with AP-1 adapter, \$70; GC-1, \$45; converted 458 VFO in deluxe case, \$45; PR-1 Pundapter, \$145 used less than 5 hours. HRO-60 with all accessories, \$450; Gonset I commutator \$125; Heath V-6 WTVM; 815; Electro-Voice V-6 booster; V-6 unused; Jones MicroMatch M-252. \$30; converted BC-457A with power supply. \$15; B&W rotary inductor, \$9; turret coils, \$8, both new; James Hartshorne, 108 Kay Street, Ithaca, N. Y.

FOR Sale: HRO60, 7 coils, \$350. WILMP, 34 Summit Ave., Salem, Mass.

B&W 5100B/518B-B like new \$525.00. C.E. 10A SSB exciter, rack mounted, coils 10 thru 160 meters \$85.00, Super-Pro receiver BC-779 \$95.00, BC-348, neat conversion including tax phasing, built-in 85Kc I.F. (selectable) AC external supply \$65.00, 4000V .5 Amp power supply built in hull of Bud cabinet rack with 40" panel space left over. AC & HV (0-4KV) meters \$75.00, 5500V .5 amp HV supply kit \$40.00, PP 811 linear, fully shielded with blower \$25.00, Parallel 803 grounded grid linear with low capacity fl. trans, fully shielded with blower \$35.00, 300 watt rack mounted modulator, Thordarson transformers, \$25.00, 10/20 tube shielded exciter \$20.00, speech amplifier/driver PP 61.6 \$20.00. Send for list. A. Waring W2CFT Box 483 Lake Ronkonkoma, N. Y.

HEATHKIT AR-2 receiver, with cabinet, \$18. William New, W6OQU, c/o The Cash School, Carpinteria, Calif.

SURPLUS RDZ 200 Mc. revr. Excellent condx with pwr supply. Need S-53A or S-40B. K5HPP, Tommy, 2320 Meadow Lane, Lamarque, Texas.

FOR Sale: Factory-wired, clean, gud shape: Globe Scout 65B and Heathkit VFO, both \$90. Wm. Eberton, Box 642, Lamesa, Texas.

BEST Offer takes QSTs 1933 through 1953 run, only three issues missing. Gonset #3003 mobile converter, like new, \$38. W8LCY, 59 Willard Ct., Oberlin, Ohio.

DISC Recorder (new) 3 speed, basic components, cut regular and microgroove to 12". Inverter (new) input 6 DC, output 117-60 cycles AC 100 watts. Instructograph code machine (slightly used); best offers. W1VWU, East Hartford, Conn.

FOR Sale: B&W 5100-B, 518B-B, NC-183D and spkr. In perf. condx. Start \$500. K2KPC, Box 136, Batavia, N. Y.

TRADE for ham gear: early model radio collection. Twenty-six sets dating from 1920 to 1932. All in vvy gud condx, some like new. Must have the room to make me an offer. Want receiver, transmitter or what have you, will send complete list of these old radios on request. All inquiries will be answered. Will ship or will deliver up to within 300 miles. Prefer to swap as group not separate. W5VUW, Box 1148, Amarillo, Texas. Phone F1.eetwood 6-4780.

FOR Sale: Tubes, brand new 813s, \$7.50; 6Jmac 304T1s, \$21; 250T1L \$15; 833As, \$3.50; 203s, \$2.00; power transformer 3200V CT, 200 mils, \$20; 350V CT 230 mils, \$20; step-down 115V, 28V, \$12; 115V-6V, \$5; Hickok voltmeter, \$15; ARC-4 2-meter transceiver with tubes, instructions, \$38; BC-224, 12 volt version of RC-348, \$15; I-208 FM signal generator, \$45; FM transmitter and receiver 27 to 38.9 Mc crystal control, \$40; Hallcrafters 8-53 receiver, all bands, includes 6 tubes \$40; power supply for SCR-522 \$12; Tlambert transformer 304T1s, \$8; 813s, \$5; BC-221AC, original calibration book, \$75. Bill Step, W4PHY, Box 178, Ellenton, Fla.

LAMPKIN 105 or 103 frequency meter wanted. State condition, serial price. Bill Hughes, W3TYQ, 1601 Muberry St., Scranton 10, Penna.

FOR Sale: Collins 75A2, \$295; Viking Ranger, \$175; Gonset Tri-band, \$20; two dynamotors 6V-600V 170 Ma., \$5 each; Mallory V2Rapsack 6V-180V, \$3 each. SOT used guaranteed 50c each; Motorola 2 meter FM transmitter, \$15; Gonset 400W 400V AC output carrying-case, \$35, F.O.B. Chipewah Falls, Wisconsin. W. J. Moulton, RFD 5, Phone Park 3-3000.

SELL: 250 watt handswitching 813 transmitter, pi-network final, with power, TVI suppressed; \$170; BC375 E rotary inductor, \$10; BC696 converted with power supply, 100 watts, \$25. Will haggle. K2XND, 614 Orchard St., Cranford, N. J.

WANTED: Six meter transmitter, reasonable and local. W3AIL, Stanley Planka, 4539 Almond St., Phila. 37, Pa.

HRO50T1 with crys. calib. A,B,C,D coils, speaker. Model A slicer, \$300 F.O.B. Manassas, Va. K4GTB, 118 Scott Drive.

WANTED: Receiver for high school radio club. Hammarlund preferred. All replies answered. Secretary, Radio Club, Washington School, Bound Brook, N. J.

10A, QPL, 458 VFO, \$100. K9ANI, Bruce 2531 West Morse, Chicago, Ill.

FOR Sale: Gonset 6 volt 2 meter Commutator II. In excellent condx: \$150. Robert Champlin, Jr., K2BKK, 31 Ox Bow Lane, Summit, N. J.

NC-300 excellent condition, \$300; DX-35 and VPI, \$60; TR-1 rotatable 2 meter 6V Carter dynamotor 600V at 20 amps, \$15 (new); 340 watts AM. Must see to appreciate. Best offer by Prev. W2MAF, 87-10 34th Ave., Jackson Heights 72, N. Y. JIA, 4-3135.

SELL Collector's item: Kennedy type 110 receiver; 150 to 26000 meters. With matching type 525 amplifier and instruction book dated December 1922. W1JOW, 40 Groveland St., Auburndale, Mass.

BARGAINS: Reconditioned, guaranteed, shipped on approval. Hallcrafters \$22R \$39.00, SX25 \$69.00, S85 \$39.00, S76 \$109.00, SX99 \$119.00, SX71 \$149.00, SX62 \$179.00, SX96 \$189.00, SX100 \$229.00, SX101 \$319.00, HT32 \$549.00; National NC88 \$79.00, NC98 \$119.00, HRO7 \$159.00, NC183D \$295.00, NC300 \$319.00; Hammarlund HQ10, HQ210, HQ219, HQ349X, HQ150; Elmac HRA7, HRA8, HRA9, HRA10; Gonset 65B, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

RECEIVERS-Transmitters, crystals, meters, power supply parts, tubes, resistors, coils, condensers, relays, dynamotors, motors, microphones, etc. Large supply of crystals and parts of all kinds. Write for list. Will ship anywhere in the U. S. R. E. Woods, W6KED, 2164 Parkway, El Monte, Calif.

DX100, good condition, \$180 F.O.B.; Gonset Super Six, \$35; BC-923A, 30-50 Mc. FM mobile revt, switch, built-in speaker, etc., \$35; Tetrac Inverter, 6V DC to 110V AC 60 cye. 60 watts, \$15. Bill, W8QDS, 1130 Lincoln, Ann Arbor, Michigan.

GLOBE-KING 400A and Meissner VFO, both in excellent condx, spare tubes. All for \$240 or will trade for Viking Ranger. W6GDY.

FOR Sale: Viking Ranger and NC183D receiver, \$425. "This equipment has been used very little. Must sell due to death of owner. Ceoige Hinks, W9XXN, 3432 S. Oakley Ave., Chicago 8, Ill.

SELL: Viking Ranger with grid block keying, excellent, \$169; Hallcrafters SX-98, excellent, \$189; both in like new condx; going VLE, John Bittens, W8WTK, 6463 Buckingham Drive, Parma 29, Ohio.

FOR quick sale: Vertex Enhancer, old but in excellent condx. Airquiet 4-way case, practically brand new. Will take 8 x 10 three trays and tubes. Everything in tip-top shape. Make an offer. W1FGP, % ARRL.

BOY Scout troop needs a code tape machine and tapes, receiver, transmitter and miscellaneous. What can you spare for an active group? Full use guaranteed and appreciated by Troop 100, Queens L. L. N. Y. Scoutmaster "SI" Spelman, K2QZU, 834 Far Rockaway Blvd., Far Rockaway 91, N. Y.

MOBILE Complete, 6 or 12V, good condition AF67, Gonset Tri-band converter, James power supply, wiring, center load whip and coil, all trimmings, \$200. James Ruzyle, K9DSF, 631 Grove St., Wood River, Ill.

SELL DX100 - 3 months old, \$180; also HRO 5TA1, 4 coils, \$150; both are in perfect condx, no shipping, sorry. Ray Furr, 349 E. 49th St., New York 17, N. Y. Phone PL 3-7628.

TRADE 65 HP Franklin, 4 cylinder opposed airplane engine, complete with engine mount and propeller for gud receiver or transmitter. William E. Griffin, K5GZM, #3, Box 424, Blytheville, Arkansas.

FOR Sale: Globe King 500A transmitter, \$500; WRL VFO Model 755, \$45; 4-250A tube, \$35; WRL Globe Spanner 3 element 20 meter beam, \$30; Gotham 2 element 10 meter beam, \$10. John Wertz, K4CRF, Springfield, S. C.

FOR Sale: SX-101 new in original packing, \$355 F.o.b. W2KIT, 29 Wymor Rd., Scarsdale, N. Y.

MICROAMMETER Weston 0-100, 4" rectangular, \$8.75; 0-3 R.F. ammeter, 3" square, \$4.50; Westinghouse DB meter, -10 to +6, \$4.75; 0-10 R.F. ammeter \$3.75; Bakulid "C" headphones, \$7.50; Trimm 600 ohm headset with plug, \$9.75; UTC LS-12, low Z, \$20-B, grid; \$9.75. Overtone crystal, 30 Mcs., \$4.75; unused tubes, \$20-B, \$6.75; \$7.63; \$1.10; \$0.9; \$2.75; Johnson 20" white porcelain antenna insulators, \$1.15; 50 ft. RG90, \$9.75; Billely 100 Kc. crystal, \$4.50; Aerovox 2 ufd, 3000 V filters, pair \$21.75. W2BE.

DESIRE to buy used Lampkin frequency and modulation deviation meters. Raymond Knight, W1BCA, 13 Maple St., Norway, Me.

SELL: Gardiner code practice sender, ten tapes, \$20; International crystal 6 meter converter, 7-11 Mc. I.F. in box, \$10; Master Mobile 4 meter ground plane antenna, \$10. All new this year. J. T. Morey, W2HCF, 210 Mountain Ave., Princeton, N. J.

FOR Sale: Elmac PRM-6 receiver and power supply, \$110; Viking Mobile transmitter, \$75. Will include Master Mobile variable coil if you buy both. DX-100, D-104 and Johnson LP filter, \$160. Excellent on the air. Destitute, need the money for Christmas. W5ETD, Box 406, Kilgore, Texas.

CANADIANS! For sale: Central Electronics 20A exciter, \$255. VE3AXC, 52 Oxford Avenue, Kitchener, Ont., Canada.

RME VHF152A, \$38; Viking II, \$185, both excellent; KW 304TL xmtr in rack cabinet, \$180; dual power supply, rack-mounted, 1000V, 350 v, \$38.00. Will consider offers for any or all. Rebuilding. Must sell. C. Stevenson, 707 Runyon, Ft. Wayne, Ind.

SELL: RME DB23 Prescaler, new, used 1 hour; \$40; ARC-4 never used. Complete conversion data, \$25. W2BFE, 3 Oak Lane, Larchmont, N. Y.

SX71 with 15 meter calibration, \$140. mounted balun coils, \$5.00; 52 ohm Viking SWR bridge, \$8.00; transistor powered 12 volt Motorola auto radio with speaker, \$45. Leon Stuber, W8PJH, 373 N. Main, Amherst, Ohio.

HAVE New 1957 Mercury outboard motors, need ham equipment. Blough Miner Co., W9SP, Forest Park, Ill.

UNUSED tubes: 802; 803; 838; 872A; 250TH; GL800; RK25; 1200 feet co-axial tubing, pressure gauge, valve; modulation monitor; any sensible offer accepted. Wanted: Broadcast transmitter; manuals. Little FM equipment; Lampkin meter. Higley, 82 Lower Main, Matawan, N. J.

FOR Sale: SX100 perfect condition, equal to new, \$200. W9IZ, 1638 Washington, Wichita, Ill.

FOR Sale: Equipment of the late R. F. Schermerhorn, K5ETG, consisting of: 100 W station, 754.8, 500 W station, 100 W station, \$2,750 cash as a complete unit only. Also 6 element, 20 meter and 6 element 10 meter Telrex beams, 20 ft. tower and heavy duty rotor as a unit, \$380, or both units for \$2,950. Cannot ship. Pick-up deal only. Call EM 3-3673 or write to 5100 Park Lane, Dallas, Texas.

PANADAPTOR for sale: Model SA-8A, type T-100, in excellent condx, \$195 F.o.b. Moraga, Calif. W6THH.

REMINOTON portable mill in excellent condition. Telegraph keyboard, all capital letters for traffic man, \$40, including case. Frank Schwab, W8YCF, 3702 Kings Highway, Dayton 6, Ohio.

GOOD Deal! Telrex Tri-band antenna, used only four months. Highest offer \$100. Write J. M. Sofranko, Sec'y., Uniontown Amateur Radio Club, P.O. Box 849, Uniontown, Penna.

SALE: Collins 75A4, \$585; 32V2, \$125; National NC183D, \$245; Morrow receiver MBR-5, \$185; transmitter MB-500A, \$175; AC power supply for both units RTN-600S, \$75; mobile power supply RVP-250 and DM-35, \$39; MLV-50 remote control antenna tuner, \$18; Master Mobile bumper mount and all band coil, \$20; Bandmaster "Z" match, \$59; Millen GDO, \$49; Johnson Ranger, \$195; Penton Paper Recorder, \$72-C, \$75; Simpson Model #479 TV-FM signal generator, \$225; UHF MC-7, \$20; Channel 89, Want: Measurements Corp. signal generator Mod. 82; Sidney Gogel, W2FUR, 1096 Laux Place, No. Bellmore, L. I., N. Y. Sunset 5-6876.

POWER Transformer wanted: UTC CG308 or CG307, Chicago 3025, Kenyon T673. Quote price to W1KIB, 95 High St., Shrewsbury, Mass.

LIKE new, NC173, speaker; DB-23, new; QF2. All for \$145. James Jaffery, W8NYA, J2 100 Western Ave., Kalamazoo, Mich.

RECEIVERS-Transmitters, crystals, meters, power supply parts, tubes, resistors, coils, condensers, relays, dynamotors, motors, microphones, etc. Large supply of crystals and parts of all kinds. Write for list. Will ship anywhere in the U. S. R. E. Woods, W6KEG, 1164 Parkway, Monte, Calif.

FOR Sale: HT-16 VFO, \$38; 200 watt modulation xmtr and matched driver, \$11. Harold P. Cushing, W1EUS, 16 Persion Drive, Manchester, Conn.

COLLINS 32V3 transmitter, like new condition: serial No. 881, instruction book, \$505. Selling because I've just purchased KWS-1, F.o.b. Alexandria, Virginia. R. L. Cheesman, 1092 Marlan Drive, Alexandria, Va.

HAMS! Aerotron, manufacturers of industrial two-way VHF amplitude modulated communications equipment, urgently needs competent men to set up part or full time local service agencies to handle the installation, warranty repair and routine service of Aerotron equipment. Two-meter hams will find it a "natural" since the gear is AM and operates on frequencies between 118 and 180 Mcs. In many areas, a good income can be realized from part-time service work on this equipment. If you are interested in making your hobby pay dividends, write for complete information. Aerotron, Aeronautical Electronics, Inc., Box 6527, Raleigh, North Carolina.

SIX Pictures in 8 x 10 composite showing details of G4ZU beam construction plus four pages of 17 step construction procedure. All for \$1.50. R. L. Kalmback, W4IW, Hopkins, South Carolina.

ATTENTION Overseas hams! Foreign stamp collections or accumulations wanted in exchange for new U. S. radio parts or magazines. Write indicating wants and details of your collection. Water Lindgren, W2AJR, Easthampton, Box 1158, L. I., N. Y.

FOR Sale: B&W 5100 and 51SB, \$450; NC183, \$158 or both units for \$590; both units in A-1 condx and B&W recently gone over by qualified technician. Reason for sale: \$! Don't pass up this great opportunity! K0DOJ, Richard Evans, Brit, Iowa.

POWER Supply components for 7.5 Kw xmtr, or 5 Kw continuous output induction or dielectric furnace, including 220v, 3-phase tapped plate xmtr; 872 filament xmtr and mica and by-pass capacitors. Will trade for SX88, SX101, NC183D, AF67 and PMR7 or cash. 1.0 ufd, 25 Kc capacitor, \$30; 25 hy 500 ml, 25 kv. choke, \$25. \$298. RCA TV camera with xmtr and power supplies, \$95. RC-348P converted, \$45. Al Benz, 1106 12th Ave., Seattle 22, Washington.

HALLICRAFTERS SX100 4 months old, \$225. Drake Q-multiplier, \$12.50. Carl Getter, W1MJJ, 58 Felch Rd., Nutley, Mass.

BOUND Volumes of QST, run: 1926-1958 inclusive, for sale. Condition excellent. Best offer, Dr. L. J. Dunn, 80 Hanson Place, Brooklyn, N. Y.

FOR Sale: Bandpass transmitter, exciter using an RCA 6146. Built exactly as described in June-July 1953 RCA Ham Tips. \$75 or swap for Lyseo 600. Also have Lyseo 130, \$5.00 W8VTB, RFD #4, Mansfield, Ohio.

FOR Sale: Johnson high-power rotary inductor, new 4-400A with air socket and chimney, Jenajens variable vacuum condenser, 10-400 ufd, two Navy trunks counters, all for \$100; Electronics design VTC-M, model 100, \$15; Elico tube tester model 625, \$20; Heath oscilloscope mod. 0-7, \$30; Heath signal tracer, \$15; Meissner signal shifter, model 9-1090, \$25; new ARC-4 transceiver, \$20. Write K2CJP, Leo W. Schubert, 44 Stanwix St., Brooklyn 6, N. Y.

HY-LITE Beams for sale: New; 10 meter 3-element PD3E10 plumbers deligt, \$19.95; PD3E6 6 mtr., 3 elements, \$16.95; 4E2 2 meter 4 element yagi, \$4.95. F.o.b. New York. L. Dressner, 138-28 68 Drive, Kew Gardens Hills, N. Y.

RECEIVERS and transmitters repaired by experts. Authorized factory service, Ham prices. M. T. C., 239 East 149th St., Bronx, N. Y. Tel. MO 5-1100.

SELLING Out: Hallcrafters SX25A, \$125; Millen R9'er with 10 and 20 coils, \$15; Elicio 4-300 antenna tuner, \$20; Morrow 3BR5 mobile converter, \$25; Lyseo 10 M. mobile xmtr, \$15; Meissner EX exciter with phase mod., factory built, \$40; Mallory 12V Vibrapacks, 285V 100 Ma., brand new, \$9.00; Dumont 224A scope, \$25; SCR-522 power supply, \$10; all F.o.b. Elmira, N. Y. W2SHU, 910 W. Second St.

SELL: Johnson Adventurer xmtr in excellent condx; \$40, 2.5 volt 10 amp, 10,000 volt insulation, xl. xmtr also in exc. condx, \$4.50. Trade 304TL for 304TL. Contact K2ZMO, 289 Summit Ave., Mt. Vernon, N. Y.

TUBE Handbook four volume RCA HB-3. More info on request. W4KOF, 825 N.W. 149 Ter, Miami, Fla.

WANTED: "A" coil set. National HR07 table model gray. W1PRK.

WANTED: 10 or 15, 304TL tubes. John Callanan, W9AU, P.O. Box 155, Barrington, Ill.

FOR Sale: Pair Vocaline transceivers for Citizens Band, also pair ground plane antennas, 15 volt and 12 volt. Cost \$152.25, used less than five hours, like new condx. All for \$100 F.o.b. Newton, W6AMV.

FOR Sale: Hallcrafters SX-99 with matching speaker, in excellent condx; one year old. Price only \$120. Write Robert Kay, 56-12 138th St., Flushing 55, L. I., N. Y.

GONSET 144 Mc. linear amp. \$85. W2PIIF, E242 Monroe Ave., Parumus, N. J.

WANTED: Collins 310B exciter. State price and condition. Gene Meyle, K2PXX, 3807 Hudson Blvd., Union City, N. J.

SELL: Gonset Communicator II 12v 2 meter \$180; Elicio TR75 plus MD-40 modulator, \$60. W1FQM, 51 David Road, Portland, Me.

VKING II, factory wired. Johnson time sequence keying and Lynmar TR-1, T-R switch installed in it. Also Johnson VFO and Johnson 75 ohm low pass filter. All for \$250. FOB West Hartford, Conn. W1VG, 99 Bentwood Road; Phone ADams 2-2073.

MOBILE new development continuously wound tapered pitch helical antenna. Patent applied for. 10 and 15, 1 ft. long, \$15 each; 20, 40 and 80, 6 ft. long, \$18.00 each. Etc. Efficiency 50 db. match, good band width. Mount on body not on bumper. Write for data. Dealers wanted. Mark Products, 6412 Lincoln, Morton Grove, Ill.

SELL: Jones Micro-Match 263 and coupler; Johnson Matchbox; SX100, like new, \$215; HT-33, two hours use; E-V mobile mike; tape side recording unit, \$20; 600V-300V power supply; Johnson BI-net, HI-Q 75M mobile coil; James C-1450, like new, Mohawk Midtape recorder with leather case; 50 ufd vacuum condenser; Leeco-Neville 6V alternator system. Make offers. W3VDE, 1219 Yardley Road, Morrisville, Penna.

FOR Sale: Gonset Super-Six, excellent condition. Snyder heavy duty mount, Master Mobile all-band loading coil, 36" chrome base section, 60" whip, \$50. Glyn Massey, Rt. #3, Ada, Okla.

SELL: Leeco-Neville alternator, 6 volt system, 100 amp, F.o.b. Pierre, S. Dak. \$35.00; wan Leeco-Neville alternator 12 volt system 100 amp. W6BTK, Earl Longland, Pierre, S. Dak.

SELLING Out: Usage does not justify ownership, Globe-King 500A, \$145; 6 meter Communicator II, \$180; E1410X, \$175. All purchased new and guaranteed. Mon-Key, beams, and accessories, Dave Ragan, K9EQM, 832 Main St., Peoria, Ill.

FOR Sale: Heavy duty ART13 pwr supply with schematic. Just plug into xmtr and correct voltages and control functions, including internal meter shunt, fed to standard Collins 10 pin plug. Will include 341 page Collins ART13 tech manual, \$75 F.o.b. Westbury, N. Y. Tony Welner, 38 Hark Lane.

SCR-522, power supply, 4 xtals, in exc. working condx. Will trade for what you have. KN4M8N, John Yoder, Gibsonville, N. C.

FOR Sale: Complete mobile rig consisting of Elmac AF67 transmitter, Elmac PMR6A receiver, dynamotor power supply for both, with extra dynamotor, Master Mobile, all band center loaded whip. Best offer over \$250. Will deliver in Eastern Pennsylvania, Southern New Jersey, Maryland, Washington, D. C. Or will buy complete 1956 Oldsmobile 98 full power including the above rig, \$2600. R. P. Fieldman, 95 Hamilton Drive, Hattboro, Penn.

SWAP: 3 1/4 x 4, camera, Xenar F. 4.5 compur shutter, Hollywood ground glass back, six cell film holders, Hugo-Meyer range finder; Graflex view-finder and I-R film tank, Model 269 Federal enlarger. Trade for DX-35 with VFO. Joseph Doczy, 110 S. Merrifield Ave., Mishawaka, Ind.

HRO-50T1 latest model, like new condx, perfect alignment all coils, xtal calibrator, truly a DX man's receiver. Amrolong 815, Dist #225 7499 all with speaker. W3GKM, A. Young, Hog 474-A, Severna Park, Md.

FE-103A for sale. Best offer. 5-element 2 meter beam. I pay the shipping, you get a good beam, \$5.00. W4ISS, 2643 Hillcrest, Augusta, Ga.

COMMUNICATION Schedule form: Avoid confusion! Covers days, hours, minutes, band, frequency, and emission for two stations for six months. Twenty for \$1.00. Will-Rand Enterprises, B. J. Williams, KN8HWV, 2110 Miller Drive, Niles, Mich.

SELL BC-312C receiver, speaker, and power supply. Six bands 1.5 to 18 Mc. Crated. \$49.00 f.o.b. W6DWQ, Ross, Calif.

GLOBE-KING 500A on wheeled matching rack with VFO Model 755, \$550. W. J. Donaldy, M. D. 16065 Glynn Road, East Cleveland 12, Ohio.

SELL DX-35, VY-1; almost new A-1, \$75. F.o.b. Aberdeen, S. D. WJACE, 108 Kon KilmKort.

NATIONAL NC-300 receiver like new, \$295; Temco 150-watt phone/c.w. xmtr, \$125. Arthur Lukach, 295 Fifth Ave., New York City.

FOR Sale: Power supply 1250-1500 each side. Bargain at \$25, no shipping. W4FDN.

FOR Sale: Knight 50-watt xmtr with key, xtals and extra 807 for \$45. Ronald Soboraj, 82THA, 707 Parker St., North Amboy, N. J.

GENERATOR, 1750 V, continuous duty, 60 cycle 115 V. AC, full bearing, 3600 RPM, like new condx. first \$95 takes it. Crating \$5.00 additional. Will deliver within 100 miles free. W3CUO, Walt Clevestine, Spring City, Penna.

SELL: Hundred watt phone transmitter, PE103, new mine detector, 75 meter mobile antenna and parts. W0KXX, Webb, Iowa.

ELIDICO HSB 100-A, perfect condition, \$400. F.o.b. New York City. Ed Siegel, K2MQQ, 130 East End Ave., NYC.

I would like to buy one or more amateur receivers between 7125 Kc. and 7425 Kc. Emmet Weber, W1WUP, 31 Wolcott Rd., Chestnut Hill 67, Mass.

SELLING SSB Rig: Central 20A exciter, 458-VFO Central modified, 160 thru 15 meters, Harvey-Wells Electronics Bandmaster, "Z" match, QT-1 speaker, anti-trip, Hallcrafters 8X-100, all purchased October 1957, retail value \$735, all in new condx except slightly used rugged VFO, equipment operated for five weeks on voyage to South Africa. Will sell for \$375. Bob Sutton, W2WBT/MM, C/o A.R.A., Rm 313 Beekman St., New York City.

FOR Sale: DX-20, Gud condx, \$35. Key, K4MDF, Dahlonega, Ga.

QSTs for sale: 1923 July, August, September, October, December, 1924 except April, May, July. Above in poor to good condition. Following all good to excellent condition: 1925 and 1926 complete; 1927 except June; 1928 except September; 1929 January, February, March, September, October; 1930 January, April, May, June, October, November, December. 1931 through 1946 complete except June 1932; January 1941 and July 1943. W2DSB, M. R. Johnson, Highway 2 Road Rt, New Hartford, N. Y.

ARC-2 1/2 meter transceiver (new). With complete conversion instructions, schematic, 145.2 and 148.14 xtals. \$35. Dave Drescher, W1ZIH, Maple Road, Portland, Conn.

FOR Sale: Gonset G66 receiver with 12-6-110 volt power supply, \$150; Transcon 6 meter 12 volt transmitter with factory installed crystal converter, \$65; 1 KW tabletop linear amplifier, B&W model L-1000A, \$290. W2ADB, Tel. TE-7-2004, Teaneck, N. J.

FOR Sale: 1500 watt power supply 300A, 115V AC, \$25; 2 mtr. mobile xmtr Sonar MB-26 with meter, \$20; SR-9 2-mtr. revr, \$20; 6V Mallory Vibration pack, brand new, 225-300VDC, 100 Ma. tube rectifier, \$20; Pilotner FM 7601, \$12.50; RCA P-4A amplifier \$7.50; Lyco 6A generator motor, new, \$5.00; Lyco-Neville alternator 80 amp, with regulator and rectifier, \$45; spare regulator and rectifier, \$15, also alternator pulley for thin fan belt, \$10; used 6V Vibrator supply 225-300V DC, 100 Ma., tube rectifier, \$15; dynamotor, new, 6V inp., 525V 100 Ma. output, \$6.50; also 250V DC 90 Ma., \$5.00; Oscilloscope, Navy OMA-2, 3" CR tube, \$25. Clark, W2PDH, 44 Lewis Lane, Syosset, L. I., N. Y.

SONAR SR-9 mobile revr, \$25; MB-26 xmtr, \$35; for 2 meters, B&W DB-2A Preselector, \$35. William Campanelli, 121 Edgemoor Terrace, Yonkers 6, N. Y.

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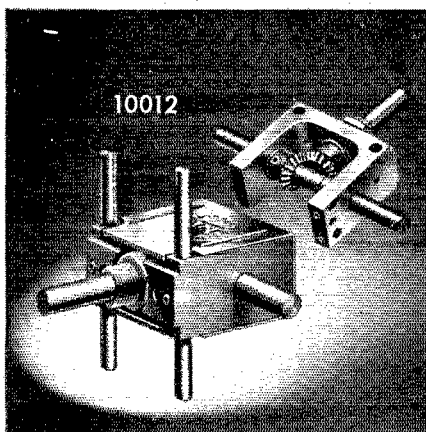
SELL Model A Slicer with APS-1, plug-in, IF amplifier, \$35; Sylvan 2-meter converter 14-18 MF, \$200; Johnson SWR Bridge, \$5. K2CQM, 2867 Faber Terrace, Far Rockaway, New York.

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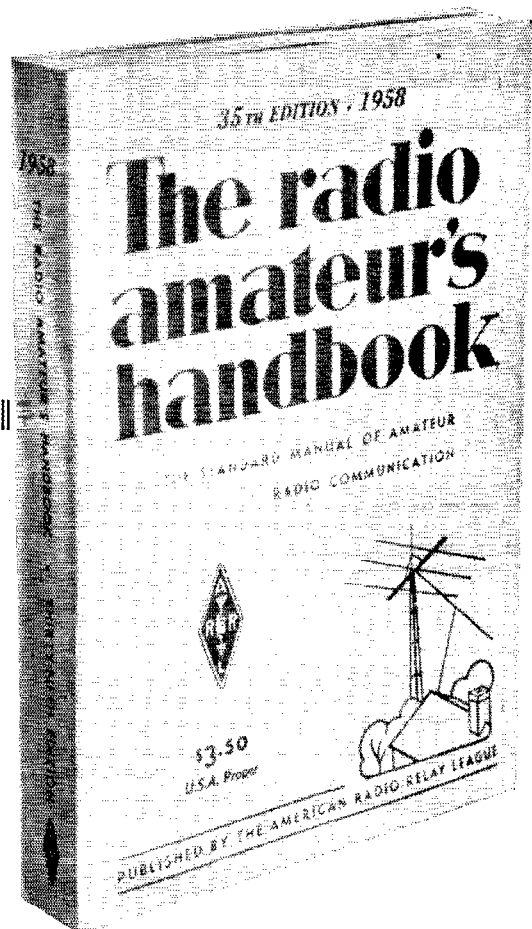
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Index of Advertisers

Adirondack Radio Supply	128
Allied Radio Corp.	176
Altrones-Howard Co.	148
American Cancer Society	142
American Electronics Co.	152
American Radio Relay League	
<i>Binders</i>	126
<i>Lapbooks</i>	162
<i>1958 Handbook</i>	173
<i>QST</i>	118
Amperex Electronic Corp.	117
Arrow Electronics, Inc.	116
Ashe Radio Co., Waller	139
Automation Electronics, Inc.	107
Barker & Williamson, Inc.	104
Bob & Jack's	161
Box 183	153
Box 188	144
Brooklyn YAFCA Trade School	167
Burghardt Radio Supply	169
Burstein-Applebee Co.	164
Capital Radio Engineering Institute	131
Candler System Co.	161
CBS-Hytron	100
Centralab	132
Central Electronics, Inc.	103
C & G Radio Supply Co.	151
C & H Electric Machine Co.	167
Calbus Radio Co.	167
Columbia Products Co.	158
Commercial Radio Institute	153
Communications Products Co., Inc.	122
Cosmos Industries	163
Crawford Radio, The	161
Cubex Co.	161
Cushman Products	155
Dow-Key Co., Inc.	159
Duffy & Co., M. N.	120
Eitel-McCallough, Inc.	4
Eldico Electronics	111
Electronics Design Co.	162
Electronic Supply	147
Electro-Voice, Inc.	107
Equipment Crafters, Inc., The	134
Ernie Radio	145
E-Z Way Towers, Inc.	106
Fort Orange Radio Distrib. Co., Inc.	133
Frederick Tool & Engineering Corp.	165
General Crystal Co., Inc.	144
General Electronic Services	144
Genesee Radio & Parts Co., Inc.	160
Conset Div.	101
Gotham	109, 168
Grayhill, Inc.	146
Halleraters Co., The	139
Ham Register, Inc.	155
Hammardund Mfg. Co., Inc.	99
Harrison Radio Corp.	127
Harvey Radio Co., Inc.	123
Heath Co., The	92, 95
Henry Radio Stores	119
Hv-Gain Antenna Products Co.	96, 97, 113
Institute of Radio Engineers	141
Instructograph Co., Inc.	163
International Instruments, Inc.	165
Johnson Co., E. F.	90, 91
Klaus Radio & Electric Co.	163
Lafayette Radio	130
Lakeshore Industries	112
Lampkin Labs, Inc.	151
Lettine Radio Mfg. Co.	164
L.M.B.	144
Lynmar Engineers, Inc.	157
Mallory & Co., Inc., P. R.	115
Mark Products	138
Master Crystal Labs	161
Master Mechanic Mfg. Co.	164
Master Mobile Mounts, Inc.	137
Melville Radio Corp.	167
Milen Mfg. Co., Inc., James	179
Mosley Electronics, Inc.	146, 163
Multi-Products Co.	159
Music Shop, The	164
National Co., Inc.	Cov. III
Nelson Publishing Co.	160
Page Airways, Inc.	160
Petersen Radio Co.	5
P & H Electronics	155
Philco TechRep Div.	157
Port Arthur College	142
Radio Electronic Master, The	166
Radio Equipment Co. (Lexington, Kv.)	158
Radio Parts, Inc.	114
Radio Products Sales Co. (Denver)	165
Radio Shack Corp.	149
Raford Enterprises	166
Raytheon Mfg. Co.	121
RCA Electron Tube Div.	Cov. IV
Ritler Publisher, Inc., John F.	129, 156
Rohn Mfg. Co.	148
Santa Rosa Electronics	154
Sel-electronic Supplies, Inc.	154
Sunair Electronics	136
Tapedrode	166
Tapstone, Inc.	153
Technical Material Corp.	157
Teleom, Inc.	150
Telrex, Inc.	153
Tounalab	162
Terminal Radio Corp.	143
Texas Crystal	124
Triad Transformer Corp.	102
Truart Products Co.	151
United Transformer Co.	Cov. II
U. S. Crystals, Inc.	110
Valley Electronic Supply Co.	108, 140
Valparaiso Technical Institute	166
Van Sickle Radio Supply Co.	150
Variety Electronics Corp.	151
Vesto Co., Inc.	157
Vibroplex Co., Inc., The	162
Western Radio	166
Wind Turbine Co.	159
World Radio Labs.	105, 125, 135

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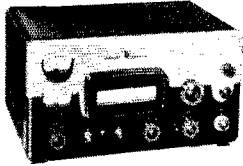
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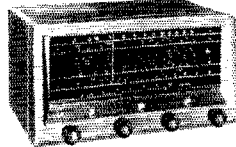
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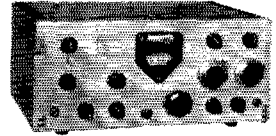
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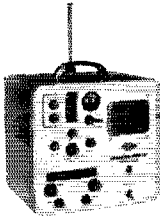
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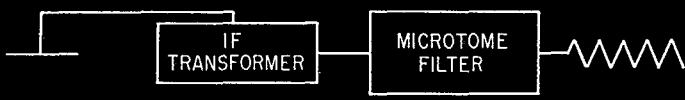
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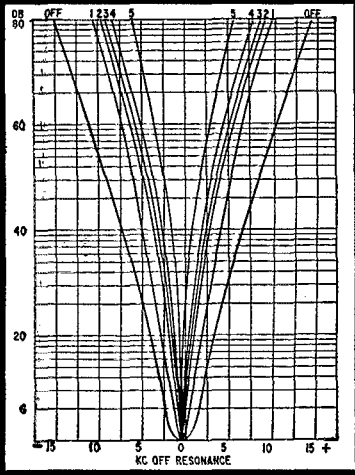
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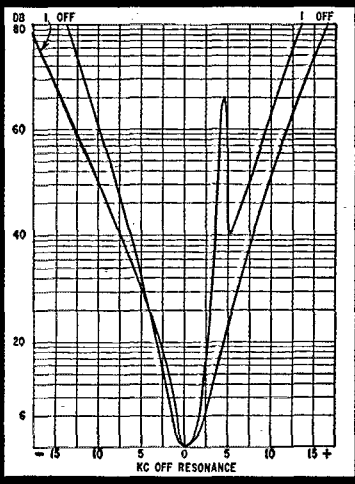
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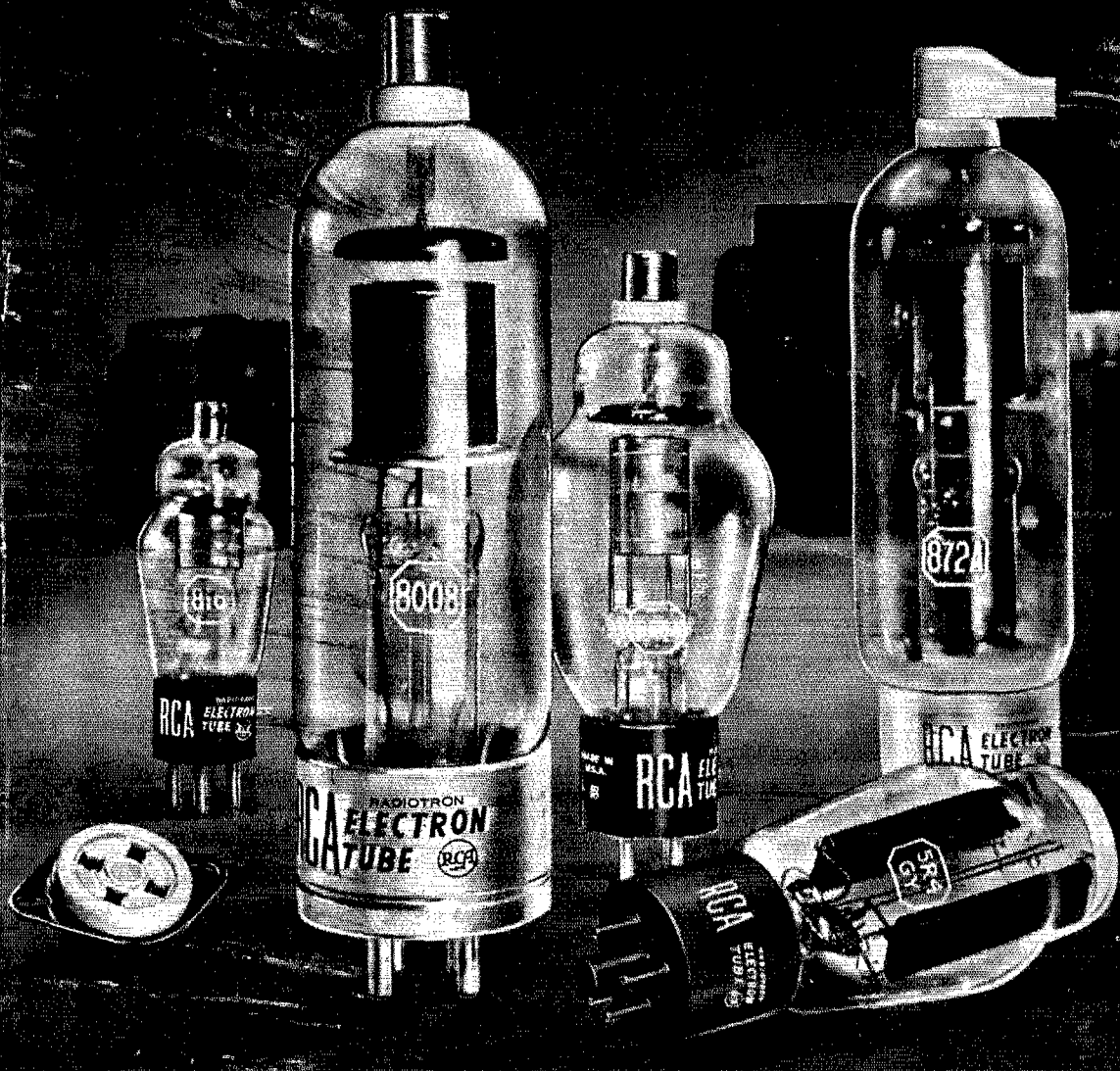
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