QST

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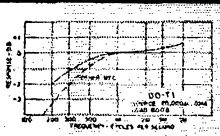
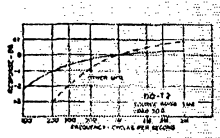
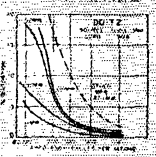
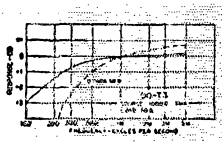
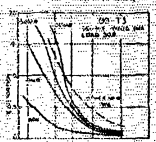
UTC NEW EXPANDED DO-T DI-T SERIES

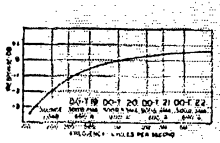


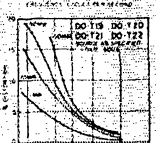


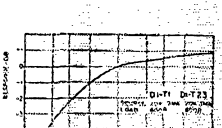


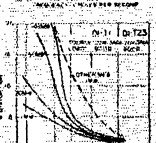


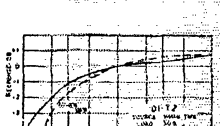


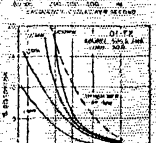


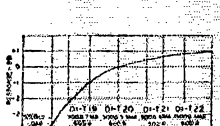


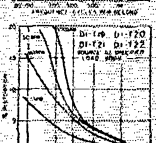












DO-T No.	MIL Type	Application	Pri. Imp.	D.C. Ma.‡ in Pri.	Sec. Imp.	Pri. Res. DO-T	Pri. Res. DI-T	Level Mw.	DI-T No.
DO-T1	TF4RX13YY	Interstage	20,000 30,000	.5 .5	800 1200	850	815	50	DI-T1
DO-T2	TF4RX17YY	Output	500 600	3 3	50 60	60	65	100	DI-T2
DO-T3	TF4RX13YY	Output	1000 1200	3 3	50 60	115	110	100	DI-T3
DO-T4	TF4RX17YY	Output	600	3	3.2	60		100	
DO-T5	TF4RX13YY	Output	1200	2	3.2	115	110	100	DI-T5
DO-T6	TF4RX13YY	Output	10,000	1	3.2	790		100	
DO-T7	TF4RX16YY	Input	200,000	0	1000	8500		25	
DO-T8	TF4RX20YY	Reactor 3.5 Hys. @ 2 Ma. DC, 1 Hy. @ 5 Ma. DC				630			
	TF4RX20YY	Reactor 2.5 Hys. @ 2 Ma. DC, .9 Hy. @ 4 Ma. DC					630		DI-T8
DO-T9	TF4RX13YY	Output or driver	10,000 12,000	1 1	500 CT 600 CT	800	870	100	DI-T9
DO-T10	TF4RX13YY	Driver	10,000 12,000	1 1	1200 CT 1500 CT	800	870	100	DI-T10
DO-T11	TF4RX13YY	Driver	10,000 12,000	1 1	2000 CT 2500 CT	800	870	100	DI-T11
DO-T12	TF4RX17YY	Single or PP output	150 CT 200 CT	10 10	12 16	11		500	
DO-T13	TF4RX17YY	Single or PP output	300 CT 400 CT	7 7	12 16	20		500	
DO-T14	TF4RX17YY	Single or PP output	600 CT 800 CT	5 5	12 16	43		500	
DO-T15	TF4RX17YY	Single or PP output	800 CT 1070 CT	4 4	12 16	51		500	
DO-T16	TF4RX13YY	Single or PP output	1000 CT 1330 CT	3.5 3.5	12 16	71		500	
DO-T17	TF4RX13YY	Single or PP output	1500 CT 2000 CT	3 3	12 16	108		500	
DO-T18	TF4RX13YY	Single or PP output	7500 CT 10,000 CT	1 1	12 16	505		500	
DO-T19	TF4RX17YY	Output to line	300 CT	7	600	19	20	500	DI-T19
DO-T20	TF4RX17YY	Output or line to line	500 CT	5.5	600	31	32	500	DI-T20
DO-T21	TF4RX17YY	Output to line	900 CT	4	600	53	53	500	DI-T21
DO-T22	TF4RX13YY	Output to line	1500 CT	3	600	86	87	500	DI-T22
DO-T23	TF4RX13YY	Interstage	20,000 CT 30,000 CT	.5 .5	800 CT 1200 CT	850	815	100	DI-T23
DO-T24	TF4RX16YY	Input (usable for chopper service)	200,000 CT	0	1000 CT	8500		25	
DO-T25	TF4RX13YY	Interstage	10,000 CT 12,000 CT	1 1	1500 CT 1800 CT	800	870	100	DI-T25
DO-T26	TF4RX20YY	Reactor 6 Hy. @ 2 Ma. DC, 1.5 Hy. @ 5 Ma. DC				2100			
	TF4RX20YY	Reactor 4.5 Hy. @ 2 Ma. DC, 1.2 Hy. @ 4 Ma. DC					2300		DI-T26
DO-T27	TF4RX20YY	Reactor 1.25 Hy. @ 2 Ma. DC, .5 Hy. @ 11 Ma. DC				100			
	TF4RX20YY	Reactor .9 Hy. @ 2 Ma. DC, .5 Hy. @ 6 Ma. DC					105		DI-T27
DO-T28	TF4RX20YY	Reactor .3 Hy. @ 4 Ma. DC, .15 Hy. @ 20 Ma. DC				25			
	TF4RX20YY	Reactor .1 Hy. @ 4 Ma. DC, .08 Hy. @ 10 Ma. DC					25		DI-T28
DO-T29	TF4RX17YY	Single or PP output	120 CT 150 CT	10 10	3.2 4	10		500	
DO-T30	TF4RX17YY	Single or PP output	320 CT 400 CT	7 7	3.2 4	20		500	
DO-T31	TF4RX17YY	Single or PP output	640 CT 800 CT	5 5	3.2 4	43		500	
DO-T32	TF4RX17YY	Single or PP output	800 CT 1,000 CT	4 4	3.2 4	51		500	
DO-T33	TF4RX13YY	Single or PP output	1,060 CT 1,330 CT	3.5 3.5	3.2 4	71		500	
DO-T34	TF4RX13YY	Single or PP output	1,600 CT 2,000 CT	3 3	3.2 4	109		500	
DO-T35	TF4RX13YY	Single or PP output	8,000 CT 10,000 CT	1 1	3.2 4	505		500	
DO-T36	TF4RX13YY	Isol. or interstage	10,000 CT	1	10000 CT	950	970	500	DI-T36

DO-TSH Drawn Hipermalloy shield and cover for DO-T's, provides 25 to 30 db shielding, for DI-T's DI-TSH
‡DCMA shown is for single ended useage (under 5% distortion—100MW—1KC) . . . for push pull, DCMA can be any balanced value taken by .5W transistors (under 5% distortion—500MW—1KC)
*DO-T units have been designed for transistor application only . . . not for vacuum tube service. Pats. Pend.

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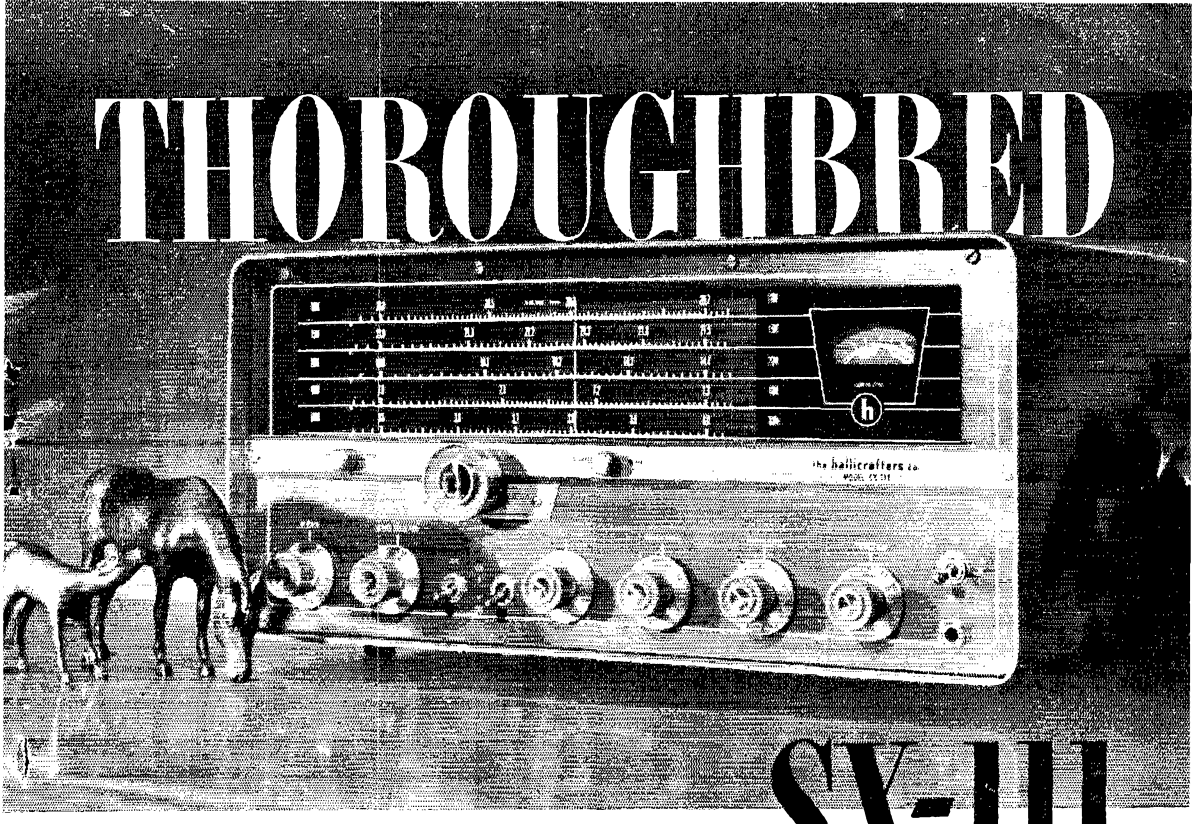

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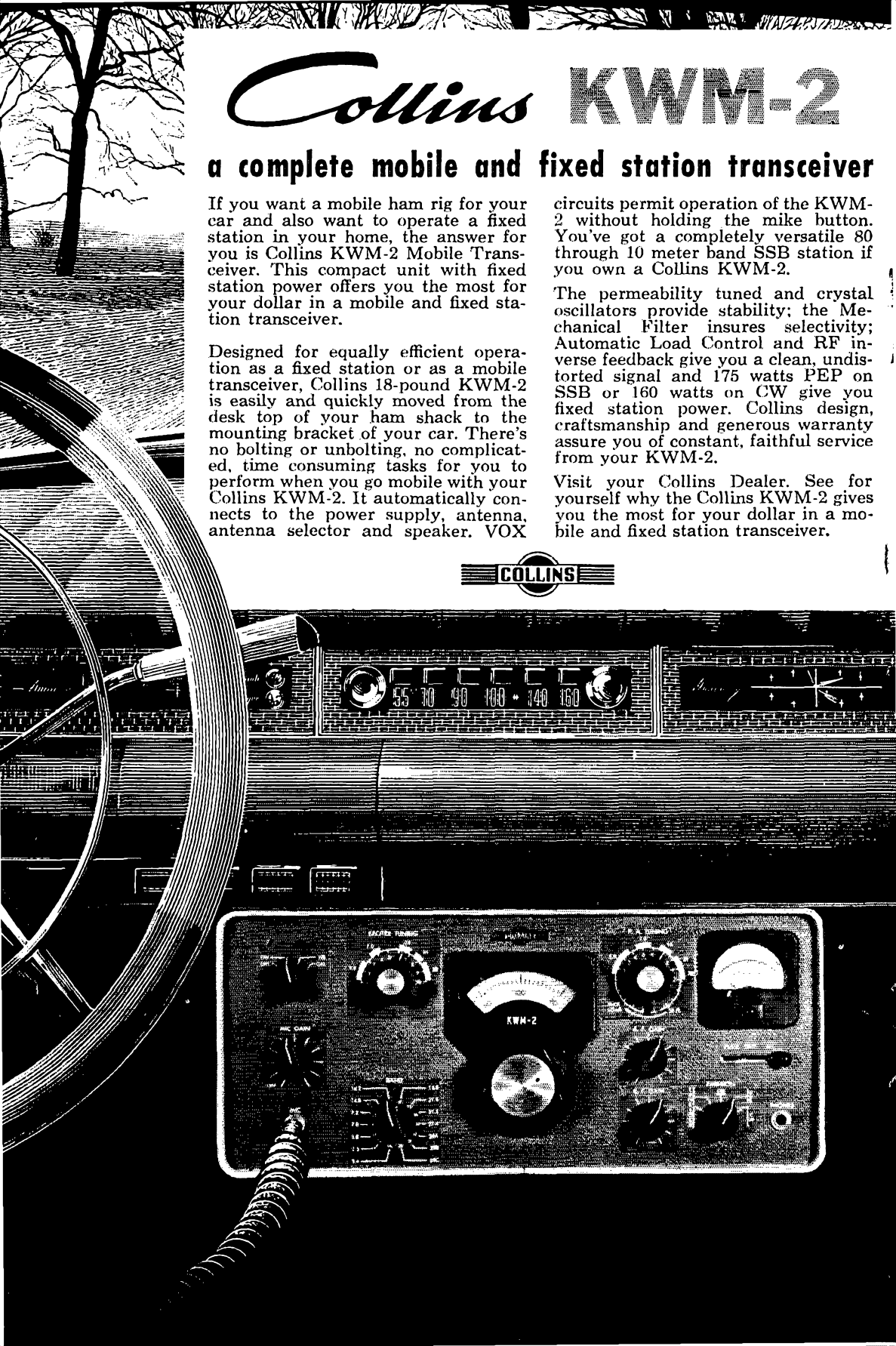

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OFFICES

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West Hartford 7, Connecticut
TEL.: ADams 6-2535

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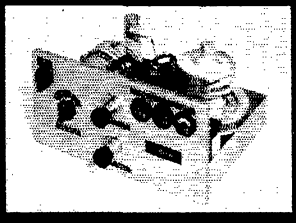

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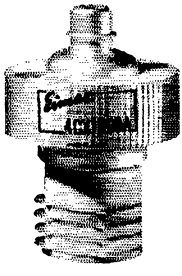

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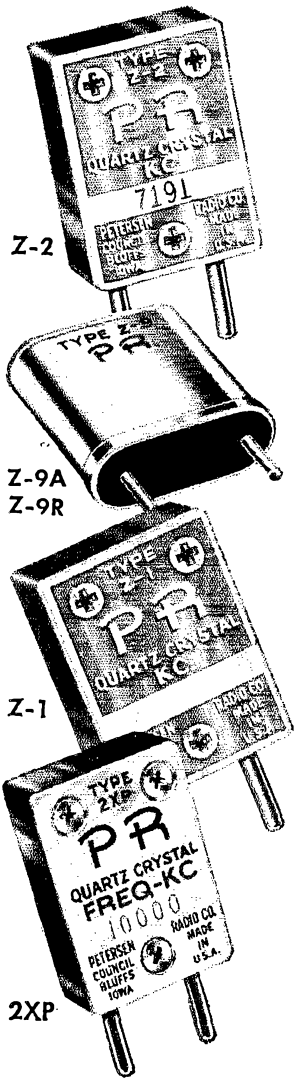

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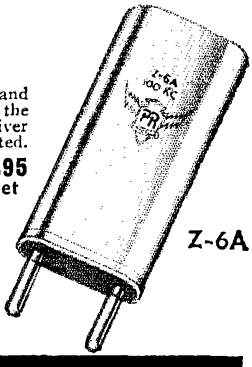

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Alberta	VE6VM	Gordon W. Hollingshead	108 Hudson Rd.	Calgary, Alta.
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Yukon				
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It is an incorporated association without capital stock, chartered 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.

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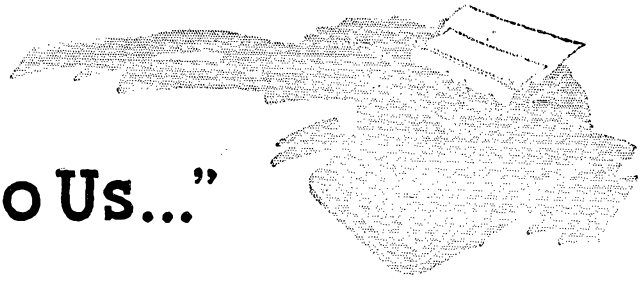


"It Seems to Us..."

THOSE MAIL-ORDER EXAMS

Many members have mentioned to us, in letters, over the air and at club meetings, their feeling that large numbers of hams and would-be hams are cheating on exams-by-mail. Some point the finger at ham families: "You can't tell me any man would dare to give his wife a failing grade, or any son would flunk his father." Others have told us they've heard "there is a certain amateur who charges $10 for a Technician license; no exam necessary!" Another avers that some people in large cities use a mail address outside the 75-mile limit, take a Conditional Class License, then modify their license to show a "change of address" back to their city location.

That there is a little of this sort of thing going on, there is no doubt. FCC has revoked or suspended several licenses in the past year or so for this sort of shenanigans (e.g., see page 76, this issue). That there is any substantial amount of cheating, we don't believe for a minute. Even in a group as large as our 200,000, certainly there can be only a very few hams so dishonest and so thoughtless of the consequences, to them personally and to the fraternity as a whole, as to help an unqualified lid get a license. But these rumors — and rumors we must classify most of them, since almost no complainers seem willing or able to give us names — these rumors are not doing our hobby any good.

Several hams have asked us to "do something" about the cheating, most of these suggesting that all amateurs be given the exam only by FCC personnel. We tried that, in 1956. The Board of Directors voted to have the General Manager petition FCC to return to the old 125-mile radius from quarterly examining points, within which all prospective amateurs of all classes would have to appear before FCC for the tests. The FCC turned the petition down, on the grounds that it did not have sufficient personnel to administer all the exams, and that the present system, while possibly subject to some abuse, was working adequately.

This leaves cooperative action by all amateurs qualified to administer the tests as the only solution. Whether one feels that the problem is actual cheating, or rumors of cheating, or the potential for cheating, it seems to us the answer lies in tightening voluntarily our procedures for giving the examinations.

As we have said before, in this column, we feel that the best system is for an examination team to be elected by each club. As members of a club, we should refer all potential hams to the team, rather than volunteer to give the test ourselves. We know that we ourselves will stick to the letter of the regulations, but rumors still could get around. The rumors are less likely when the club's best-respected members have joint responsibility and more than one member of the team is present.

In the very large cities it may be difficult for a ham to refer a candidate to a conveniently-located club. In the smaller communities there may not be a club. Then it is up to the individual General, Advanced or Extra class licensee to give the test to the applicant. Again, just to hold down the possibilities of future reflections on his own integrity or that of the applicant, if it can be avoided an amateur should not administer an exam for a member of his own family (or his boss!). If an amateur must supervise a test for a relative, then he should have another person, preferably a ham (and a Novice, Technician or Conditional would do in this case) present just to rule out any talk of dishonesty.

Further, we might paraphrase the instructions on the back of Government checks: Know your examince. If he is a stranger to you, get some reasonable proof of his identity and of his residence address. Then administer the test as it was administered to you by the FCC engineer.

Certainly, you should give the applicant every consideration consistent with the regs. The accommodations should be reasonably comfortable and the room quiet. The code oscillator should have a clear tone and should be loud enough for the candidate to copy it with no strain. It is permissible to send a short warm-up run so the candidate can get used to your fist, and so you can stabilize your speed.

The Novice and Technician code test consists of 125 letters (no numbers or punctuation symbols) in reasonably-common English words. Every letter of the alphabet should be used at least once. When the FCC engineers gave the 5-word test, prior to 1954, most of them used five-letter words; at any rate, it is best to avoid sentences in which a missing word can be readily guessed at by the test-taker.

(*Please turn the page*)

The Conditional Class code test should have all numbers and letters, the period, question-mark, comma, break-sign (double dash) and fraction bar (slant bar) in each minute of copy. Q signals and call signs or tube-type numbers should also appear each minute.

Once the test starts, you should be "all business." The requirement is for the applicant to copy correctly one minute without error of a five minute test. No matter how close he comes, if he does not have 25 consecutive letters at 5 w.p.m., or 65 letters at 13 w.p.m. he fails! You cannot repeat the test, nor can you give the applicant time to correct obvious errors.

As to the sending test, remember you may have to copy the guy's fist on the air! At least one minute of code must be sent with no uncorrected errors. Any errors must be corrected by the 8-dit error sign and the last correct word must be retransmitted; no extension of time is permitted, of course.

Only a few words are necessary in connection with the written exam. The examiner should, of course, read the instructions on the test envelope, and see that the applicant does too. The examiner should keep the test-taker in sight. The examiner should not answer any questions, no matter how obliquely, nor should he permit the candidate to look anything up or consult notes.

We certainly hope we haven't discouraged any exam-givers with this editorial. On the contrary, if you know how to administer the exams, and steer clear of the few pitfalls we've mentioned here, you can go ahead knowing that no one will be speculating on your lack of honesty behind your back, and all of us will have the assurance that none gets on the air who is not well and truly qualified to do so. QST

MICHIGAN STATE CONVENTION
Grand Rapids, Michigan — April 9

The Michigan State Convention at Grand Rapids is to be held Saturday, April 9 at the Manger (Rowe) Hotel. This will be the 13th Annual Convention sponsored by the Grand Rapids Amateur Radio Association.

Pre-convention registration is $1.50 ($1.75 at the door). Convention registrations and information requests may be sent to the Grand Rapids Radio Association, P. O. Box 333, Grand Rapids, Michigan.

OREGON STATE CONVENTION
Portland, Oregon — April 30-May 1

The 1960 Oregon State Convention, sponsored by the Council of Affiliated Amateur Radio Clubs, Inc., will be held at the armory, 109 N.W. 10th Avenue, Portland, on April 30 and May 1.

Pre-registration for licensed amateurs is $7.50; $8.50 after April 20. Fees for non-amateurs are $3.50 and $4.50. Registrations and hotel reservations should be sent to Oregon Amateur Radio Association, Post Office Box 1335, Portland 7.

Hamfest Calendar

Alabama — The Birmingham Amateur Radio Club will hold its Seventh Annual Hamfest at the State Fairgrounds on May 1. No other details available at this writing.

Florida — The annual hamfest sponsored by the Orlando Amateur Radio Club will be held at the Cherry Plaza in Orlando on April 23 and 24. Further information can be obtained by contacting E. H. Case, W4NGR, P. O. Box 2067, Orlando.

New Jersey — The 15th Annual Old Timer's Nite Roundup and Banquet, sponsored by the Delaware Valley Radio Association, will be held on Saturday evening, April 30, in the Grand Ballroom of the Hotel Stacy-Trent. As usual, it will be stag. A turkey dinner will be served promptly at 1830. Old timers W6EA of DX spark fame, and ex-2OM, Hoover Cup winner of the early twenties, will be on hand. A silver cup award will be presented to the radio operator present with the longest service in the radio game. Tickets are by reservation only, and may be obtained by mailing $6.00 on or before April 25 to Ed G. Raser, W2ZI, 19 Blackwood Drive, Trenton 8, N. J. Latecomers may be able to buy a ticket for $7.00 at the door.

New York — The Radio Amateurs of Greater Syracuse are planning their first annual hamfest, to be known as the RAGS Spring Party. It will be held at Three Rivers Inn, on Saturday, April 23. Three Rivers Inn, just northwest of Syracuse, is reached on route 57 north of Liverpool. Take exit #38 on the New York State Thruway. Tickets at $5.00 each are available from Harry J. Miller, W2WNO, 315 Loma Ave., Syracuse.

Oklahoma — The Oil Capital Mobile Club of Tulsa will hold its Third Annual Hamfest on Sunday, May 1. This is an all-day affair with a hidden transmitter hunt and other activities. Registration is $1.00. For details contact Sam Goldish, W5TVG, 3830 S. St. Louis Ave., Tulsa 5.

Oklahoma — The North Fork Amateur Radio Club will hold its annual hamfest at the Quartz Mountain Park, near Granite, on April 30 and May 1. A barbecue will be served at noon on May 1. Pre-registration price is $3.00. Contact Jay Thompson, W5ZZP, 302 West Main, Sayre.

Pennsylvania — The 15th annual banquet of the Lancaster Radio Transmitting Society will be held on Saturday, May 7, at Hostetters Banquet Hall, 363 Barbara Street, Mt. Joy. Mt. Joy is on route US 230, 10 miles west of Lancaster. Festivities will start at 1830 with a meal, followed by entertainment of OMs, YLs and XYLs. Plenty of free parking. Advance registrations are $3.00 per person, and may be obtained from Arthur C. Jacoby, W3OY, 136 Springhouse Rd., Lancaster.

NEW ENGLAND DIVISION CONVENTION
Swampscott, Massachusetts — May 1

The New Ocean House Hotel in Swampscott is the site of the 1960 New England Division ARRL Convention, Sunday, May 1, sponsored by the Federation of Eastern Mass. Amateur Radio Assns. Speakers will include Francis H. Griswold, KØDWC, Lt. General, USAF, of the Strategic Air Command, and the Rev. Daniel Linehan, W1HWK, of the Weston Observatory. Mobile hunts on 10, 6 and 2 meters, net meetings, FCC exams YL meetings, and an antique radio exhibit are planned.

Early-bird registrants will receive free a plastic lapel pin with their call letters engraved. Early-bird registration is $3.00 ($3.50 at the door, no badge). Banquet tickets are $5.00 and include a full-course roast beef dinner served in the hotel dining room. Early-birds must mail their ticket requests before April 18 to Radio Convention, 15 MacArthur Blvd., Danvers, Mass. Persons planning to stay overnight should make reservations directly with the New Ocean House.

75 Watts Input, with Modulator and Power Supply Built In

BY EDMUND C. HARRINGTON,* W1JEL

With v.h.f. activity multiplying in recent years there is an increasing demand for transmitter designs that include provision for v.f.o. operation. We have tended to drag our feet on this line editorially, because it is no simple matter to design and build a really satisfactory v.f.o. rig for the frequencies above 30 Mc. Here is one of the few we've seen that meets the high standards that must be maintained if the v.h.f. bands are to be kept free of unstable and buzzy signals.

A Complete Six-Meter V.F.O. Transmitter

THE transmitter to be described was built to satisfy the need for a flexible rig of moderate power for the 6-meter band. It has a v.f.o., two fixed-tuned doublers, and a final amplifier that operates at an input of 65 to 75 watts. The entire 50-Mc. band is covered. The v.f.o. has proven itself satisfactory for both c.w. and a.m. use. The note is clean, there are no troublesome key clicks, and drift is negligible. On a.m., unsolicited reports on the modulation have been uniformly complimentary.

Circuit Features

The oscillator uses the familar Clapp circuit, operating between 6.25 and 6.75 Mc. The oscillator plate circuit is tuned to the second harmonic. The cathode, control grid and screen comprise the oscillating circuit, and output is taken from the tank in the plate circuit. The cathode is grounded, to avoid hum modulation of the oscillator. The tube socket, coil forms, tuning capacitor and any standoffs used in the oscillator circuits are ceramic-insulated, and long leads and unnecessary stray capacitance are avoided. The oscillator coil is of high-Q design, and is solidly mounted to prevent vibration.

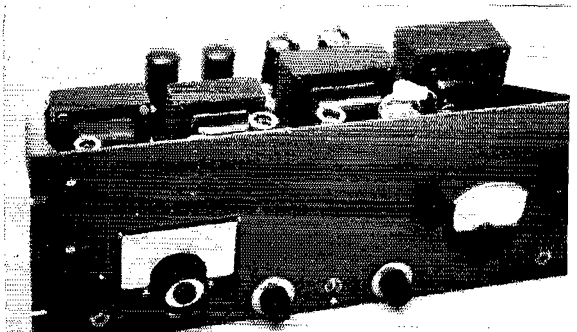
These precautions are important in achieving stability in the v.f.o., which must be of a high order if the resultant signal on 50 Mc. is to be of acceptable quality. With 8 times frequency multiplication, any slight mechanical instability or hum modulation of the oscillator will show up very markedly on 50 Mc., as anyone who has listened critically to most of the current crop of v.f.o. rigs on 6 knows all too well.

The two frequency doublers work into overcoupled tuned circuits similar to those used in variable-selectivity receiver i.f. stages. These provide close to optimum coupling efficiency, yet with sufficient bandwidth to permit operation across the entire band without retuning. Their adjustment is quite simple, requiring no special test equipment if the recommended metering is provided and instructions are followed. Although 12BY7 tubes are shown, 6CL6s would probably work equally well. Low-impedance capacitive coupling is used between stages and the coil spacing is not critical, as long as a minimum of one inch is maintained between coupled coils.

The amplifier is a 6146 tube, with a conventional pi-network output circuit. A fair amount of the band can be covered without retuning this circuit. For frequency setting in practice, the v.f.o. is switched on, temporarily receiving its 150 volts, regulated, from the receiver (through J_4) for spotting purposes. It is then zeroed in on the desired frequency, and the transmitter is thrown on. If the change in frequency has been a large one, the final plate circuit may be trimmed up while calling, if necessary.

The modulator section has a 12AX7 into a

* Harrington Electronics, Box 189, Topsfield, Mass.



The v.f.o. transmitter for 50 Mc. has only three tuning adjustments: the v.f.o. frequency, left, and the final plate circuit and loading controls, the small knobs either side of the meter. Metal rimmed knobs are the gain control, left, and the meter switch.

C8
6AU6
C7
L1
C5
47K
C1
C2
C3
C4
C6
L2
47K
2200
12BY7
68K
L3
L4
.001
C9
RFC2
47K
10K
.001
47K
2200
.005
RFC1
0A2
.01
5000
10W.
RFC3
J4
MA
0-1
.001
.001
12AX7
.001
12AU7
T2
J2
47K
R1
2700
4.7 MEG.
220K
1800
470K
220K
1800
16 µf.
450

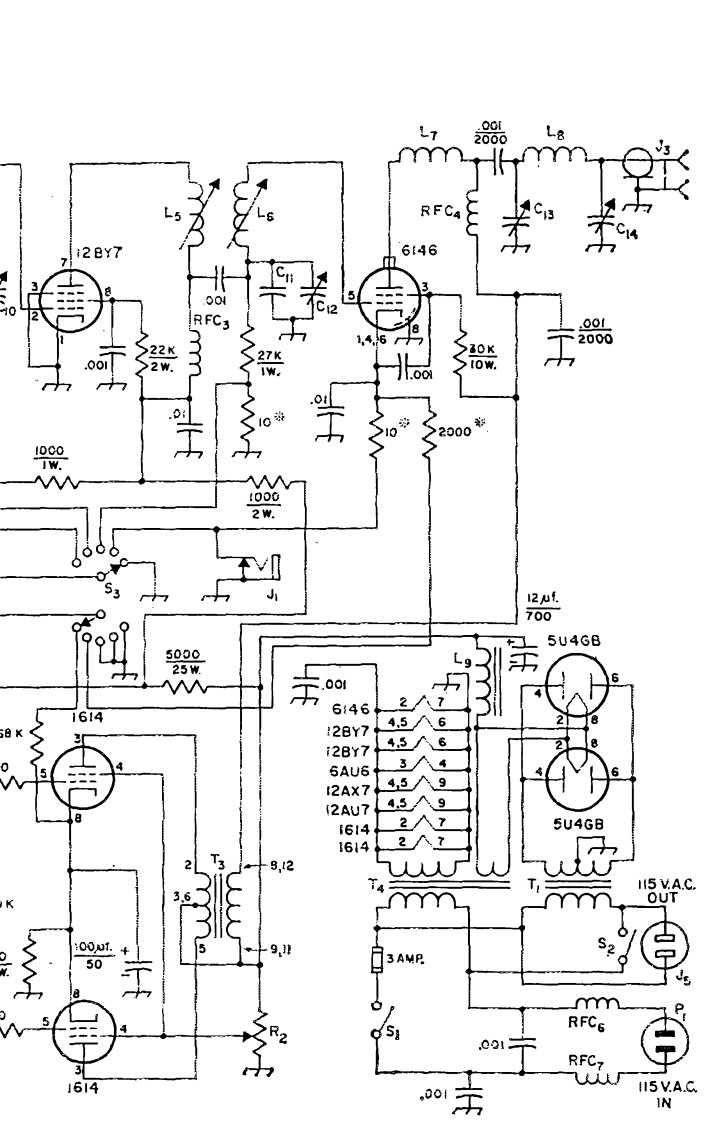

L7
.001 2000
L8
J3
RFC4
C13
C14
L5
L6
12BY7
6146
C11
C12
.001
RFC3
22K 2W.
.001
27K 1W.
10 *
.01
1,4,6
.001
30K 10W.
.001 2000
.01
10 *
2000 *
1000 1W.
1000 2W.
S3
J1
12 µf. 700
5000 25W.
1614
5U4GB
L9
.001
6146 2 7
12BY7 4,5 6
12BY7 4,5 6
6AU6 3 4
12AX7 4,5 9
12AU7 4,5 9
1614 2 7
1614 2 7
5U4GB
T3
2
3,6
5
8,12
9,11
T4
T1
115 V.A.C. OUT
S2
J5
3 AMP.
S1
R2
RFC6
RFC7
P1
.001
.001
115 V.A.C. IN
1614

Fig. 1—Schematic diagrams and parts information for the 50-Mc. transmitter. Resistors are ½ watt unless specified. Those with * are ± 5 per cent tolerance. Capacitors with polarity marked are electrolytic. Values are in microfarads.

C_1—5-$\mu\mu$f. ± 1-$\mu\mu$f. zero temperature-coefficient ceramic.
C_2—15-$\mu\mu$f. ± 10 per cent zero-coefficient ceramic.
C_3—19.6-$\mu\mu$f. miniature variable (Johnson 160-110).
C_4—Hammarlund HF-15X, with 2 stator and 1 rotor plate removed.
C_5—820-$\mu\mu$f. ± 5 per cent, silver mica.
C_6—620-$\mu\mu$f ± 5 per cent, silver mica.
C_7, C_8—100-$\mu\mu$f. zero-coefficient ceramic.
C_9, C_{11}—Like C_7, but ± 5 per cent.
C_{10}, C_{12}—8-50-$\mu\mu$f. ceramic trimmer.
C_{13}—27-$\mu\mu$f. variable (Johnson 167-2, 25L15).
C_{14}—140-$\mu\mu$f. variable (Hammarlund MC-140M).
J_1—Closed-circuit jack.
J_2—Microphone connector.
J_3—Coaxial fitting, SO-239.
J_4—Female chassis fitting, any type.
J_5—115-volt chassis fitting, female. Supplies a.c. for external antenna relay.
L_1—17-μh. coil having Q of 220 or better. 50 turns No. 24 tinned, 1¾ inches long on ¾-inch ceramic form (Complete coil assembly: Harrington Electronics XL-1).
L_2—8.2 μh., 48 turns No. 30 enamel. L_2 through L_6 are closewound on ¼-inch slug-tuned forms (Harrington Electronics type ST).
L_3—6 μh., 30 turns No. 28 enamel.
L_4—3.5 μh., 28 turns No. 26 enamel.
L_5—1.65 μh., 19 turns No. 26 enamel, 1 inch long.
L_6—0.7 μh., 11 turns No. 22 enamel, ¾ inch long.
L_7—1 turn No. 20 tinned, ½-inch diam.
L_8—6 turns No. 18 tinned, ¾ inch long on ¾-inch form.
Complete set of r.f. chokes and coils available as Harrington Electronics XR-6.
L_9—8-hy. 250-ma. filter choke (Stancor C-2308).
P_1—115-volt plug.
R_1—1-megohm potentiometer with switch.
R_2—20,000-ohm wire-wound, 25 watts, slider type. Adjust so that slider is 15,000 ohms above ground.
RFC_1, RFC_2, RFC_3—50-μh. r.f. choke (Harrington Electronics XP-50).
RFC_4—65 turns No. 26 enamel close-wound on ⅜-inch diam. ceramic form.
RFC_5—10-μh. r.f. choke (Harrington Electronics XP-10).
RFC_6, RFC_7—1-μh. r.f. choke (Harrington Electronics XP-1).
S_1—Switch on R_1.
S_2—Double-pole double-throw toggle switch. (One half shown. Other controls receiver standby.)
S_3—Double-pole 5-position wafer switch.
T_1—Power transformer to give 500 volts d.c. at 250 ma. through filter (Stancor PC-8303).
T_2—Driver transformer, single triode to p.p. grids (Triad A-83X).
T_3—Modulation transformer, 30 watts (Stancor A-3892).
T_4—Filament transformer, 5 v. c.t., 6.3 v. c.t., both 6 amp. (Stancor P-4022).

12AU7, driving a pair of 1614 tubes operating Class AB_2. The driver transformer, T_2, must be used to obtain a low-impedance driving source. Although unconventional, the use of cathode biasing in the modulator stage works nicely and eliminates the need for a bias supply.

The power supply uses a choke-input filter and parallel 5U4 rectifiers. A separate rectifier filament transformer allows switching in the primary of the plate transformer for transmitter control.

The meter shown is a Marion type MM-2, 0-1 ma. If a different type of meter is used the values of the meter shunts and the series resistor may have to be altered slightly to obtain the desired 1-, 1-, 5-, 200-, and 250-ma. ranges, respectively. Positions are provided on the meter switch for each alignment step, and also to read the modulator current. This complete metering system is handy for normal tuning, complete alignment, or checking up on sections of the rig.

Adjustment Procedure

Initial checkout and alignment are conducted as follows: Disconnect one end of the 6146 screen resistor, and fire up the transmitter with the meter switch in the first position. Listen for the oscillator fundamental (6.25 to 6.75 Mc.) or the transmitter operating frequency in the 50-Mc. band. Set the dial so that C_4 is about 10 per cent meshed. Adjust C_3 to bring the oscillator frequency to 6.75 Mc. at this setting of C_4. Now run the dial down to the low-frequency end of the band, which should appear with C_4 about 90 per cent meshed. If a vacuum-tube voltmeter is available, check the d.c. voltage on Pin 1 of the 6AU6. It should read about −3 volts.

Set the operating frequency to 52 Mc. and adjust L_2 for maximum meter reading, with the switch in the first position. Now move to the second position. Connect a 0.001-μf. disk capacitor across C_9, with ⅜-inch leads. Reset the v.f.o. for 51 Mc. Adjust L_3 and L_4 for maximum indication on the meter. Remove the capacitor and check the meter reading across the band. It should be about like the curve of Fig. 2A. If unequal drive is obtained at the band edges, slightly adjust L_4 and recheck both ends again.

When equal drive is obtained at the ends of the range, adjust C_{10} to obtain the required bandwidth. The tuning of overcoupled circuits

The r.f. section and the modulator-power supply are built as separate units, allowing separation of the two chassis if this appears desirable.

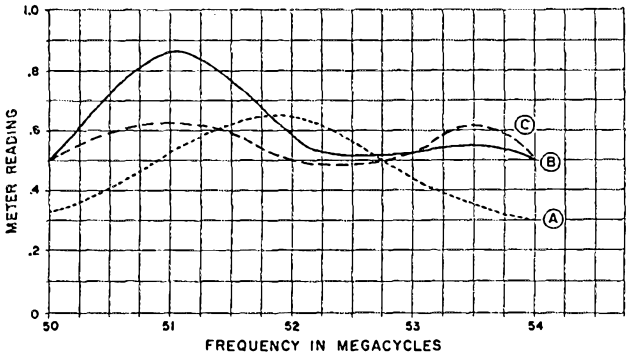


Fig. 2—Approximate readings for the various meter positions that should be obtained when the 50-Mc. v.f.o. transmitter is properly adjusted.

is usually difficult unless a visual sweep method is used. However, the addition of the 0.001-μf. capacitor reduces the coupling below the critical point, and the circuits can then be tuned for peak. Since detuning will result when the capacitor is removed and C_9 and C_{10} appear in series with the tuned circuits, the coils are purposely resonated at 51 Mc., below the band center frequency.

Now switch the meter to the third position and set the v.f.o. for 50.5 Mc. Adjust L_5 and L_6 for maximum reading. Roughly repeat the procedure that was outlined for the previous stage, bearing in mind that readjustment of L_6 will be required when the amplifier screen resistor is reconnected. The check is made now only to determine that no wiring errors have been made.

Reconnect the amplifier screen resistor and attach a dummy load to the output coax connector, J_3. Tune the v.f.o. to the low end of the band, and switch the meter to the fourth position. Set C_{14} to the fully-meshed position. Turn the transmitter on, and tune C_{13} for *minimum* reading on the meter. Adjust C_{14} slowly until the meter reads 140 ma., readjusting C_{13} for minimum plate current as this is done. Check the grid drive by turning the meter switch back to position 3. Repeat this procedure every 500 kc., 50 to 54 Mc., recording the readings in the No. 3 meter position. It will be noted that the grid drive will fall off at the high-frequency end of the band. With the transmitter at the high end, readjust L_6 slightly to obtain more drive. Recheck the drive at 50 Mc., and repeat this adjustment until drive is equal at 50 and 54 Mc. It should follow the curve 2B fairly closely.

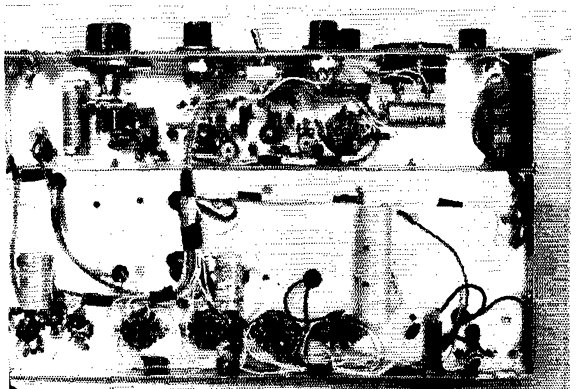
If drive falls off too much at the band edges, decrease the value of C_{12} slightly. If the dip in the middle of the band is too deep, increase C_{12} slightly to reduce the coupling. Care should be exercised to keep the final stage resonated, and loaded to about 140 ma. during this process, to prevent damage to the 6146 by its having been allowed to draw too much or too little current for extended periods. It is a simple matter to switch frequently between positions 3 and 4 during the alignment procedure. When ready for on-the-air operation, the 6146 can be loaded to 160 ma. for c.w. use.

With the microphone connected to the input of the speech amplifier, advance the gain control until normal speech gives 100 per cent modulation. If a scope is not available for modulation checks, full modulation should be obtained when the meter swings to about 100 ma. on peaks. (Meter position 5.) Idling current should be about 75 ma.

If the rig is to be used only as an exciter for a higher-powered amplifier, or as a c.w. transmitter, the modulator can be eliminated, and the power supply made smaller to effect a saving in components. The oscillator should be protected from vibration due to blowers, power transformers and chokes. It has quite good voltage and temperature stability, but it will tolerate only a limited amount of vibration and shock.

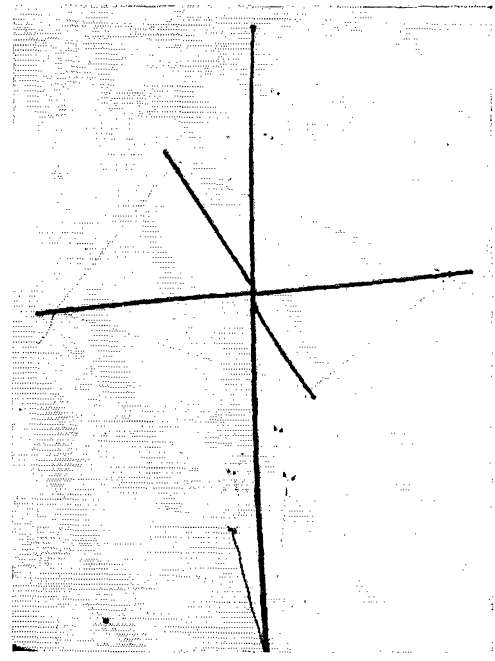
Some may wonder about the separate fixed capacitors, C_1 and C_2, in the oscillator circuit, since they are the same type. The original intention was to use a temperature-compensating capacitor for C_1, but it was determined experimentally that best stability resulted when a zero temperature-coefficient type was used. Should drift lower in frequency occur in another model, C_1 should be made negative 80, 220 or 330 p.p.m., depending on the compensation required.

No special precautions were taken to prevent TVI, and actually none was found in operating the transmitter in the Boston area. The usual TVI treatments found in the ARRL *Handbook* can be applied, if TVI is a problem in other circumstances. QST



Bottom view of the 50-Mc. transmitter. Oscillator components are in the upper left. Firm mounting of the oscillator coil is important, if mechanical stability is to be achieved. Note that it is wound on a grooved ceramic form.

The 5A Special quad requires only one spreader—and it's horizontal instead of vertical. This view is from off one of the rear (reflector) corners.



The mechanical instability associated with the customary quad antenna has long been a deterrent to popular acceptance. This objection is largely overcome by the unique design employed here. The unorthodox arrangement of elements appears to have negligible electrical disadvantage.

Modified Quad for 10 and 15

BY FRED VITRINGA,* 5A5TO

The 5A Special Antenna

THE antenna shown in the photographs and sketches which follow is the result of a desire to secure the advantages of a two-band quad without also suffering some of its disadvantages. The disadvantages that were of immediate concern were the characteristic flimsiness of construction and the need for some materials that were not easily obtainable in Libya. The cost of the antenna as shown was about three dollars, exclusive of the mast and feed line. The structure is mechanically stable in rough weather, and the beam has given surprisingly good results. With a transmitter power of 140 watts, 215 countries, all states, and 39 zones (phone) were worked in the course of 15 months at 5A5TO.

Element Arrangement

Since it may be a little difficult to separate the sheep from the goats in the photograph, it may help to say that the quad elements are in the form of vertical diamonds. The driven elements are fed at the lower points of the diamonds. See Fig. 1. The reflectors are similar but have tuning stubs at both top and bottom points of the diamonds. This is also indicated in Fig. 1.

The side points of the diamonds are supported on a horizontal "X" spreader centered on the supporting mast. See Fig. 2. The upper and lower halves of the diamonds are slanted backward toward the mast and are guyed to it. No vertical guying for the spreader is required, since the quad elements themselves serve the purpose. Horizontal spacing between the legs of the "X" spreader is maintained by rope cords at the ends of the "X" and at points about halfway out on the legs.

Spreader

The spreader is made of four lengths of 1-inch wood dowel, 8 feet 7 inches long. The inner ends

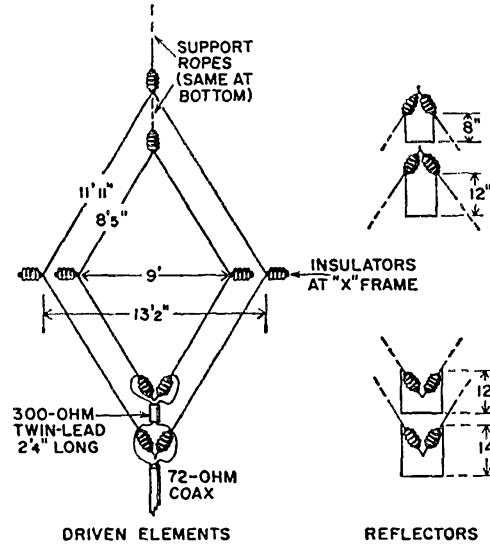


Fig. 1—A front view of the driven elements of the 5A Special antenna. Reflectors are similar but are fitted at top and bottom with tuning stubs as shown at the right.

* P. O. Box 165, Highriver, Alberta, Canada.

are fastened to the mast by means of shelf brackets or hardware-store iron angles. Adjacent pairs of arms on the framework are not at exact right angles, but are positioned on the mast so that the tips of the arms on the element sides of the mast are 13 feet 2 inches apart. See Fig. 2. The spreader is mounted on the mast at a point 14 feet below the top anchor point of the 21-Mc. elements.

Dimensions

Driven and parasitic elements (reflectors) have the same dimensions. The 15-meter elements are 11 feet 11 inches per leg (23 feet 10 inches per side). The 10-meter elements measure 8 feet 5 inches on each leg (16 feet 10 inches per side). The center points of the 15-meter elements are attached to the outer ends of the spreader legs where the separation is 13 feet 2 inches, as mentioned above. The center points of the 10-meter elements are anchored to the spreader at intermediate points where the separation is 9 feet. This should make the separation between the centers of the 15-meter driven element and reflector 10 feet 11 inches, and between 10-meter elements 7 feet 7 inches. These dimensions should be followed closely.

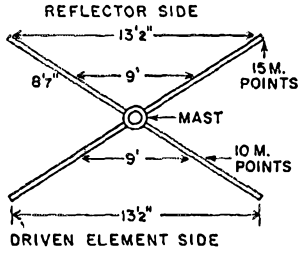


Fig. 2—Top view of the spreader. Wood dowels 1 inch in diameter and 8 feet 7 inches long are fastened radially to the mast with brackets as described in the text.

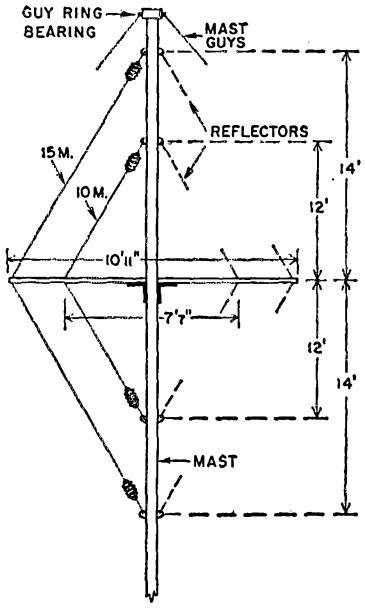


Fig. 3—Side view of the driven elements. Reflectors are similarly placed on the opposite side of the mast.

The wire for the elements may be No. 14 or larger, solid or stranded. Small egg-type insulators are used at the tops and bottoms, and small stand-off insulators at the sides where the spreader supports the wire. The top and bottom points are brought under moderate tension by ropes attached near the top and bottom of the mast.

The upper tuning stub of the 15-meter reflector is 8 inches long, and the bottom one 1 foot 2 inches long, while both 10-meter stubs are 1 foot long. When adjustment is complete, the lengths of the bottom stubs should be somewhat shorter.

Feed

A single 72-ohm coax line feeds both driven elements.[1] The coax line is connected directly to the 15-meter driven element, and the feed point of the 10-meter driven element is connected in parallel through a section of 300-ohm ribbon 2 feet 4 inches long. See Fig. 1.

Turning the beam requires rotation of the entire structure including the mast. This can be accomplished if a guy-ring bearing is used at the top of the mast, although an inverted tin can over the top served the purpose satisfactorily for several months. At 5A5TO, the rotator was mounted on the roof and the base of the mast was simply set in the rotator coupling. The structure is light, and no slightest trouble was experienced with this arrangement.

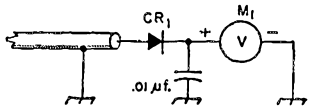


Fig. 4—Circuit used for checking the adjustment of the reflectors. CR_1 is a crystal diode, such as the 1N34A. M_1 is a high-resistance voltmeter of approximately 10-volt range.

Reflector Adjustment

The usual tuning method works well. Set up a 15-meter dipole as far away from the antenna as practicable (at least two wavelengths) at the same level as the center of the quad. Feed the dipole with the transmitter set to about 21.25 Mc. and turn the quad away from the dipole. Connect a crystal diode in series with the center conductor at the station end of the quad coax line to a high-resistance voltmeter, making sure to bypass the meter with a noninductive 0.01-μf. capacitor. See Fig. 4. Tune the bottom stub of the 15-meter reflector for minimum reading on the meter, increasing the sensitivity (using a lower-voltage scale) of the voltmeter if necessary, until a definite minimum with a rise on either side is found.

The 10-meter reflector should be adjusted in the same manner, using a frequency near the

[1] Hess, "Single-Line Feed for Tri-Band Quads," *QST*, August, 1959.

center of the desired operating range. When the adjustment is complete, the pattern will show a strong center lobe, two deep notches about 50 degrees either side of the front, and then a minor lobe on either side.

The notches are useful in rejecting signals near the direction in which you want to work. According to reports, the front-to-back ratio is about 25 db. No gain measurements were attempted but results speak for themselves. My measurements on 10 meters showed an s.w.r. of about 1.5 to 1 and a little better than this on 15.

The writer would like to acknowledge the help and enthusiasm of 5A5TM, 5A1TU and 5A5TF in making this antenna possible.

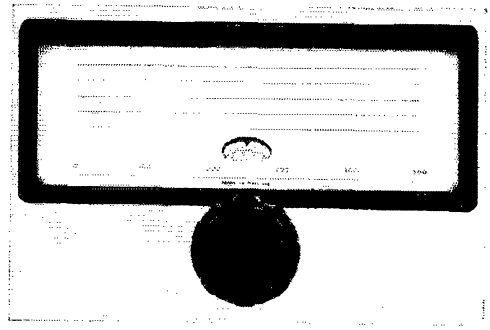
QST

• New Apparatus

Eddystone Slow-Motion Drive

ANYONE who has ever seriously considered the home design and construction of a high-quality communications receiver knows that one of the biggest obstacles is the complete absence in this country of a really good drive and dial. (To save your writing, one of the other obstacles is the lack of a suitable tuning-capacitor gang.) The domestic products either combine provision for calibration with insufficient reduction and over-abundant backlash or they combine suitable drive with no provision for direct calibration.

The English have finally come to our rescue by exporting the Eddystone Slow-Motion Drive. This truly delightful drive has everything one might ask for except a ready-cut hole in the panel; the purchaser has to provide that himself, and this only means a few minutes with a hack-saw and file if he's working with aluminum or a month and a half if he's stuck with a steel panel. The Eddystone drive uses a heavy lead flywheel on the same shaft as the tuning knob, for smooth tuning and a little "spinning" ability if the operator is so inclined. Through a pinch drive this shaft turns a metal disk that in turn drives the main shaft through spring-loaded gears. The front face of the disk is numbered 0 through 99 and is visible through a small window, to provide a logging scale (more about this later). The pointer on a 7-inch long scale is string-driven behind a clear plastic window; five lines are provided here for direct frequency calibration. The logging scale is supplemented by a linear 0-500 scale marked at the hundreds; if the pointer is



between 100 and 200 on the main dial face and the number in the window shows 62, you know the logging scale reads 162.

We were unable to detect any backlash in either of the two samples we examined, and this is very important in a drive with a tuning rate of *3.27 degrees per knob revolution!* That's right, sidebanders and high-selectivity c.w. men; it takes 55 revolutions of the knob to turn the main shaft 180 degrees. This means one can build a receiver or v.f.o. that at 10 meters has a tuning rate of 31 kc. per knob revolution, without breaking up the band into smaller segments and switching from one to another.

The drive is distributed by British Radio Electronics, Ltd., 1833 Jefferson Place, N.W., Washington 6, D. C.

— *B. G*

Strays

The U. S. Department of Commerce, Maritime Administration, has a vacancy for an Electronic Engineer GS-13, $10,130 per year, in the Division of Engineering, Office of Ship Construction, Washington, D. C. Necessary qualifications include a B.S. degree in Electrical Engineering (or equivalent experience), plus at least four years of progressively more responsible engineering experience in the field of electronic engineering.

Apply in writing to the Personnel Officer, U. S. Department of Commerce, Federal Maritime Board, Washington, D. C., and refer to the announcement Washington No. 374.

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The Rensselaer Polytechnic Institute Radio Club and the RPI debating team issue a challenge to any other college in the United States to a debate by amateur radio. They have already conducted one debate on 6 meters with Union College. If any college is interested, contact the RPI Radio Club, 8–2 Sunset Terrace, Troy, N. Y.

—•••—

WV2EFN overheard K4AMY and W7AMY QRMing each other on 15 meters.

• Beginner and Novice —

A low-cost "getting started" receiver often hasn't much to offer except low cost. The converter described here is a little different. It can be used with any broadcast receiver to give solid, easily tuned signals with all the volume you need. Use it for getting acquainted with the 80- and 40-meter amateur bands and taking advantage of the code-practice transmissions that are regularly scheduled in those bands.

P.S.—The converter doesn't cost much, either.

An Easy-To-Build Converter for 80 and 40 Meters

BY LEWIS G. McCOY,* W1ICP

Using a Broadcast Set for Amateur-Band Reception

NEWCOMERS often wonder whether a broadcast receiver can be used as a communications receiver, reasoning that by simply changing a "coil or something else" they might be able to listen to ham signals. The answer is that converting such a receiver into a communications-type setup poses some fairly difficult technical problems. Only a skilled technician could attempt such a job.

But it *is* possible to use the typical a.c.-d.c. broadcast receiver to receive short-wave signals — and without making any modifications in the b.c. set. All that is required is a simple one-tube "converter" to go ahead of the receiver.

The simple converter described in this article will tune from approximately 3000 to 8000 kilocycles, taking in the amateur 80- and 40-meter bands. The system to be described has much to offer the newcomer because the converter is easy to build and will provide him with an inexpensive method for listening to code signals as well as short-wave signals of all kinds.

What It Is and How It Works

The unit shown in Fig. 1 and in the photographs is a tunable converter designed to work into a broadcast receiver tuned to approximately 1000 kilocycles. The single tube used in the converter is a 6U8A, which is actually two tubes, a triode and a pentode, in one envelope. One section of the tube functions as a mixer and the other section as an oscillator.

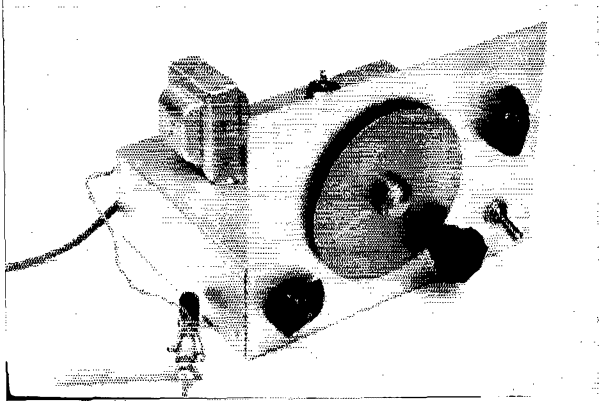
Let's first see how the converter makes it possible to hear short-wave signals. Fig. 2 is a block diagram of the converter-receiver combination. Suppose that the antenna picks up a signal on 3500 kilocycles and feeds it into the mixer stage of the converter. The output of the oscillator is also fed to the mixer. If the oscillator is generating a 4500-kc. signal it and the 3500-kc. signal will "beat" with each other, producing a new signal at the difference between 3500 kc. and 4500 kc. — that is, at 1000 kc. This process of producing a third signal is called "mixing" or "heterodyning."

If the signal generated by the oscillator is constant and unmodulated, the signal at 1000 kc. will be an exact reproduction of the one at 3500 kc. So any information contained in the signal coming in on the antenna will be reproduced in the signal coming out of the mixer.

The 1000-kc. signal from the mixer goes into a coil, L_5, at the end of a twisted pair of wires, and when this coil is placed near the broadcast receiver there will be enough coupling between the two so that the 1000-kc. signal will be picked up by the b.c. set and amplified — assuming, of course, that the set is tuned to 1000 kc.

One more thing is needed for receiving code

* Technical Assistant, *QST*.



The completed converter ready for use. At the lower right on the panel is the power switch, S_1, and above it is the tuning knob for C_1. At the lower left corner of the panel is the control knob for the bandset capacitor, C_3. L_5, the Vari-loopstick, is to the left of the chassis. The dial is on C_4, the bandspread capacitor.

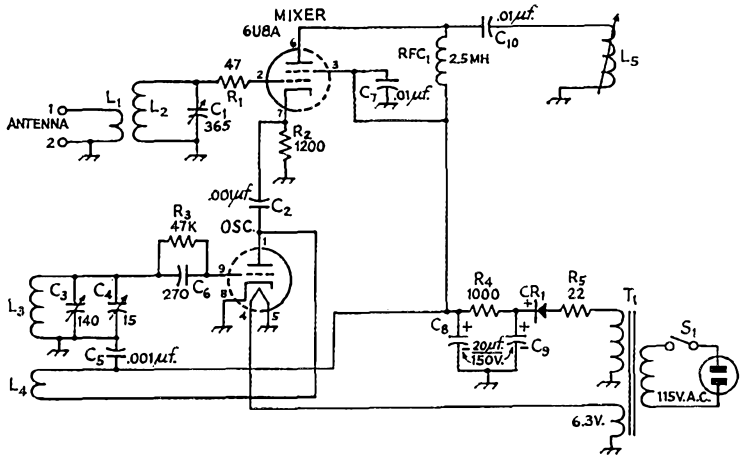


Fig. 1—Circuit diagram of converter.

C_1—365-$\mu\mu$f. variable capacitor, broadcast replacement type. (This capacitor is also listed in radio parts distributors' catalogs as a midget t.r.f.-type capacitor. Values may vary from 365 $\mu\mu$f. to 420 $\mu\mu$f. Any value in this range is suitable.)

C_2—0.001-μf. disk ceramic, 500 volts.

C_3—140-$\mu\mu$f. variable (Hammarlund type HF-140 or equivalent).

C_4—15-$\mu\mu$f. variable (Hammarlund type HF-15 or equivalent).

C_5—0.001-μf. disk ceramic, 500 volts.

C_6—270-$\mu\mu$f. mica or ceramic, 500 volts.

C_7, C_{10}—0.01-μf. disk ceramic, 500 volts.

C_8, C_9—Dual-section electrolytic, 20 μf. per section, 150 volts.

CR_1—Selenium rectifier, 130 volts r.m.s., 20 ma. (Federal 1159A or Sarkes-Tarzian type 50).

L_1, L_2—See Fig. 3.

L_3, L_4—See Fig. 3.

L_5—Vari-loopstick. (This item is cataloged as an antenna for a.m. broadcast receivers. The unit measures 7/16 by 2¼ inches.)

R_1—47 ohms, ½ watt.

R_2—1200 ohms, ½ watt.

R_3—47,000 ohms, ½ watt.

R_4—1000 ohms, ½ watt.

R_5—22 ohms, ½ watt.

RFC_1—2.5-mh. r.f. choke.

S_1—Single-pole single-throw toggle.

T_1—Power transformer, 125 volts, 15 ma., 6.3 volts, 0.6 amp., half-wave type (Knight 61 G 410, Stancor PS-8415, Triad R-2C).

In addition to the above items the following material is required to complete the converter;

1 2 × 5 × 7-inch aluminum chassis.
1 5 × 7-inch aluminum bottom plate (for panel).
1 9-pin miniature tube socket.
1 6U8A (or 6U8) vacuum tube.
1 Length of coil stock, B & W type 3016 Miniductor or Illumitronic No. 832T Air Dux).
1 Tuning dial assembly, National type K.
2 Small tuning knobs.
3 Bakelite tie points, 4 terminals.
1 Line cord and plug.

signals. You've no doubt listened to a broadcast station when it didn't have any modulation on its signal; this doesn't happen very often but occasionally the station will be silent momentarily between programs. If you happened to tune through the station at such a time you would have noticed a change in the background noise, but that is all. Now imagine that the station turned its carrier on and off during such a "silent" period, sending Morse code characters. You would hear the change in background noise but it would be very difficult to copy the code, even if you knew Morse.

In short, to hear a code signal properly it would have to be modulated, and the easiest way to make an unmodulated signal audible is to cause it to be modulated in the receiver. This is done by mixing frequencies again, only this time the two frequencies are very close together so that the difference between them will be an audible tone. Again we need an oscillator to generate the steady, unmodulated signal, and if this new signal is placed, say, 1000 cycles away from the incoming signal the two will beat together to produce a 1000-cycle tone. In communications receivers the signal introduced at the receiver is generated by the "beat-frequency oscillator" (b.f.o.) and it is this device that permits us to copy code signals.

In the setup described here it isn't necessary to provide one because any weak broadcast signal near 1000 kc. will serve as a ready-made b.f.o. As you tune the oscillator in the converter, the signals fed from the converter into the b.c. set will beat against the broadcast signal to which you are tuned, becoming audible as "whistles." If a code signal is stronger than the broadcast signal the modulation on the b.c. station will be "washed out" and you'll hear only the code. Even if the code signal is weak the modulation on the broadcast station won't be a serious handicap, so far as copying the code is concerned.

If you want to listen to phone signals in the ham bands you simply tune the broadcast set to some clear spot near 1000 kc. and leave it there. Without a broadcast station to make a beat, there won't be any whistles.

Tuned Circuits

In Fig. 1, L_2C_1 in the mixer signal-grid circuit must be tuned to the actual frequency of the signal being received. To cover both the 3500-kc. (80-meter) and 7000-kc. (40-meter) amateur bands we need a total tuning range of about 3000 to 8000 kc. in this circuit. This range is covered by rotating C_1 from maximum to minimum capacitance.

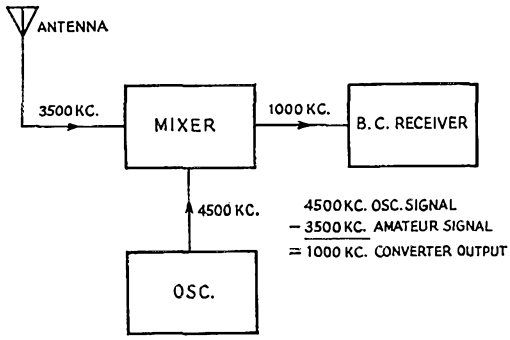


Fig. 2—Block diagram showing how an incoming signal is converted to give 1000-kc. output. Details are given in the text.

The oscillator must operate 1000 kc. higher than the signal frequency, so $L_3C_3C_4$ must cover approximately 4000 to 9000 kc. This complete range is tuned by C_3, making its adjustment quite critical. Therefore this capacitor is used principally for selecting the portion of the range where it is desired to receive — i.e., it is the "band-setting" capacitor. Actual tuning is done with the much smaller capacitor C_4, which spreads out the signals on the dial and confines the tuning to a small portion of the total range. C_4 is therefore called the "band-spread" capacitor.

Construction

The converter is built on a 2 × 5 × 7-inch aluminum chassis and the panel, also aluminum, is 5 by 7 inches. However, neither the chassis size nor the placement of components is critical.

The 6U8A socket is mounted approximately in the center of the chassis. C_4, the bandspread capacitor, and C_1, the mixer tuning capacitor, are mounted on top of the chassis, as is also the power transformer, T_1. The remainder of the components are mounted below chassis. On the panel and front edge of the chassis are S_1 and C_3, and also the vernier knob for the dial. The dial and drive mechanism for the National type K dial come with a drilling template so there should be no problem in mounting them.

The two coil assemblies are cut from a single length of coil stock. These assemblies are mounted on bakelite four-terminal tie points as shown in Fig. 3. A simple method for cutting the coil stock is to slice through the polystyrene support bars with a heated razor blade. If you attempt to cut the support bars with a hack saw you may ruin the coil. Make the coils as specified in Fig. 3 and mount them on the tie points before installing them on the chassis.

The power-supply rectifier, CR_1, and the dual 20-μf. filter capacitor are mounted near the rear of the chassis.

In doing the wiring be sure to use rosin-core solder. Use an iron that delivers plenty of heat, and make certain that the connections to be soldered are clean and bright.[1] There is no rule about what should be soldered first, but many hams start off with the power and heater connections. The selenium rectifier has a plus mark on one side or near one terminal, and the terminal so marked (the cathode) should be connected to the junction of the 1000-ohm resistor and one section of the dual 20-μf. electrolytic capacitor. Be careful to connect the negative side of the electrolytic capacitors to the chassis.

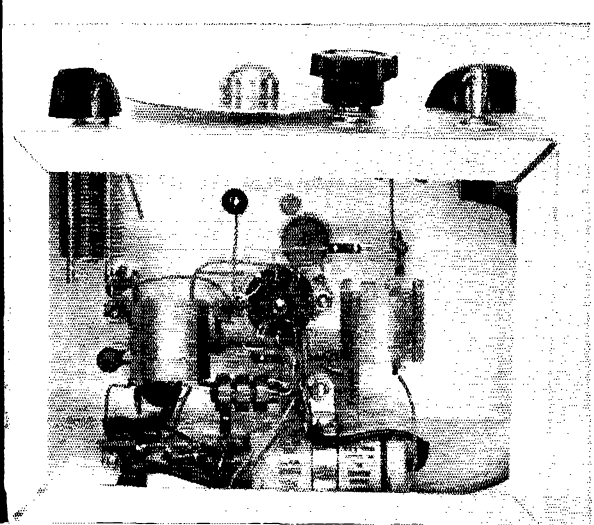
There is nothing critical about the wiring, but with one exception it is a good idea to keep all leads as short as possible. The exception is the wiring to L_5. L_5 must be placed near the antenna on the broadcast set, and to make this possible it is necessary to use long leads from L_5 to C_{10} and the chassis. In the unit shown here the leads are made from two 18-inch lengths of insulated wire. The Vari-loop is furnished with a metal mounting bracket; install the loopstick on the bracket as it will be easier to adjust the slug with the loopstick so mounted.

Making It Work

Connect an antenna to Terminal 1. The antenna wire should be at least 30 feet long and, if possible, 100 feet or so. Install its far end as high as possible above ground. If you have a ground connection handy, such as a radiator or water pipe, connect it to Terminal 2; however, the converter will work without a ground connection. Next, place the loopstick close to the antenna of the broadcast set. If the receiver has a built-in loop antenna just lay the loopstick alongside the back of the receiver. If the set has antenna terminals connect a short length of insulated wire, about 10 inches long, to the one marked "antenna" and wrap a couple of turns of the wire around the loopstick.

Turn on the converter and receiver and let

[1] If this is your first wiring job it is suggested you read McCoy, "How To Solder," *QST*, September, 1958.



This photograph shows the component arrangement underneath the chassis. The variable capacitor at the upper left is C_3. Immediately below and to the right are L_3 and L_4. L_1 and L_2 are to the right of the tube socket. The selenium rectifier and electrolytic capacitor are mounted toward the rear of the chassis.

them warm up. Next, tune the broadcast set to about 1000 kc. Set C_3 so that the plates are fully meshed and then tune C_1 to the point where the background noise from the receiver is maximum. Then tune C_4 until you hear a signal. Peak the signal for maximum strength by adjusting C_1, and then adjust the slug in the loopstick for maximum loudness. Hold the loopstick by the bracket and keep it in one spot in relation to the broadcast-receiver antenna while making this adjustment.

The next step is to calibrate the converter so you'll know where the two amateur bands are in relation to the settings of C_3 and C_4. With C_3 at maximum, tune C_4 through its range, listening to each signal. On the 3500- to 4000-kc. amateur band the phone stations operate between 3800 and 4000 kc. These should be easy to identify because it is probable that they will be talking about their stations or some other facet of ham radio. If you hear someone calling "CQ 75" you're all set, because this station will be in the 3800- to 4000-kc. region (this section of the band is referred to as the "75-meter phone band"). Incidentally, if you make this check during the daylight hours it may be difficult to find ham stations as there may not be much activity during the day on 75 phone. But at night the band is very crowded and you shouldn't have any trouble in locating stations. If you don't find a ham station in the tuning range of C_4, slightly decrease the capacitance of C_3 and try again with C_4. By going through the range of C_3 in this way you will eventually cover 3000 to 9000 kc. Once you find the 75-meter band, mark the dial setting of C_3 so you can return to the same spot.

Follow the same procedure for locating the 7000- to 7300-kc. (40-meter) band. The phone stations in this band are between 7200 and 7300 kc. A good "marker" station is CHU, a Canadian station on 7335 kc. that transmits time signals continuously. These signals consist of a tone or "beep" every second, and the station identifies itself by a voice announcement every minute. The amateur phone stations can be identified by their "CQ 40" calls.

The Novice code bands are 3700–3750 kc. and 7150–7200 kc., just on the low-frequency sides of the phone bands. To copy code signals tune the broadcast set to a weak broadcast signal anywhere between 950 and 1050 kc., and tune the converter so that code signals are heard. You'll have to experiment a little to find the best broadcast signal for good code reception.

The tuning range of C_4 provides plenty of bandspread. In fact, five different settings of C_3 are required for completely covering the 3500- to 4000-kc. band with C_4. Two such settings are needed for the 40-meter band. This is an advantage because it makes tuning easier.

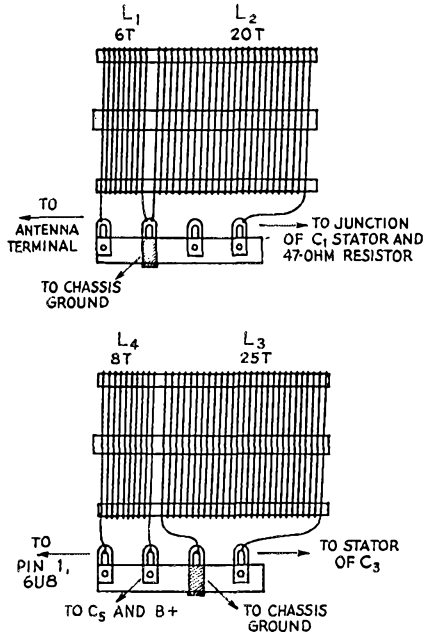
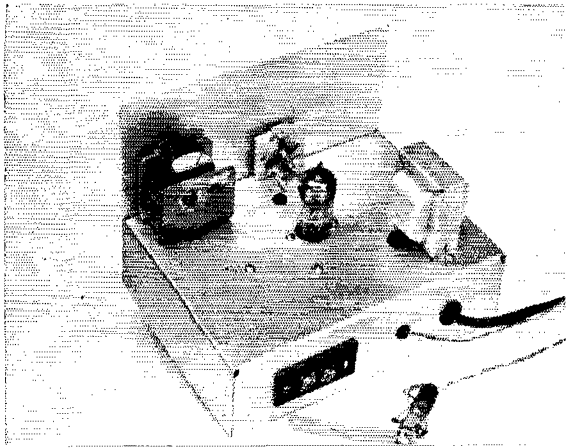


Fig. 3—Coil construction and mounting. These coils are made from a single length of coil stock, 32 turns per inch, 1-inch diameter, No. 24 tinned wire. The separation between L_1 and L_2, and also L_3 and L_4, is one turn.

There are plenty of stations transmitting slow-speed code, so it should be easy to get lots of code practice. If you address a postcard to the Communications Department, ARRL, West Hartford, Conn., requesting code practice information, you will be sent free of charge the operating schedule of W1AW, the Headquarters station, together with a list of stations transmitting scheduled code practice.

Although the converter-b.c. set combination naturally can't be expected to compare with the higher-priced communications receivers, it is in many ways a much more satisfactory "first" receiver — particularly in having good bandspread and stability — than many of the low-priced commercial receivers. At the very least, it will permit you to get started and get the "feel" of ham radio. Clubs interested in getting newcomers started in amateur radio might also find it a good construction project for a beginners' class. QST



In this back view of the converter all the parts above chassis are clearly visible. At the left on the panel is C_1, and C_4 is in the center. The two terminals on the rear are for the antenna. The Vari-loopstick with its mounting bracket is also visible in this view.

High-Level Balanced Modulator for D.S.B.

BY STUART C. ROCKAFELLOW,* W8NJH

Here's an easy way to get rid of your carrier if you want to mingle with the "sidebanders." Using the modulator output of your present transmitter, it puts just the same power into sidebands as a.m. does, but without the carrier that causes the heterodyne howls and squeals.

MANY fellows who are operating on a.m. would like to take a fling at "sideband" but in many cases the economic situation prevents it. The method proposed here allows the use of the present plate modulator, and uses the final stage of the existing transmitter as a driver for an adapter unit for carrierless double-sideband transmission. Transmitters such as the Viking Ranger, Globe Champion, Vikings 1 and 2, Lettine, DX-100 and Valiant can easily be adapted to this method of communication.

In double sideband without carrier, both the "positive" and "negative" parts of the modulation envelope are filled out with r.f. of high amplitude as shown in Fig. 1. The secret of the conversion to d.s.b. is to shift the phase of the r.f. 180 degrees on the negative voice swings. Thus the positive voice peaks give an envelope which is of one r.f. phase and the negative half cycles give an envelope in the r.f. which is 180 degrees out of phase. At the receiving end, a carrier is injected (from the b.f.o.) to replace the carrier that is not transmitted. If this injected carrier is in phase with the original suppressed carrier, the r.f. pulses representing the positive swing of modulation will add to the injected carrier, giving an increase in detector output. The r.f. pulses that are 180 degrees out of phase will subtract from the injected carrier, decreasing the detector output. Thus, the phasing of the r.f. pulses causes exactly the same effect at the detector as the positive and negative swings of the modulation envelope of an a.m. signal, providing carrier injection is used at the receiving end.[1]

Both s.s.b. and d.s.b. use balanced modulators to accomplish the phase shift, along with carrier suppression. In addition, the s.s.b. generator uses filters or additional phasing networks to eliminate one sideband.

Double sideband can be generated at a low level and amplified through linear amplifiers. However, there is no reason why it cannot be generated at any desired power level.

*43450 Reservoir Road, Plymouth, Mich.

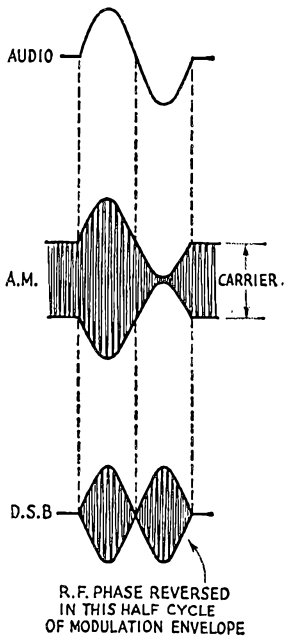


Fig. 1—The difference between amplitude-modulated and carrierless-double-sideband signals is illustrated by these drawings.

General Method

One method of generating d.s.b. is to use a pair of tetrodes or pentodes in a balanced modulator with the modulating voltage applied in push-pull to the screens. This method uses a fixed plate-supply voltage and varies the plate efficiency and plate input at an audio rate.

The method to be described, on the other hand, uses the output of an a.m. modulator to supply audio-frequency plate voltage to a high-level balanced modulator. No d.c. plate supply is used and the power output of the audio amplifier is the factor that determines the input to the final stage. A modulator that is capable of modulating a Class C stage input of 200 watts will have a rated average power output of 100 watts on a

[1] The requirement that the carrier injected at the receiver be in phase with the carrier suppressed at the transmitter is a severe one, and a highly specialized detection system is necessary for meeting it. However, if one of the received sidebands is rejected in the receiver so that the incoming signal is converted to s.s.b., ordinary s.s.b. reception will suffice. See "Suppressed-Carrier A.M.," Technical Topics, *QST*, March, 1957.—*Editor.*

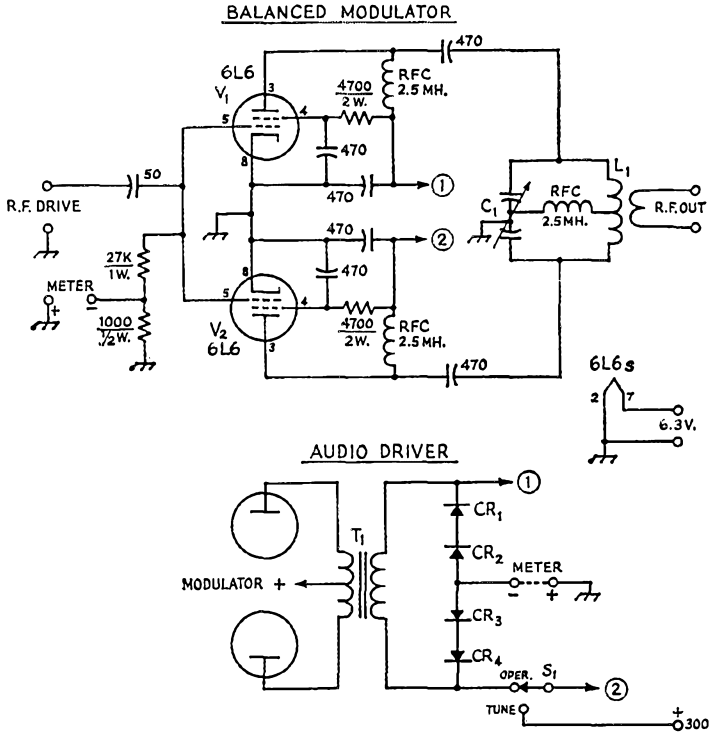


Fig. 2—A practical adapter circuit, in this case built to utilize the audio output of the modulator in a Viking Ranger. Other types of tubes may be substituted in the balanced modulator, if desired, the principal requirement being that they be capable of handling the average power output of the modulator without overloading. A safe figure for average output of the modulator is one-half the d.c. input to the modulated stage in the transmitter in which the modulator is incorporated.

Capacitances in the figure are in $\mu\mu$f.; either ceramic or mica bypass capacitors of suitable voltage rating may be used (see text for peak-voltage data). L_1 and C_1 comprise a push-pull tank circuit that should meet ordinary standards for Q on the particular band used. Suitable components are suggested in the text.

The 300-volt supply is used only for tune-up; the voltage is not critical. S_1 may be a s.p.d.t. toggle at voltages up to 500 or so.

sine-wave basis. This equivalent to a peak output of 200 watts, thus such an audio amplifier will furnish about 200 watts peak-envelope input power to the balanced modulator. Modulators used with a single 6146 final tube usually have outputs of about 30 watts average audio power; these jobs will give about 60 watts peak output.

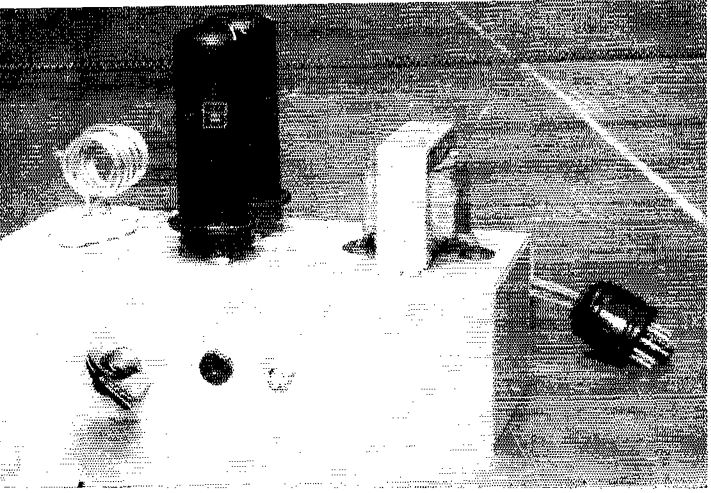
A balanced modulator always requires push-pull audio, and modulation transformers do not often have center-tapped secondaries. This difficulty can be overcome by using auxiliary rectifiers arranged, with the balanced-modulator tubes, in what is essentially a bridge circuit so that both the positive and negative voice peaks will cause positive audio voltage to be applied to the balanced-modulator plates. Referring to the practical circuit diagram of Fig. 2, when the top end of the secondary of the modulation transformer, T_1, goes positive, the plate of V_1 is driven positive, with the ground return circuit through rectifiers CR_3CR_4. On negative voice peaks (bottom terminal of the transformer secondary positive with respect to the center tap between the rectifiers) the plate of V_2 is driven positive, with the return through CR_1CR_2. Thus positive voice peaks supply the power for V_1 and negative voice peaks supply the power for V_2.

If V_1 and V_2 are driven at r.f. with their grids in parallel and their plates in push-pull, as shown in Fig. 2, we have a balanced modulator. Both grids are driven in the same r.f. phase, but the plate outputs of the two tubes are in opposite phase because of the push-pull output connection. (If plate voltage is applied to the two simultaneously, the output at the frequency applied to the grids is zero because of this opposite phasing. This eliminates the carrier at the output.) However, when the audio voltage is alternately applied to the plates of V_1 and V_2 the resulting alternate outputs have opposite r.f. phase, giving the type of envelope shown in the lower drawing of Fig. 1 Because the power supply is at audio frequency and because of the bridge system, only one final tube can work at a time.

No special neutralization is necessary with this method of operation because the nonfiring tube is in effect a neutralizing capacitor for the tube in operation. Thus triodes, tetrodes or pentodes can be used in the same basic circuit, the only difference being in the driving requirements.

A Typical Adapter

The adapter shown in the photograph, using the circuit of Fig. 2, was built to be used with a Viking Ranger, T_1 being the modulation transformer in the Ranger. However, the same general method can be used with any transmitter having plate modulation. The choice of tubes to use in the balanced modulator will depend on the capabilities of the modulation system. Most of the popular transmitters use beam tetrodes as the modulator tubes, and as a general rule, the same type tubes can be used in the final as are used in the modulator. Thus, if the modulator uses type 6L6 or 1614 tubes, then the balanced modulator can also use 6L6s or 1614s. If 6146s are used in the modulator, the same type tubes can be used in the adapter.



The W8NJH adapter unit for d.s.b. is suitable for use with transmitters running up to 75 or 100 watts plate input on a.m. Since the adapter uses only audio voltage from the modulator in the "parent" transmitter, no d.c. plate supply is necessary for regular operation. The filament transformer shown on the chassis is needed only if the heater supply in the existing transmitter is not able to supply the extra power.

The pin jack is for measuring grid current; other controls are the plate tuning and a tune-operate switch. The construction may be varied to suit the tubes and other components that may be chosen; attention to ordinary good practice in laying out a push-pull circuit is all that is required.

The screen and plate are modulated simultaneously with this method. The screen resistors are selected to cause higher plate current than with regular a.m. operation. Thus, if a screen resistor of 30,000 ohms is used in an a.m. rig having a 6146 final, a resistor of about 15,000 ohms would be used with this method. This offers a heavier load to the modulator, but will not harm the tubes because of the low duty cycle, which cannot exceed 50 per cent for either tube in the final amplifier.

Audio Rectifiers

A number of concerns are offering germanium and small silicon rectifiers having an inverse peak voltage rating of about 400 volts. In the bridge circuit of Fig. 2 the peak inverse voltage across the rectifiers in one leg is equal to the peak voltage developed in the secondary of T_1. This peak voltage will at least equal the d.c. voltage applied to the modulated r.f. amplifier in the original transmitter. Thus if the plate voltage on the Class C final is 600 volts, the inverse peak voltage also will be 600 volts and two 400-volt p.i.v. rectifiers should be used in series in each leg. If the d.c. voltage on the modulated final is between 800 and 1200 volts it will be necessary to use three rectifiers in series in each leg.

The current rating required of an individual rectifier can be taken to be equal to one-half the d.c. plate current of the modulated Class C stage in the transmitter. If the modulated final takes 150 ma., for instance, the individual rectifiers need only have a current rating of 75 ma.

Tube rectifiers could also be used for this type of service but the semiconductor rectifiers eliminate the need for filament transformers and have proved to be very efficient.

Tank Circuit

The unit shown has been used on all bands from 160 down through 6 meters. If you want to operate on only the higher-frequency bands, a dual 35-$\mu\mu$f. capacitor will do for C_1. If you want to cover 80 through 10, then a dual 100-$\mu\mu$f. unit should be used. With only 500 volts developed on peaks, even the spacing used in broadcast capacitors can be used. Standard 25-watt plug-in push-pull type coils such as the B & W MCL series can be used for the tank coils.

Metering

If you want to measure both grid current and plate current you can build the meters into the adapter. The grid-current meter can be connected between the top of the 1000-ohm resistor in the grid circuit and ground. A plate meter could either be inserted in the 300-volt test lead or inserted between the rectifier center tap and ground. If you have some sort of r.f. output indicator, such as an s.w.r. meter, permanent meters are not necessary. All that is needed is to tune the Ranger (or other type transmitter) for proper grid current in the adapter and then tune the plate circuit L_1C_1 for maximum output as indicated on the s.w.r. meter. A common multimeter can be used to measure the grid current.

Using the Adapter

Connect a length of coax from the output terminals of your present rig to this adapter. Since the driving power required is quite small, the tube or tubes in the final of your present rig will be loafing. Adjust the output coupling so that you get a grid current of about 1 to 2 ma. in the adapter. At this point, the plate current of the final in your present rig will be close to minimum. Excessive drive gives no more output and does not allow as much carrier suppression because of stray feed-through, which will be proportional to drive.

The double-throw switch, S_1, is used for tune-up purposes. After you have obtained a milliampere or so of grid current, throw the switch to the "Tune" position, which supplies 300 volts to only one of the tubes, and adjust C_1 for maximum output. This indication should be on some form of r.f. output meter, for ease of tuning. (Note: Be sure to turn S_1 to the "Operate" position before shutting off the r.f. drive; this will prevent burning up the screen in the

tube.) With the switch in the "Operate" position, talking into the microphone will cause audio voltage to be supplied to your adapter and you are on double sideband.

Reports have indicated that the voice quality and carrier suppression of this little rig are excellent. Tests have shown that the peak-envelope output on 75 meters is about 40 watts when used with the Viking Ranger. The output of an adapter using 6146 tubes with a Valiant should be about 200 watts peak.

One note of caution: if you do not have an extra-stable v.f.o., use crystal control. By keeping your frequency extremely stable you are giving the fellow at the receiving end an extra break. QST

Strays

A club has been formed for employees of the Santa Fe Railroad who are amateurs. There are 110 members in 12 states at the present time. Anyone else who is interested should contact the secretary: W. E. Courtney, WA6BGI, 1169 Crestview Ave., San Bernardino, Calif.

Silent Keys

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

W1AHX, John Frazar Austin, West Falmouth, Mass.
W1AVP, William A. Fewkes, Rutland, Vt.
K1BNT, Charles Leiper, Hartford, Conn.
W1FSG, Alfred T. Du Hamel, Methuen, Mass.
K1KUF, James Bacon, jr., North Dighton, Mass.
W1MSB, Henry S. Kelly, Hamden, Conn.
W1TD, Ray H. McKendrick, West Haven, Conn.
W1TFF, John E. Demings, Lynn, Mass.
K2CNL, Frank G. Dreyer, East Orange, N. J.
W2IKK, Florian O. Parmentier, East Paterson, N. J.
W2RFO, Clifton B. Melhuish, Binghamton, N. Y.
KN2RSV, William G. Deane, Rochester, N. Y.
W3AWA, Major E. Burton, Glenolden, Pa.
W3BBG, Earl C. Roberts, Baltimore, Md.
K3GBX, Albert M. Stubrich, Schuylkill Haven, Pa.
W3NBF, Edward A. McFadden, East McKeesport, Pa.
W3PRL, John W. Gore, Baltimore, Md.
W4BBB, John S. Bell, Knoxville, Tenn.
W4CYY, John B. Smith, Belmont, N. C.
W4EDV, Roy E. Kolo, Ft. Thomas, Newport, Ky.
K5ISE, Virgil L. Embree, Perry, Okla.
W5KL, Lawrence R. Man, Fort Worth, Texas
K5MKN, W. J. Cheshier, jr., East Hamlin, Texas
W5YOE, Dr. William S. Wilson, jr., Carrizo Springs, Texas
K6IHP, Jack J. Bloss, South San Francisco, Calif.
W6QZB, Lester Graham Love, Lakewood, Calif.
W6VDH, Virgil W. Burlison, San Bernardino, Calif.
W7OZM, Truman M. Elliott, Tucson, Ariz.
W8BNU, Ralph A. Hinkley, Bay City, Mich.
W9BSE, Robert Winston Huddle, Mundelein, Ill.
W9BVY, Earl R. Word, Park Forest, Ill.
ex-W9PEA, Otto M. Erickson, Chicago, Ill.
W9INL, Robert Duncan, Bloomington, Ind.
KØBBK, James T. Tressell, Walsenburg, Colo.
WØNDK, David L. Brock, Grand Junction, Iowa.
VE1ZL, Ronald E. Keddy, Dartmouth, Nova Scotia
VE6WB, Walter J. Beaumont, Edmonton, Alberta
ex-4DA, Dr. Facundo Bueso, San Juan, Puerto Rico

COMING A.R.R.L. CONVENTIONS

June 18-19 — West Gulf Division, Dallas, Texas.
July 30-31 — North Dakota State, Minot.
September 10-11 — Central Division, Indianapolis, Indiana.
September 16-17 — Quebec Province, Montreal.

(See also P. 10, this issue)

OUR COVER

Our cover this month shows a number of the reasons why W8AEU received the 1959 Edison Award, as related on pages 32 and 81 of this issue. At the upper left, W8AEU (second from the left) talks over some equipment with K8KKO, c.d. radio officer W8BUQ, and police lieutenant K8KNJ. Left center is W8AEU demonstrating a hand-carried portable, while at the lower left W8AEU looks on as K8KNJ demonstrates the use of ham radio in traffic control work. In the right-hand column, at the top, W8AEU (standing) and W8LHX check a weather map at the airport weather office before transmitting a storm warning. Right center, W8AEU's crew demonstrates some of the equipment (radio and marine) used to rescue 16 families during a Cuyahoga River flood in January, 1959. Standing in the boat is K8KKO, while the two boys are among those who were rescued. W8AEU's emergency corps also provided communications for parades and for sports car events. At the bottom right W8AEU uses the mobile transmitter mounted in K8QPH's Triumph.

Strays

Sgt. Don Germain, ex-W9YWL, was attending the television show "It Could Be You" in Hollywood when he was suddenly called from the audience to help Bill Leyden, star of the show, tune in a signal through heavy QRM pounding out of a beat-up old receiver.

As Don played with the dials, a voice boomed through: "W9YWL, W9YWL, this is W6RHM calling. Come in please. Don Germain, It Could Be You!" Don had been chosen as a subject for the show because of the way he had given his time night after night during four years overseas to help servicemen send messages back home. Don was hospitalized for five months a year ago and had to sell his old homebrew rig to get over the financial hump. So, Bill Leyden presented him with a complete ham station, compliments of the show and the Heath Company. Don had operated from Japan as KA2AG and from Germany as DL4ZQ.

Most Field Day groups are familiar with the problem created by poor voltage regulation from small gas-driven generators. Often when one of several operating units is removed from the line, the line voltage will soar to a point that will endanger the equipment still operating from the line. After some sad experience, W4LEN has devised a simple system that automatically switches in an artificial load before the line voltage can reach the danger point.

Maintaining Constant Load on Gas-Driven Generators

BY L. C. GARRETT, W4LEN *

The Field Day Tranquilizer

THE SIGHT of the first robin of the season not only heralds the approach of Spring, but also directs the minds of ham clubs all over the country toward plans for Field Day. "This year's Field Day is going to be the biggest, the best, we've ever had." And by the time the echo of the last CQ FD has died, so have a number of F.D. activities managers. In our club, the mere mention of F.D. would send the previous-year's manager (bald and gray) into orbit. This year, however, things were different. Our manager for last year (smiling and serene) actually volunteered to serve again.

The secret of this difference in attitudes is simple. It lies in the tranquilizing effect of two small gadgets any teen-ager can build from the usual old-timer's junk box in an evening, or the skilled E. E. with unlimited credit at the local parts distributor can undoubtedly improve upon. However, the gadget herewith disclosed does work, as evidenced by our bill for damaged parts this year which was $0.00 as against $87.37 for the preceding year. For some reason, most manufactured equipment seems to perform poorly when operated from an a.c. power source when the output varies between 62 and 167 volts. (I can never figure what gets into a normally sane man who, at 3:00 A.M., decides to make adjustments, without notice, to a smoothly running generator supplying four transmitters and receivers.)

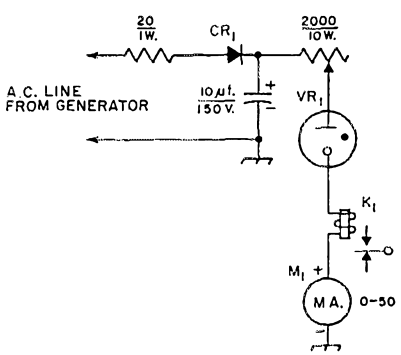
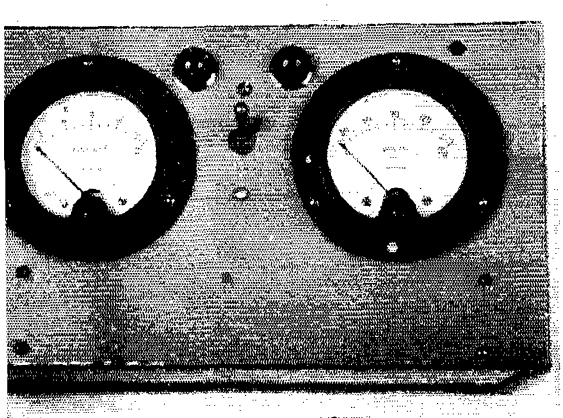


Fig. 1—Over-voltage circuit. As the line voltage increases, the current through the VR-tube branch also increases. The relay will close when the current reaches the preset value.

Basic Circuit

A quick check of prices for over-voltage and under-voltage relays suitable for automatic vol-



An a.c. voltmeter and ammeter and indicator lamps are mounted on one face of the box enclosing relays and VR tubes. The toggle is used to reset the under-voltage relay

* 2109 Stratford Road, Decatur, Alabama.

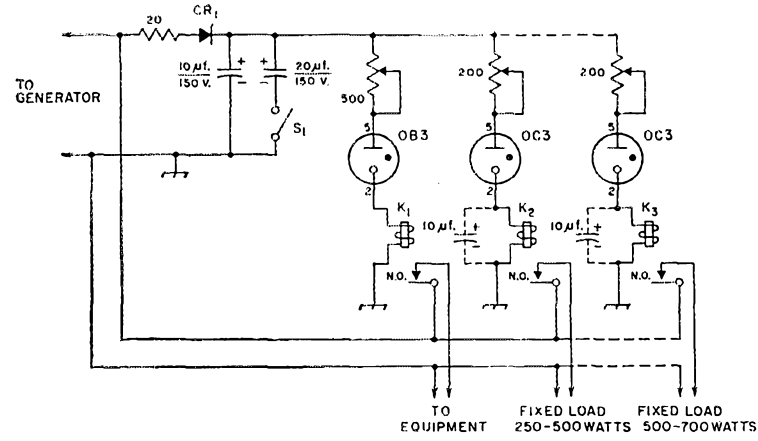


Fig. 2—Complete over-voltage protective circuit. K_1 is an under-voltage relay that opens the load circuit if the line voltage falls below a set minimum level. Momentary contact switch S_1 is used to reset K_1 when the line voltage returns to normal. K_2 performs as described in Fig. 1, its contacts throwing in an artificial load to keep the load on the generator constant. A second stage, including K_3, may be added as described in the text.

tage control quickly led to the junk box and evolution of the circuit shown in Fig. 1. You will recall that gaseous regulator tubes, such as the VR-90, VR-105, and others, maintain a practically constant voltage drop across their elements. This is accomplished by variations in the current flow through the conducting gases. A variation in current of between 5 and 40 ma. is effected by a variation of only a few volts in drop across the tube.

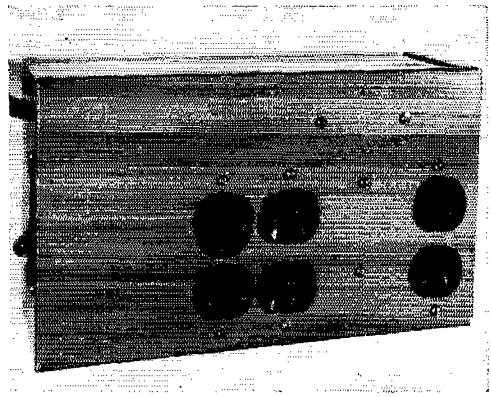
Relays

This principle is used to activate a relay utilizing the current flow through a conducting VR tube as reference. After a little judicious juggling of spring tension and spacing, we found that a surplus 24-volt relay would pull in at a current of 32 ma. and drop out at 11 ma. This represented a line-voltage change from 105 to 96 volts with a VR-90 (0B3) as reference. With a VR-105 (0C3) as reference, the relay pulled in at a line voltage of 123 volts and dropped out at 116 volts. By slight alterations of spring tension and spacing, an additional stage pulling in at 125 volts and dropping out at 120 volts may be constructed.

With suitable connections on relay contacts, arrangements may be made to remove all power when the line voltage drops below 96 volts. When the line voltage goes above 123 volts, an auxiliary load of 250 to 500 watts is added to the generator load; this load will stay on until line voltage drops to 116 volts. For the cautious type, the second over-voltage stage could be used to add an additional 500 to 750 watts of load at 125 volts, dropping this load at 120 volts.

A Step I Tranquilizer was built as shown in Fig. 2 and the photographs. The relays on hand and used were designed for operation on 115 volts a.c. However, with very minor adjustments of spacing and spring tension they performed equally as well as d.c. relays. It was necessary to provide an additional 20-μf. capacitor and a momentary-contact switch, S_1, to permit closing the under-voltage relay. However, a better operating range is obtained with the additional capacitor switched out after the VR tube ignites because the output voltage of the supply becomes more of a direct function of the input a.c. voltage.

Depending on the regulation of the generator and the variation in the connected load, it may be necessary to connect a 10-μf. 50-volt electrolytic across the coil of the over-voltage relays to prevent relay chattering due to transient loads from modulation or keying. A 10-μf. capacitor permitted action in 1 to 2 seconds. It is recommended that a silicon rectifier be used so that the power supply will be as stiff as possible. Series resistances in over-voltage relay circuits should be kept to a minimum so as to keep the operating range as narrow as possible. Almost any relay that has contacts of suitable current capacity and whose armature will pull in at less than 40 ma. (maximum VR current) will prove satisfactory.



Rear face of the "Tranquilizer" box embraces outlets for equipment (center) and auxiliary loads (right). Main power switch is at left.

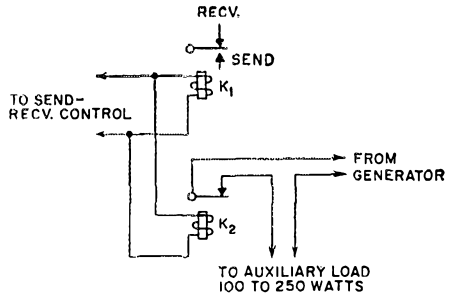


Fig. 3—In this circuit, K_2 connects in an auxiliary load to compensate for the loss of the transmitter load while receiving. K_2 is actuated from the control position simultaneously with the antenna change-over relay K_1.

Simple Arrangements

The Step II Tranquilizer is a simple device that will throw an auxiliary load on the generator while receiving, and remove this load while transmitting. The auxiliary load should be selected to approximate the difference in load between transmitting and receiving. A 150-watt light bulb is about right for a 100-watt phone rig. In Fig. 3 the auxiliary load is switched by a normally-closed relay whose coil is connected in parallel across an antenna relay. Fig. 4 is a somewhat similar circuit using a send-receive switch in the transmitter.

In operation during the 24 hours of last Field Day, the line voltage was not observed out of the range of 115 to 122 volts. This was with a 3,000-watt generator supplying four positions and quite a few lights. Oh yes, if you use light bulbs for the auxiliary loads, the flashing lights and the sound of the relays clicking tend to lull the nocturnal generator fiddlers back to sleep.

Be looking for you Field Day, and peace to all activities managers. QST

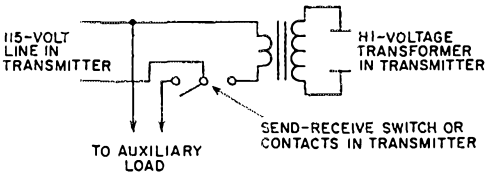


Fig. 4—This circuit is similar to Fig. 3, except that an s.p.d.t. switch has been substituted for the relay K_2

Strays

Are you a certificate collector? This one is issued in four colors by the Northern California DX Club. To qualify you must contact any 200 different stations in California, *plus* any 20 *different* members of the NCDXC. *All* QSOs *must* have been since October, 1946. Any band, any mode. QSLs may be checked and verified by any recognized amateur society or club. A list of the 220 stations must be submitted with each application. No fee. Send applications to The Northern California DX Club, P. O. Box 75, Oakland, Calif.

Members of NCDXC include W6s AED, AHZ, ALQ, AM, ATO, BAX, BIP, BUY, BVM, BYB, BYH, CEI, CLS, CTL, DAC, DIX, DUB, EFR, EFV, EJA, GIZ, GPB, GQK, HNX, HOC, IPH, ITH, JHV, JK, KEK, KEV, KG, KYT, KXG, LDD, LMZ, LTX, LW, MEK, MHB, MFZ, MLY, NEQ, NHA, NRZ, NZ, NZS, ONZ, OWM, PB, PHF, PQJ, PYH, QDE, RBQ, RCC, RRG, RZS, SC, SIA, SR, TXI, SZ, TI, TOT, TT, TXA, TXL, UF, UOV, UJ, UPV, UYX, VE, VJW, WB, YUS, ZUI, ZZ, ZZC, K6s AQP, AUC, AYA, CWS, EDE, LZI, SSJ.

K6BX, Box 385, Bonita, Calif., who is maintaining a file of overseas hams who would benefit from your discarded *Call Books*, asks that you request the name of some deserving overseas ham only if your *Call Book* is no older than three years, and please let him know what issue the *Call Book* is when you write him. (See the Stray on page 63 of the February issue.)

—•••—

W7EZD discovered that the student sitting next to him in a college class was named D.C. Klick.

—•••—

W7WXC and W7CXW were both high school classmates of W7EZD.

—•••—

There once was a Novice named Peter,
Who was a 100% cheater.
He thought he'd have fun
On 144.1
But the FCC had a frequency meter.
—Jamaica (NY) U.H.F. Club *Grid Leaks*

—•••—

There's a new radioteletype club in St. Louis — SLATS. If you are interested in joining the St. Louis Amateur Teletype Society, contact its president, WØIBZ.

—•••—

Philip R. Coursey, British radio pioneer who was of great assistance to Paul Godley during the League's second transatlantic tests in 1922, died recently at the age of 67.

Hints and Kinks For the Experimenter

PATCH PANEL

THE patch panel shown in Fig. 1 does away with most of the nuisance involved in jumping

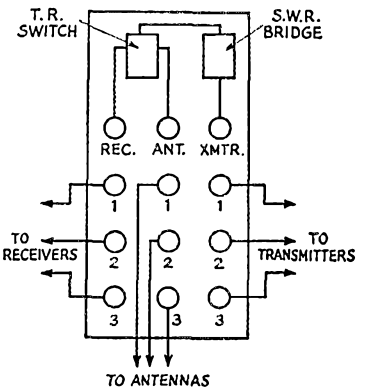
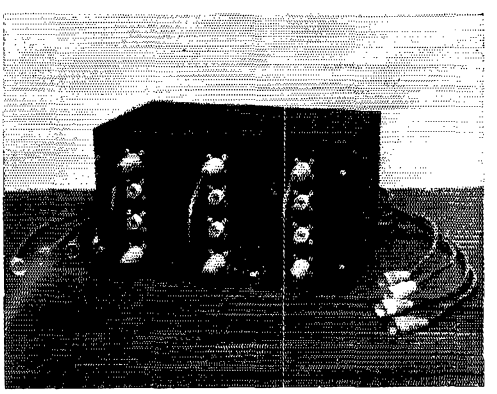


Fig. 1—Block diagram of K5JXF's antenna patch panel.

bands or changing modes of operation. Four rows of coax fittings make up the connectors for the panel. The common fittings (antenna, receiver, and transmitter) are in the top row while the bottom three rows connect to the various receivers, transmitters and antennas. Several patch cords are needed to connect the desired antennas to the proper receivers and transmitters. These cords are lengths of coax with fittings at each end that will mate with the connectors on the board.



The unit shown in the photograph was constructed in a cabinet measuring $12 \times 7 \times 8$ inches. This chassis provides considerably larger space than needed for the panel alone, but offers convenient housing for the t.r. switch and s.w.r. bridge. A low-pass filter and the s.w.r. bridge indicating meter can probably also be housed in the cabinet. — *James C. Fine, K5JXF*

TREATING BAMBOO QUAD ELEMENTS

THE quad antenna is currently enjoying a wave of popularity. However, many quad builders and prospective builders have been discouraged by the fact that bamboo elements deteriorate so rapidly. Here are a few suggestions from W9SJD that will help preserve them. Choose bamboo poles with great care, watching out for splits or weak points. Give the poles two or three coats of good spar varnish. Wind them full length with masking tape, being careful not to leave any bamboo exposed. After covering with tape, give the poles two more coats of spar varnish. Plug the small open ends of the poles with rubber stoppers to keep out moisture.

— *Donald A. Grant, W2DY*

THREE-BAND ROTARY ANTENNA

THE sketch in Fig. 2 shows a three-band antenna for use on 10, 15, and 20 meters. On 15

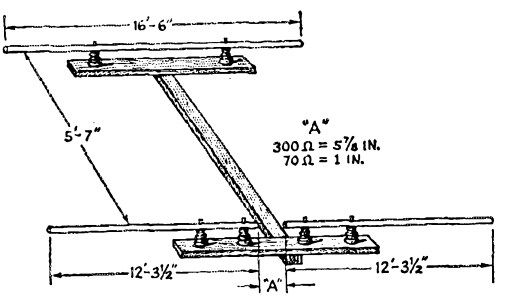


Fig. 2—PY2BBP's three band antenna.

and 20 the antenna operates primarily as a dipole, but on 10 the outboard element acts as a director. The antenna is fed with 300-ohm or 70-ohm feed line. If possible, the feed line should be 38 feet 5 inches, 60 feet 4 inches, or 77 feet 5 inches long for optimum performance. The elements can be made of dural, aluminum or steel tubing and are insulated from the supporting structure with stand-off insulators. The boom and element supporters can be made of wood or aluminum.

— *Jose Luiz S. V. Marinar, PY2BBP*

GUY ANCHORS

GUY anchors can be made from discarded automobile wheels. When buried a few feet they have a remarkable pull-out resistance, even in soft sand. When you're placing the wheel in the hole be sure to position it at right angles to the guy wire. — *Francis LeBaron, W1TQZ*

• Technical Correspondence

TOWER STRESS

320 Solano Drive, NE
Albuquerque, New Mexico

Technical Editor, *QST*:

Mr. Edward A. Stanley's article, "Some Considerations in the Selection of An Antenna Tower," in the December, 1959, issue of *QST* brings up some very pertinent points, especially if one is considering the use of a tower not specifically designed to support a beam. However, the computations given for the stress in the tower leg are incomplete, erroneous, and very misleading. Following the same computations in analyzing a tower having a base width differing from the 1'-0" used in the example would produce serious error.

Without going into all the details involved in the analysis of a structure such as the tower shown, the following fundamental facts should be emphasized:

The total horizontal force of the wind acting on the tower and beam is approximately 427 pounds. This force must be resisted by an equal force acting in the opposite direction at the base of the tower; otherwise the tower would slide off its foundation. This resisting force is provided by the anchorage devices at the tower base. The resisting force and the wind force together form a "couple," whose moment is 11,308 pounds as was computed in the article. This couple tends to overturn the tower and must be overcome by an equal and opposite moment produced by a couple at the tower base. In the worst case, with the wind blowing at right angles to one side of the tower, the resisting couple is provided by an upward force acting on the leeward leg, and an equal downward force divided equally between the two windward legs.

The moment of this couple must also be equal to 11,308 foot pounds. The magnitude of each of the two equal forces forming this couple is

$$\frac{11{,}308 \text{ ft. lbs.}}{0.866 \text{ ft.}} = 13{,}050 \text{ lbs. approx.}$$

The quantity 0.866 foot is the perpendicular distance from the leeward leg to the line joining the two windward legs, and is the moment arm of the couple. Hence, due only to the horizontal wind force, there is a compressive force of 13,050 pounds on the leeward leg and 6525 pounds tension in each of the two windward legs.

In addition to the forces caused by the wind, there is the downward force on each leg caused by the weight of the beam and the tower itself. Since this weight is normally split equally between all the legs, each leg must support one third of 500 pounds, or 167 pounds. The total compression on the leeward leg is then

$$13{,}050 + 167 = 13{,}217 \text{ pounds, approx.}$$

Note that foot pounds moment and pounds force cannot be added together as was done in the article. Also note that the moment arm of the resisting couple at the base of the tower enters the computations as a very major factor in determining the total stress in the tower leg.

This latter point can be illustrated by considering two hypothetical towers, each the same height, the same weight, having the same horizontal wind force and carrying the same beam load as the tower used in the example in the article, but one tower being 24 inches wide on a side, and the other 6 inches. The total compressive force on the leg of the 24-inch tower is approximately 6700 pounds, while that in the leg of the 6-inch tower is 26,300 pounds. Quite a difference exists in these three towers!

Also, lest it be forgotten, in the more northern climates, icing of the beam and tower occurs. This not only increases the weights of these items, but also greatly increases the areas, and hence the wind loads imposed.[1]

— *Wallace F. Wiley, K6YHQ, ex-W9AZI.*

[Correspondence of similar nature from D. E. Haselwood, W4GWC, is acknowledged.]

[1] *Editor's Note:* "Structures when fully loaded shall be designed for . . . horizontal wind pressures . . . on flat surfaces without ice coatings. Ice coatings are not specifically stated as icing seldom occurs simultaneously with maximum wind loading." — EIA RS-222, *Structural Standards for Steel Transmitting Antennas, Supporting Steel Towers.*

PHASING EXCITER ADJUSTMENT

139 Douglas Shand Ave.
Pointe Claire
Quebec, Canada

Technical Editor, *QST*:

Since many of the boys are having difficulty in obtaining good sideband suppression with phasing-type s.s.b. exciters, it might be helpful to pass along some information on the subject. The system developed here makes use of both methods described in Ehrlich's article in November, 1956, *QST*, which described the scope and receiver methods of alignment.

Basically, the signal is fed through the receiver and displayed on the scope. The test setup is quite simple. The last i.f. stage is coupled to the vertical amplifier of the scope through a 50- or 100-$\mu\mu$f. capacitor and the affected stage resonated. The receiver is set in the most selective position (sharp crystal filter), and only sufficient antenna length is used to prevent overloading. The b.f.o. and a.v.c. should be turned off.

The exciter should not be checked on the fundamental (9 Mc. in the case of the "Cheap and Easy" unit used here), as direct pickup from the crystal oscillator will be troublesome. Tune in the signal and identify the carrier frequency. A pattern will appear which will decrease in height as the carrier is nulled to zero. Make note of the receiver dial setting. Now inject the audio tone into the exciter. The normal overloading precautions should be taken. It is now possible to tune the receiver across the frequency spectrum and observe both sidebands and spurious products. Carefully center the receiver on the sideband producing the larger pattern, which will be called sideband "A." Throw the sideband selector switch to sideband "B," and without disturbing the receiver adjust the audio phasing pots to bring the remaining pattern to zero. Now carefully shift the receiver to sideband "B" and throw the sideband selector switch to the "A" position. If you're lucky, very little pattern should be showing. Note the position of the audio phasing and balance pots, then readjust them for minimum and note how much difference exists between the two settings for optimum suppression on both sidebands.

If it is difficult to obtain good suppression on both sidebands the fault usually lies with the r.f. phasing coil adjustments, and the clue is the position of the carrier null pots when the carrier is zeroed. The null pots should be near the center third of their range. By adjusting the r.f. phasing coils the carrier-suppression pots can be brought into their proper positions. Recheck the suppression on both sidebands, and by careful adjustment equal suppression can be obtained without further adjustment of the audio phasing control. On the setup used here pattern heights of 3 inches and zero were obtained on a 5-inch scope for the desired and suppressed sidebands, respectively. Reports on the air are excellent and run in the order of 35 db.

The receiver need not be an elaborate job. A BC-348 was used in one instance; however, careful alignment of the i.f. stages to the crystal frequency was required.

— *H. Roth, VE2QJ, ex-VE4DF*

NEW STANDARDS ON IGNITION-NOISE RADIATION

Automobile Manufacturers
Association, Inc.
320 New Center Bldg.
Detroit 2, Michigan

Technical Editor, *QST*:

In the middle '30s the American automobile manufacturers became aware of the radio interference problem. A number of meetings were held by a Society of Automotive Engineers subcommittee, and at these meetings the various sources of noise were studied and ways of eliminating the resulting interference were sought.

During the war our knowledge in this field was greatly expanded due to the rather rigid requirements of our Armed Forces. After the end of the war it was decided that we would attempt to suppress all vehicles to a reasonable level. A meeting was held at which members of the Society of Automotive Engineers subcommittee convened to deter-

mine acceptable limits. At this meeting a tentative specification was set up which would limit the undesirable radiations to 35 microvolts per meter at a distance of 50 feet from the side of the vehicle. These limits were to be measured on the only noise meter available, in the range between 30 and 150 megacycles.

In order to reach the 35-microvolt limit specified, it was assumed to be necessary to install suppressor resistors in the ignition system. There was a question in the minds of some of the motor engineers as to the effect of suppressors upon engine economy and engine performance. At that time, 1946, the Board of Directors of the Automobile Manufacturers Association recommended that all U. S. vehicle manufacturers do everything necessary to their vehicles to effect compliance with this specification as soon as it was determined that the suppressors had no detrimental effect.

Each of the car manufacturers began working toward that end. It became apparent that some vehicles required excessive suppression equipment while others required no suppression equipment. When trained engineers examined the two types of vehicles there was no outstanding difference between them. A meeting of the Society of Automotive Engineers subcommittee was held to review the reasons for the great discrepancies in suppression requirements. It was found that the difference existed in the meters being used, and not in the vehicles. These meters measured so-called quasi-peak emissions in terms of microvolts per meter. Since the instrumentation was so poor the American automotive industry did not feel that it was ready to supply suppression across the board on all vehicles until the quantities could be measured with reasonable accuracy.

For some years the Society of Automotive Engineers group concentrated on testing different radio interference measuring instruments. By 1956 two instruments had been developed in the United States that would give consistent readings on our types of interference. These meters read true peak and operate on the principle of using the receiver part of the instrument as a transfer device, to compare the interference against the output of a "white-noise" type pulse generator.

During the summer of 1957 the Society of Automotive Engineers group met with a group of representatives from the television industry. The television people supplied a number of receivers of advanced design.

The television receiver which was found most susceptible to interference was used as a standard. Using this receiver as a basis, new permissible limits were determined. The use of a TV receiver was based on previous tests which indicated that television was probably more susceptible to electrical interference than any of the other communications, and that if sufficient suppression was provided to protect television, other services would be automatically protected.

The new limits, which are now incorporated in the SAE Standard "Measurement of Vehicle Radio Interference (30 to 400 megacycles)", are: from 30 to 88 megacycles the tolerable interference must not exceed 2 decibels below 1 microvolt per meter per kilocycle of band width; from 88 to 400 megacycles the interference is allowed to increase to 8 decibels above 1 microvolt per meter per kilocycle of band width.

The above limits are, of course, those which the AMA Board of Directors has recommended to all of our member companies.

— *A. C. Doty, jr., K8CFU,*
Engineering & Technical Dept.

ACTUAL *VS.* APPARENT S.W.R.

1107 W. Albion Ave.
Chicago 26, Illinois

Technical Editor, *QST*:

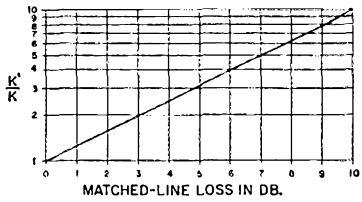
The following is an easy way of getting the true s.w.r. at the load. This information can be gotten from the Smith Chart, but the method below is easier.

SWR = Standing-wave ratio read at transmitter
SWR_T = Standing-wave ratio at load (e.g., at the antenna)

$$K = \frac{SWR - 1}{SWR + 1}$$

$$SWR_T = \frac{K' + 1}{K' - 1}$$

For K' see the accompanying graph.



Graph used in determining the relationship between s.w.r. measured at the transmitter and true s.w.r. at the load, when line losses are appreciable (W9GBD).

Example: Matched line loss = 2 db. and $SWR = 3$

$$K = \frac{3 - 1}{3 + 1} = 0.5$$

From the graph, $K' = 1.6$ $(K) = (1.6)$ $(0.5) = 0.8$.

$$SWR_T = \frac{1 + 0.8}{1 - 0.8} = \frac{1.8}{0.2} = 9$$

The value at which $K' = 1$ corresponds to the s.w.r. (read at the transmitter) with line shorted. Values of K' greater than 1 have no meaning, since higher readings are not possible.

— *Bob Gold, W9GBD*

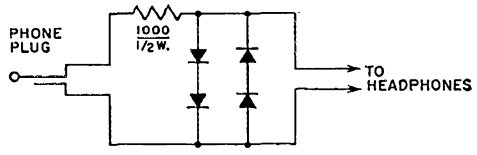
SIMPLIFIED AUDIO CLIPPER

3357 Pelham Road
Orlando, Florida

Technical Editor, *QST*:

With regard to Mr. McCoy's audio clipper (p. 44, January *QST*) permit me to comment that such a clipper is indeed a useful device and is often the difference between the quick "ur sigs, etc." exchange and an enjoyable QSO.

I should like to point out that a simplification of the device is possible, in that it requires no power source at all, other than the audio power of the receiver itself. This can be realized if four silicon diodes are used in place of the two germanium diodes in McCoy's circuit. The schematic then appears as shown in the accompanying drawing.



Simplified audio clipper using the conduction delay of silicon diodes to eliminate biasing batteries. Suitable diode types are mentioned in the letter from W9LRA.

The silicon diode requires considerably more forward bias before it conducts significantly; in particular, common silicon diodes must be biased forward to about 0.6 volt before conduction takes place. This phenomenon is regularly used in transistor biasing schemes employed in computer work. By putting two such diodes in series this threshold voltage is raised to 1.2 volts, which is just about the right level for headphone volume. Further, the silicon diodes suggested herein have a much lower dynamic impedance than the 1N34, permitting a reduction in the series resistance in the clipper circuit and thus delivering more audio to the headphones for a given volume control setting (below threshold).

Since only one resistor and four diodes are required, the entire device may be housed in the headphone plug itself!

Suggested silicon diodes are the 1N482, 1N487, 1N1692, and in the very useful silicon "rectifier" class the 1N536, the Pacific Semiconductors PS-006, the International Rectifier SD-91A, and Sarkes-Tarzian K-200. All of the mentioned diodes are in most large jobbers' stocks.

— *Thomas A. Pickering, W9LRA/4*

Edison Award to W8AEU

WALTER ERMER, sr., W8AEU, recently received the 1959 annual Edison award for his work in organizing radio amateurs for emergency communications preparedness in the Cleveland, Ohio, area. W8AEU was selected from among more than 30 candidates as having performed the most outstanding public service during 1959. He organized and directed a 300-man voluntary radio communications corps which served the city on 23 occasions during 1959.

The principal speaker at the award ceremonies was Major General Earle F. Cook, W4FZ, the Army's Deputy Chief Signal Officer. We can't reproduce the general's remarks in toto, but the excerpts below are appropriate.

Left to right: W4FZ, W8AEU, and L. B. Davis of the General Electric Co.

". . . It is most significant that the Edison Radio Amateur Award for Outstanding Public Service during 1959 should go to one whose activities have resulted in the provision of a 300-man voluntary emergency communications corps. The mission of such a corps might well be defined in the same terms as that of our military services — "to provide for the common defense, to promote the general welfare . . ." What this emergency communications service means to the Cleveland community, or might mean in times of disaster or other circumstance, does not need elaboration for this audience.

"We, in the military services, appreciate with you the meaning of emergencies. Emergencies, and preparation for them, are our business. We hold amateur radio operators in such high esteem because they are in a sense, fellow soldiers — fellow soldiers with comparable missions, with essentially the same precepts, the same high ideals of service, and the same devotion to duty.

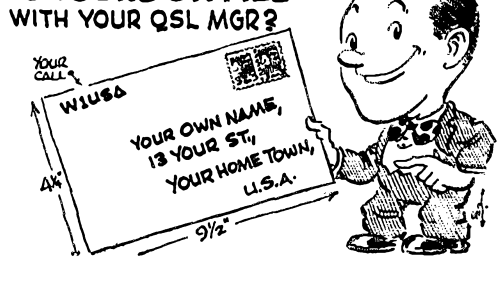
"My congratulations and warmest personal wishes to Mr. Walter Ermer, W8AEU, the 1959 Edison Award winner, for the accomplishments which have brought him this distinguished recognition. I also congratulate the recipients of the special citations for their meritorious performances. That three of these citations should be for service in providing emergency communications, one for the promotion of international good will, and one for service performed in relaying messages for military personnel overseas, is fine testimony to the caliber of men and women you find in that group known by that seemingly inelegant but endearing term — "hams."

". . . Apart from our common bond of interest in radio, our esteem for the amateur is also that which one holds for a prime national reserve asset. Amateur radio operators are an invaluable and indispensable American source of operational and technical skills in time of war or other emergency need. Under various sponsors they also provide auxiliary systems or means of communication which can be made available to military commanders as required . . ."

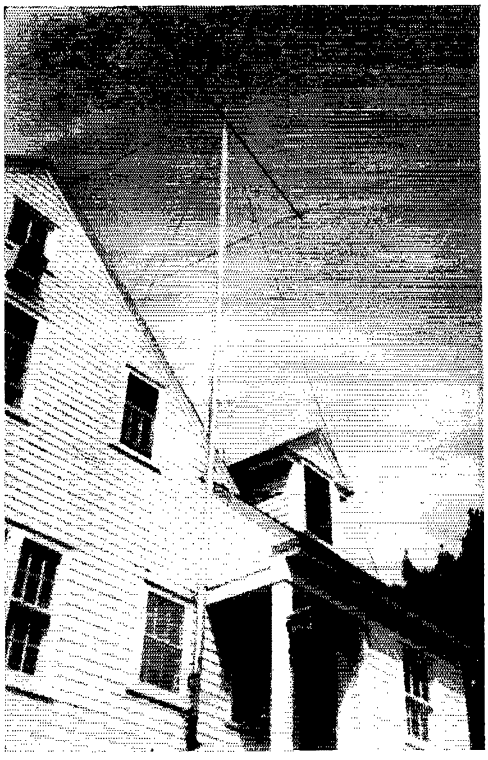
A.R.R.L. QSL BUREAU

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

W1, K1 — G. L. DeGrenier, W1GKK, 109 Gallup St., North Adams, Mass.
W2, K2 — North Jersey DX Ass'n, Box 55, Arlington, N. J.
W3, K3 — Jesse Bieberman, W3KT, P.O. Box 400, Bala-Cynwyd, Pa.
W4, K4 — Thomas M. Moss, W4HYW, Box 644, Municipal Airport Branch, Atlanta, Ga.
W5, K5 — Brad A. Beard, W5ADZ, P.O. Box 25172, Houston 5, Texas.
W6, K6 — San Diego DX Club, Box 16006, San Diego 16, Calif.
W7, K7 — Salem Amateur Radio Club, P.O. Box 61, Salem, Oregon.
W8, K8 — Walter E. Musgrave, W8NGW, 1245 E. 187th St., Cleveland 10, Ohio.
W9, K9 — J. F. Oberg, W9DSO, 2601 Gordon Drive, Flossmoor, Ill.
WØ, KØ — Alva A. Smith, WØDMIA, 238 East Main St., Caledonia, Minn.
VE1 — L. J. Fader, VE1FQ, P.O. Box 663, Halifax, N. S.
VE2 — George C. Goode, VE2YA, 188 Lakeview Avenue, Pointe Claire, Quebec.
VE3 — Leslie A. Whetham, VE3QE, 32 Sylvia Crescent, Hamilton, Ont.
VE4 — Len Cuff, VE4LC, 286 Rutland St., St. James, Man.
VE5 — Fred Ward, VE5OP, 399 Connaught Ave., Moose Jaw, Sask.
VE6 — W. R. Savage, VE6EO, 833 10th St., North Lethbridge, Alta.
VE7 — H. R. Hough, VE7HR, 1684 Freeman Rd., Victoria, B. C.
VE8 — Earl W. Smith, VE8AT, P.O. Box 534, Whitehorse, Y. T.
VO1 — Ernest Ash, VO1AA, P.O. Box 8, St. John's, Newf.
VO2 — Douglas B. Ritcey, Dept. of Transport, Goose Bay, Labrador.
KP4 — E. W. Mayer, KP4KD, Box 1061, San Juan, P. R.
KH6 — Andy H. Fuchikami, KH6BA, 2543 Namanu Dr., Honolulu, Hawaii.
KL7 — KL7CP, 310-10th Ave., Anchorage, Alaska.
KZ5 — Catherine Howe, KZ5KA, Box 407, Balboa, C. Z.



A lightweight support for a beam antenna. The supporting member is a section of aluminum irrigation pipe. Four guy wires are attached near the top.



Light-Weight Low-Cost Beam Support

W1WF shows an easy way of getting 40 feet or more of height for a small beam antenna. Most of the components are standard fittings requiring no modification.

BY WILLARD BRIDGHAM,* W1WF

Forty Feet Without Climbing (Much)

THE MAST described here is the result of an effort to come up with something that would support a 15-meter beam and yet be light enough so that it could be put up and taken down by not more than two men, with a minimum of climbing. (At my age the top of a step-ladder is about the limit on altitude!) The mast as finally evolved is light enough to be mounted on the side of a house, giving some height that doesn't cost anything. The total cost will be something less than K6JKK's "Sixty Cents a Foot,"[1] depending upon how high on the house you can mount it. In addition, the rotator, supporting some of the weight of the beam, is mounted at the bottom, making cold-weather servicing (i.e., in the middle of the SS) easy. The long drive shaft between the rotor and the beam acts as a shock absorber, allowing the use of a TV rotator. There is only one special part required, the rest being standard TV and general hardware.

Mast Material

Construction of the mast is detailed in the photos and in the sketch of Fig. 1. The main mast element is a piece of 4-inch aluminum irrigation tubing 30 feet long. This is a smooth, round, seamless, thin-walled tubing. It is obtainable from Sears under their catalogue No. 42-HR-M-5978 and is listed in their 1959 *Farm Equipment, Fencing & Suburban Catalogue* at $15.90. Transportation costs amounted to about a dollar, but this, of course, will vary with your

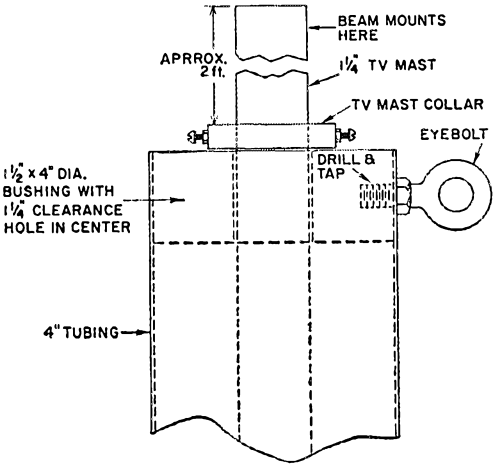
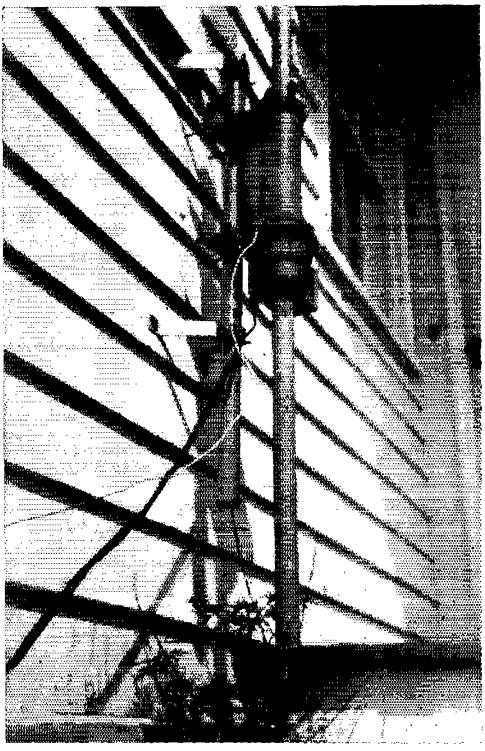


Fig. 1—Sketch showing details of the drive-shaft bearing at the top of the mast. The eyebolt should be duplicated for 3 or 4 guys.

* 82 Noblehurst Ave., Pittsfield, Mass.

[1] Sutherland, "Sixty Cents Per Foot," *QST*, June, 1959.

The mast is secured against the side of the house on brackets made of standard fittings.



The rotator drives a shaft made up of sections of TV mast.

location. Don't let the size of the piece scare you. It weighs only a little over 20 pounds and can be carried home easily on a car-top rack (I used my ski rack), although I would try to avoid as much traffic as possible. Do not have it delivered to your home, but rather to your nearest Sears store, with the stipulation that you will not accept it if it is dented. Incidentally, this tubing also comes in 2-, 3-, 5- and 6-inch diameters.

Drive Shaft

The drive shaft for the beam consists of four 10-foot lengths of standard 1¼-inch TV mast which goes inside the 4-inch tubing. The mast extends above the tubing to carry the beam, and below to take the rotator.

The one special piece referred to above is the bushing in the top of the mast. This piece serves both as a bearing for the drive shaft and as an anchor for the guy eyebolts. It is made of 1½-inch thick aluminum and is turned down to make a good fit with the inside diameter of the mast. The hole in the center is made a loose fit — at least 0.030 inch — around the 1¼-inch TV mast. Any tighter fit risks having the bearing freeze if it should get water in it and then turn cold. The bushing is inserted in the mast and the assembly drilled and tapped for the eyebolts to take the guys, as shown in the sketch. Although mine is aluminum, I see no reason why this bushing couldn't be made of paraffin-treated hardwood, if you find 1½-inch aluminum plate hard to come by. In such an event, screw eyes, such as are used to hold up clothesline, could be substituted for the eyebolts.

The four pieces of TV mast are assembled and fastened with self-tapping screws (four ¼-10 screws per joint). Use short screws to leave room inside the drive shaft for the coax feedline to the beam. The resulting monstrosity is then inserted into the aluminum tubing with about 2 feet of the shaft left protruding beyond the bushing in the top of the mast. A standard TV mast collar is then fitted on the drive shaft next to the bushing. About 4 feet of the TV mast is left extending from the bottom; the rest is cut off to be used later. (Efficient, hey?)

Mast Mounting

The mounting brackets on the side of the house are assembled using a pipe flange, a close nipple, an elbow and a 2-inch nipple, all ¾-inch steel, as shown in Fig. 2. The open end is closed with a cork. The mast is attached to these brackets with clamps such as are used to mount a TV mast to a 4-inch vent pipe. The brackets are lagged into the side of the house at a stud by opening the holes in the pipe flanges to ¼ inch and using ½ × 2-inch lag screws.

To erect the mast, the method used here was to push the TV mast drive shaft up until it no longer projected from the bottom and raise the

top on a step ladder high enough to attach the beam to the TV mast. The coax feedline can then be fed down through the TV mast and the vent-pipe clamps assembled loosely to the mast. The entire assembly can then be walked up to the mounting brackets on the side of the house and the clamps lined up with the brackets. If the clamps are then tightened on the brackets, but left loose on the mast, the mast can be slid up to its final position and the clamps tightened. The drive shaft will slide down as you do this, until the collar hits the bushing. An ordinary shelf bracket will hold the whole business in position while you tighten the clamps on the mast.

Rotator Mounting

The rotator assembly and mounting are shown in the picture. Standard TV wall brackets and the piece of TV mast that we so craftily saved are used. The wall brackets, which were a little too long, were mounted enough to one side of center so that the rotator might be swung into line with the center of the mast. In the final tightening up, the TV mast is raised up enough so that the rotator assembly is carrying most of the weight.

The total weight of the mast, less the beam and rotator, is less than 50 pounds, and yet it has withstood two rugged New England winters, with winds that were strong enough to blow one half an element clean off the beam and carry it more than 200 feet before it finally hit the ground. Repairs are very easy; two men can get the beam down, make a half-hour repair and have it back up in about two hours. By throwing a rope over the roof and attaching it to one of the guys, I can do it alone in not much more than three hours, and only once (to get at the top clamp) do I have to get over stepladder height. It's *light*.

In case the sharp-eyed are curious, the speaker on the side of the house is used to call in the harmonics from their play. QST

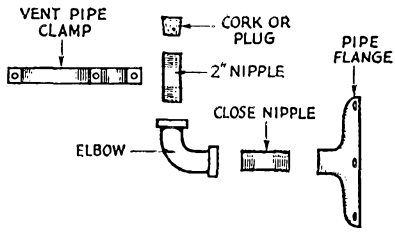


Fig. 2—Sketch showing assembly of wall brackets.

Strays

FEEDBACK

In describing the High Efficiency 2-Meter Kilowatt built by W1DXE, February *QST*, page 30, the statement is made that the 1⅝-inch tubing of the plate line fits over the anode of the 4CX300A. Actually the anode and the tubing are the same *outside* diameter. The tubing butts against the top of the anode, and the stainless steel hose clamp holds the two together, clamping to both surfaces.

HBR-16 NOTES

Ted Crosby, W6TC, sends in a few afterthoughts on his HBR-16 (*QST*, October, 1959) that should be of interest to those who have built or are building the receiver. The principal suggestion is that the 6BE6 cathode resistor be changed to 330 ohms and that its No. 3 grid resistor be changed to 180,000 ohms; the tube runs cooler and is quieter with these values. It has also been found beneficial to reduce the a.v.c. time constant somewhat, this being done by changing the 0.5-μf. capacitors in the a.v.c. line to 0.2 μf. each; 200-volt d.c. rating is sufficient. Ted also says that the specifications for C_7 and C_8 should be transposed in the caption for Fig. 1, to agree with the text under "Circuit Pointers" on page 17.

The author's mail concerning the receiver has been heavy, as might be expected, since the HBR-16 has been equally as popular as its predecessor, the HBR-14. Which reminds us that when writing to any *QST* author to get additional information the least you can do is to enclose a self-addressed stamped envelope for his reply. It's only good manners to do so.

—···—

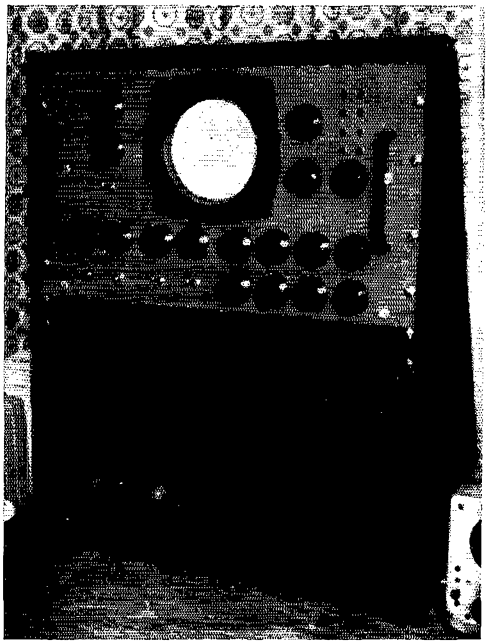
W0ETX sends in a newspaper item which read as follows: "A Hamline university professor recently set himself up as an amateur radio operator. He was probing the airwaves the other evening when he picked up another ham station sending Morse code too fast for our boy to follow. The prof laboriously ticked out, 'I am a university professor, what are you?' The reply was another virtuoso blur of dots and dashes. The prof requested slower transmission and the other ham obliged with all deliberate speed, 'I am a seventh grader.'"

—···—

For keeping a bug from skidding around on the operating table W3OY recommends the use of Curon, a material ordinarily used under scatter rugs. It is 3/16 inch thick and is manufactured by Curtis Wright.

—···—

Feeders going up the wall,
Please don't radiate at all!
If you do, then by and by
I'll be plagued with TVI.
— Jamaica (NY) V.H.F. Club *Grid Leaks*



Storage-tube monitor built by WA2BCW. Unit in bottom of the rack is the power supply.

As reported in March QST, *the first successful picture transmission across the ocean by amateur radio was achieved toward the end of 1959. The narrow-band system used was that devised by Copthorne MacDonald and described by him in* QST *a little over a year ago. This is the story of what has been happening with "slow-scan" in the interim.*

BY COPTHORNE MACDONALD*

WA2BCW

Slow-Scan Image Transmission: A Progress Report

THE successful transmission of slow-scan images from the U.S.A. to England on 10 meters again makes this mode of transmission a topic for discussion among amateurs. The loss to U.S. hams of 11 meters, the only low-frequency band permitting facsimile operation, did much to dampen the enthusiasm with which the original *QST* articles[1] on the subject were received. A number of equipment projects, begun by U. S. amateurs, never got beyond the first stages. There was interest in other parts of the world, however. Early experiments by members of the British Amateur Television Club in recording TV on tape had introduced slow-scan to that group, and the prospect of world-wide visual communication on the ham bands set several members to building equipment. In Argentina, the publication *Revista Telegrafica Electronica* printed a Spanish translation of the *QST* articles.

Since most of the slow-scan activity is among BATC members, a word about that organization is perhaps in order here. Close to 600 members in about 20 countries comprise the membership of the BATC. Activity is primarily in the fields of 420 Mc. TV transmission and closed-circuit work, although color TV and now slow-scan have captured the attention of some. Information is spread via *CQ-TV*, the club magazine, and by tape recordings between individuals and club groups. Actually, it is the prospect of sending tape-recorded images that is responsible for much of the present slow-scan interest among members. Bill Stapleton of Dublin successfully recorded slow-scan on tape some three years ago. John Plowman, G3AST, and C. Grant Dixon, chairman of the BATC, have slow-scan monitors in operation; many others have equipment under construction. At the Radio Hobbies Exhibition held in London last November, the BATC had a slow-scan display in which a tape recorded by WA2BCW was played back through G3AST's monitor. Approximately 1500 information sheets on the subject of slow-scan were given out to visitors, and a great deal of interest was aroused.

Transatlantic Tests

Since no serious long-distance tests of the slow-scan system had been made, and since G3AST had a monitor in operation on the other side of the Atlantic, the FCC was requested to permit a series of tests on 10 meters. Permission was granted and one-way transmissions were made on week ends from November 21, 1959, through December 20, on 29.500 Mc. The bandwidth of the emissions was limited to 6 kc. as required in the FCC authorization. The transmitter at WA2BCW was a much modified BC-458 running

*81 Winsor Circle, Elmira, New York.

[1] MacDonald, "A New Narrow-Band Image Transmission System," *QST*, August and September, 1958.

25 watts input. The antenna was a three-element beam, about 25 feet high, pointed toward England. The slow-scan equipment used throughout the tests by WA2BCW was that described in the original *QST* articles, and the output of the unit was fed into a conventional plate modulator which modulated the transmitter 100 per cent during sync pulses. Picture black level was set at 50 per cent of sync level, and white level was set at zero. A test pattern with call letters and resolution wedges was transmitted, and a voice announcement was made at ten-minute intervals. W1AW publicized the tests, but with such low power at WA2BCW and with the antenna pointing in the wrong direction for good reception in this country, it is doubtful if many U. S. amateurs were able to receive the slow-scan signals.

At the receiving end in Yeovil, England, G3AST used an Eddystone S640 receiver (one r.f. stage, two i.f. stages) with a dipole antenna. The headset output of the receiver was fed into a home-built tape recorder. Reception was attempted on seven days of the test period, but the slow-scan signal was audible on only two of these days, November 22 and December 20. Coincidentally, these were the only two test dates when the WWV North Atlantic propagation forecast rose as high as "7", a propagation forecast of "Good" conditions. November 22 was the first day that a picture was resolved, and the picture made from John Plowman's tape appeared in March *QST*. He says of conditions that day, ". . . Reception on the 10-meter band was average or a little below. Characteristic heterodynes were apparent and fading was rather heavy . . . . The signal level at approximately 3 P.M. was yielding a recognizable picture." Since there was no two-way communication during the tests it was impossible to avoid QRM by shifting frequency, and heterodyne interference proved to be a primary cause of picture degradation.

G3AST described conditions on December 20 as, ". . . easily the best in the whole period . . .", and pictures of quite acceptable quality were reproduced from G3AST's tape. The tearing seen in the picture as it appeared on G3AST's monitor is a result of the sensitivity of his biased diode sync separator to variations in sync pulse amplitude. A test on the *QST* equipment revealed that the input level could vary over a 26-db. range without losing sync, providing the rate of change did not exceed a few db. per second. A variation of about 9 db. occurred during the frame photographed, and this was more than could be handled by the biased diode. This experimental use of different circuits is a good thing since it reduces the time required for the "optimum" circuit to come to light.

The transatlantic tests were certainly a success since they showed that slow-scan can be transmitted over long distances via ionospheric propagation with little picture degradation. Heterodyne interference and signal fading seem to be the two major problems, but even the simplest equipment was shown to be capable of producing satisfactory pictures during periods when these conditions are not severe. Application of the past 20 years of TV experience in the design of sync and a.g.c. circuits, and possibly the use of subcarrier frequency modulation (s.c.f.m.) instead of the present subcarrier amplitude modulation (s.c.a.m.), should lead to equipment capable of producing usable pictures even under adverse conditions.

Pictures reproduced from G3AST's December 20 tape. (Top) As reproduced by G3AST's equipment. (Bottom) As reproduced by WA2BCW's. See text for a discussion of the difference.

Equipment

The *QST* equipment has been in use for the past two years with no component failures; this included eight-hour periods of continuous operation during the transatlantic tests. One modification has been made; this was the installation of a black-level limiter so that the black level would not have to be reset with a scope after each slide was changed.

The conventional cathode-ray tube with P7

phosphor remains the most popular slow-scan display device. Tubes such as the 3FP7 and 5CP7 are still available on the U.S. surplus market at low prices. These tubes provide adequate brightness and persistence characteristics when used with a viewing hood or in a dimly-lit room, and have good gray-scale rendition. A greenish-yellow filter such as the Wratten 15G is to be preferred over the dark orange usually used with P7 tubes in radar applications. The orange filters unfortunately remove part of the useful long persistence brightness in the process of eliminating the blue flash. The 5FP7 was used by Grant Dixon in his monitor. This tube permits the use of 10 kv. or so to gain brightness, but has the disadvantage that magnetic deflection is required. The usual low-impedance TV yokes require up to an ampere or so of current for full deflection, and since transformer coupling is not practical at very low sweep rates, this high current must be obtained directly from tubes or power transistors. Grant Dixon is using a transformer to drive the horizontal coils by using an output transformer with a "large core" (high inductance, good low-frequency response) a.c.-coupled to a 6V6. The current for the high-impedance (750 ohms) vertical yoke winding is obtained from a 6V6 cathode follower.

The amateur slow-scan display device of the future is apt to be the direct-view storage tube, but unfortunately for the amateur these tubes have kilo$ price tags today. A slow-scan receiver was built around one of these tubes by WA2BCW, and the tube's performance was evaluated in slow-scan operation. Among the tube's advantages are a bright image with a persistence which can be adjusted from a fraction of a second up to a minute or so. It is also possible to improve the signal-to-noise ratio in the received picture by taking several frames to "write" the picture. (The signal adds coherently since the light and dark portions of the picture occur in the same place each scan, while the noise, being random, does not add coherently.) On the debit side is the equipment complication; an erase pulse generator and an additional high-voltage power supply are necessary, and the tubes have relatively poor gray-scale rendition.

G3AST holds the tape containing the first slow-scan pictures sent across the Atlantic on 10 meters. His home-built tape recorder is to the left.

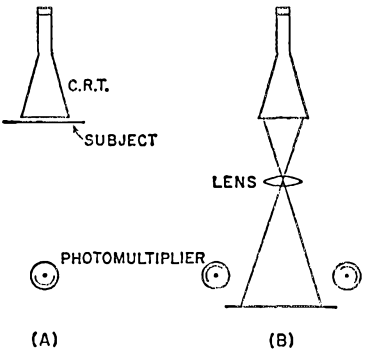


Fig. 1—Flying-spot scanners. (A) Uses light transmission through a photographic negative. (B) Involves reflection from a picture or drawing.

The flying-spot scanner continues to be the most popular image pickup device for slow-scan use since it provides good image quality at low cost. Two basic scanner configurations are shown in Fig. 1. The version in use at WA2BCW uses a photographic negative placed between the scanner c.r.t. and the photomultiplier tube. The version planned by the British slow-scanners is more versatile, even if slightly more complicated. In this unit the raster on the c.r.t. is focussed by a lens onto an opaque picture. The light reflected by the light and dark areas as they are scanned is picked up by the photomultiplier tubes. Two photomultipliers are used to give uniform output as the whole area is scanned. A big advantage of this configuration is that it permits the transmission of sketches, for example, seconds after they are drawn. The P7 c.r.t. does double duty in Britain as it is also used as a flying-spot scanner tube. A blue filter is not usually used since the long-persistence yellow component is not as bright as the short-persistence blue component, and is a poorer spectral match for the 931-A photomultiplier.

The ultimate slow-scan pickup device is probably the WL-7290 slow-scan Vidicon. The price will keep it out of most ham shacks, but its performance characteristics are worthy of mention. The tube gives excellent low light level performance when continuously exposed, but its ability to operate with intermittent exposure is particu-

larly interesting. Since the target has a much higher resistivity than that of a conventional Vidicon, the electrical image pattern produced on the target by a momentary exposure to light will remain for many seconds unless removed by the scanning beam. In this mode of operation, then, the tube can be exposed for a fraction of a second during the retrace period and scanned while dark, thus effectively freezing any motion. A moving object would be presented as a series of "stills."

Conventional Vidicons have also been used in slow-scan operation although they require continuous exposure to a still scene because their low-resistivity targets makes the storage time very short. It is of interest that BATC members are able to obtain reject Vidicons of the conventional variety, complete with scanning coils, for only 25 pounds (about $75), and export from Britain to all but Iron Curtain countries is possible. The Vidicons are sold with the understanding that they will never find their way into commercial use. A slow-scan Vidicon camera has been built by WA2BCW, and control circuits are "in the works."

WA2BCW's slow-scan Vidicon camera. Front end is removable to permit a change of lens and shutter.

Regulations

Slow-scan's natural home is the region below 30 Mc. where ionospheric propagation makes regular DX transmission of pictures possible. The loss of 11 meters left the U.S. without a low-frequency facsimile assignment, but FCC docket 12912, inquiring into the status of the Extra Class license, created an opportunity to suggest a possible method for obtaining low-frequency slow-scan authorization. The author's proposal to the FCC in response to its request for Extra Class license suggestions recommended that Extra Class licensees be permitted to use slow-scan and conventional facsimile in all phone bands, pointing out that if the bandwidth of the emission was restricted to that of a phone signal, it should not cause objectionable interference to other amateurs; furthermore, the Extra Class licensee has demonstrated a high level of technical ability, and should be capable of seeing that his bandwidth is kept within the prescribed limits.

The British situation is also in a state of suspension awaiting a decision; in this case by the British General Post Office, on G3AST's request to use slow-scan on 2 and 10 meters, with a proviso that consideration also be given to authorizing slow-scan in other bands below 30 Mc.

The regulatory picture world-wide is not known to this writer, but it is possible that the rules of some countries already permit this mode of operation on the lower frequencies.

Standardization

The standardization question has two sides to it. On the one hand, the man who is thinking of building equipment wants a measure of assurance that his equipment will not be obsolete as soon as it is built. On the other hand, in the long-range picture it would be a shame to settle on less than the best possible system, the "best" in this case being an optimum compromise between many factors. At this early stage in the development of amateur slow-scan it would be unwise to set up rigid standards, since there has been insufficient experimentation to determine a "best" system. There are certain guiding principles which can be stated at this time, however.

1) A system should utilize the transmitting and receiving apparatus in the amateur station, and should not require any modification of this equipment.

2) A system should permit the use of simple equipment using low-cost, readily-available components.

3) The system performance should be good, even with simple equipment, when conditions are good, and by using more sophisticated equipment it should be possible to get satisfactory results under poor conditions.

4) The system should be compatible with both 50- and 60-cycle power frequencies to permit world-wide operation.

Fortunately, the basic elements — a long-persistence cathode-ray tube, sweep amplifiers, a flying-spot scanner, and power supplies — are common to all slow-scan systems. It is with the method of modulation and demodulation, sweep rates, sync, and a.g.c. that variations are apt to occur. The builder may want to make these circuits flexible since they are apt to change as the "best" system develops. Actually these circuits represent a relatively small fraction of the total investment, and their modification should involve no great expense.

The "on-the-air" work so far has been with the system outlined in August, 1958, *QST*. Operation with these sweep frequencies and other parameters will bring one in line with current practice.

There is some doubt about whether an s.c.a.m. system, such as that now in use, can ever be as free from the effects of fading as s.c.f.m., regardless of the type of a.g.c. employed, and WA2BCW is readying equipment to perform tests on an s.c.f.m. system similar to that used successfully in commercial facsimile practice. F.m. systems with small deviation are more susceptible to heterodyne interference than a.m., however, and care must be used in establishing parameters to insure that immunity to fading is not traded for a poor signal-to-interference ratio. Amateurs interested in participating in further slow-scan tests may contact WA2BCW.

Two systems will probably emerge. The first will be a system for the amateur bands. The maximum frequency involved will be 3 kc. or less, and the picture will contain about 120 lines. A second system, having a higher-resolution picture and requiring greater bandwidth, will be used for tape recording images when it is not necessary to transmit the image over the air.

Thanks are extended to John Plowman, G3AST, C. Grant Dixon, and John Tanner, G3NDT/T, for much of the material used in this article, and for additional interesting material on British TV activities, which, from space considerations, was not included. If *QST* readers show interest, certainly there will be more articles on TV and slow-scan in the future. QST

Amateurs interested in WA2BCW's slow-scan transmission system (see article above) will have an opportunity to copy some experimental transmissions over the First Army MARS SSB Technical Net on March 16, March 30, April 6, and April 13 on the net frequency of 4030 kc. The transmission will follow the regular technical program, which usually ends between 2200 and 2230 EST. The test signal will first be sent on s.s.b. and then repeated on a.m. The signal can be recorded on magnetic tape for later transcription. WA2BCW will transcribe for you if you send him your tape.

April 1935

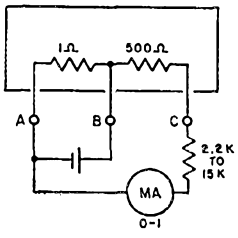
. . . The April, 1935, issue featured articles on transmitter construction. Don Mix led off with an explanation of how to get a kilowatt from a high-power band-switching 204-A amplifier requiring only 50 watts for excitation.

. . . Other technical articles explained how to step up the output of the high-stability 56-Mc. transmitter . . . construction of a compact 200-watt transmitter . . . practical operation of transmitting antennas . . . modernization of a popular low-power 1929 transmitter . . . and construction of an RK-20 Tri-tet transmitter for three-band operation.

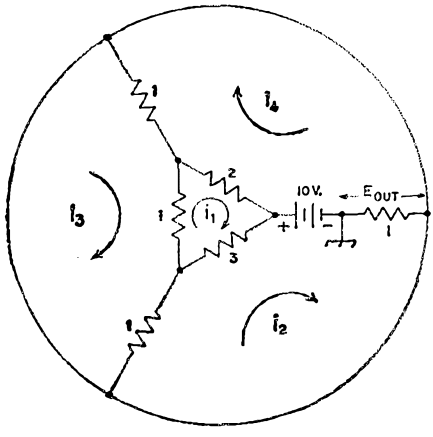
. . . This was the issue that carried one of the best fiction pieces in *QST* history — W4VT's tale of little Jim.

. . . Op News debunked the idea that "73" originated as a salute to Andrew Carnegie at a banquet celebrating his 73rd birthday in 1908. Not so, said the note — 73 was one of 92 expressions worked out in 1859 by telegraph people trying to save line time. Most of those figures have fallen into complete disuse after 100 years, but 73 is still going strong.

The black-box problem of last month requires the help of one resistor from the junk box. All our hero has to do is to connect (momentarily) the box as shown below. No meter reading indicates the absence of the 1-ohm resistor; a meter reading of 1 to 0.1 ma. (depending upon the series resistor) proves the presence of the 1-ohm resistor.



Charles White of 6024 Bock Road, S.E., Washington 22, D. C., writes: Our electrical hero, unable to resist symmetrical neatly-drawn circuit diagrams, tried to find the output voltage, E_{out}, by forming the product of $(i_4 - i_2)$ times one ohm. He had difficulty. How about you?



374 East St.,
Hingham, Mass.

Quist Quiz Editor:

Tsk, tsk. I am surprised at your printing the wrong answer to the February Quist Quiz in the March issue. Not only that the numbers are wrong, but the *principle* is wrong. True, with your 0.0145-henry choke and 485-μf. capacitor in that branch will be 4 amperes (at 400 cycles). But that 4 amperes is *not in phase* with the 6 amps through the 25-ohm resistor. For shame. The total current will be only 8.2 amps instead of 10

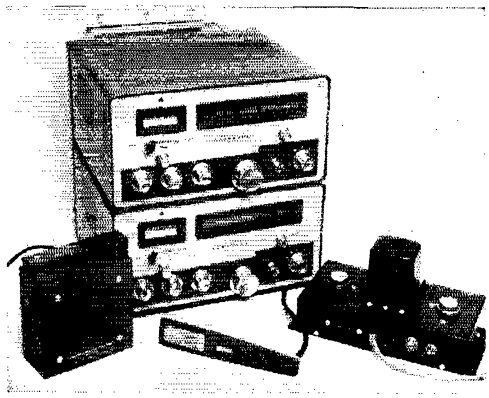
Try it again, using about 720 μf. for the capacitor and 0.0097 henry for the choke.

— *L. B. Stein, jr., W1BIY*

(By golly, you're right, Larry. And just when we had decided never to let anything phase us. — *Ed.*)

Heathkit Mobile Equipment

AN appropriate title for the units pictured would be a "cubic-foot QSO" — the receiver-transmitter combination offers v.f.o. control and 80-through 10-meter operation, yet the total volume occupied by both units is a mere cubic foot. The transmitter and receiver, although primarily designed to be used mobile, also comprise a very compact and flexible home station. The manufacturer, more than likely having this in mind, makes available two different types of power supplies: one a conventional 115-volt a.c. supply for home installations and the other a 12-volt d.c. transistorized supply for mobile operation.



The complete Heathkit mobile installation, including receiver, transmitter, speaker, microphone, and transistorized power supply. The mounting rack, bolted to the back of the receiver and transmitter, is partially visible at the top of the receiver-transmitter assembly.

Comanche Mobile Receiver

The Heathkit MR-1 mobile receiver is a single-conversion amateur-band superheterodyne using a bandpass crystal filter in its 3-Mc. i.f. amplifier. It is designed for reception of a.m., c.w. and s.s.b. signals on all amateur frequencies from 3.5 to 30 Mc. The block diagram of the receiver is shown in Fig. 1. The front end uses a 6BZ6 r.f. amplifier, and this stage is followed by a 6EA8, the pentode section of which is the mixer and the triode section the high-frequency oscillator. The high-frequency oscillator and mixer tuned circuits are tracked to give an i.f. output frequency of 3 Mc.

The output of the mixer goes into the 3-Mc. crystal filter, which has a bandpass characteristic 3 kc. wide at 6 db. down and a maximum width of 10 kc. at 60 db. down. The crystal filter contributes the receiver's adjacent-channel selectivity and the high intermediate frequency takes care of image rejection. After the crystal filter,

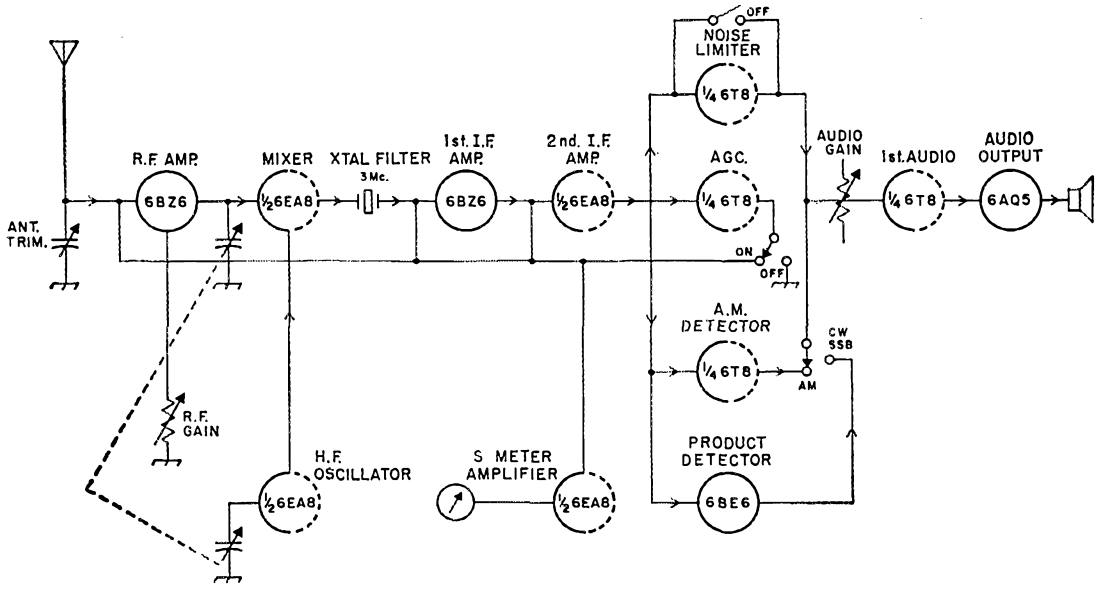
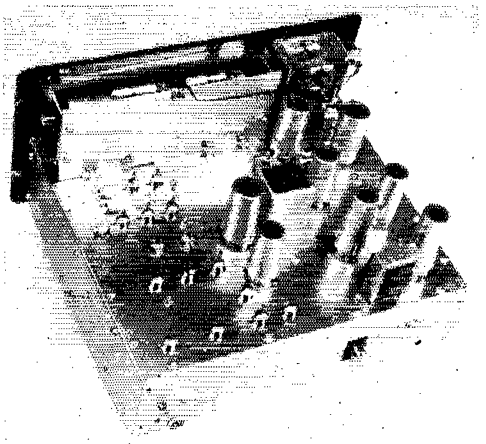


Fig. 1—Block diagram of the Comanche receiver.



Top view of the Comanche receiver chassis. Tubes from panel to rear and from right to left in this view are, front row, the 6T8 first audio-noise limiter-a.m. detector, 6BE6 product detector, and 6AQ5 audio output; second row, 6EA8 second i.f. amplifier—S meter amplifier, 6BZ6 first i.f. amplifier, 0A2 voltage regulator; third row, 6EA8 mixer—h.f. oscillator, 6BZ6 r.f. amplifier. The i.f. coils, in small shield cans, are at the upper right. The crystal filter is at the center.

another 6BZ6 is used as the first i.f. amplifier, and the output of this stage is impedance-coupled to the second i.f. amplifier, the pentode section of a 6EA8. The output of this tube is impedance-coupled to the detectors. Automatic gain control is applied to the r.f. stage and both i.f. stages when the a.v.c. switch is in the "on" position. With the a.v.c. "off," both i.f. stages are operated at maximum gain, with the manual r.f. gain control operative only on the r.f. stage. The triode section of the 6EA8, with the a.g.c. voltage applied to its grid, is used to drive the S meter.

A choice of detectors is available. A 6T8 is used as a conventional diode detector for a.m., as a series noise limiter, and as the first audio amplifier. A 6BE6 product detector is used for c.w. or s.s.b. reception, generating its own b.f.o. signal with a circuit resembling the type used for frequency conversion, as shown in Fig. 2. The audio output of the detector in use goes to the first audio amplifier, the 6T8 triode section, and thence to the 6AQ5 output stage. The 6AQ5 is transformer-coupled to an external 8-ohm permanent-magnet speaker.

An 0A2 regulator is incorporated to supply a constant voltage to the high-frequency oscillator and other critical circuits.

As shown in the bottom view of the receiver, the tuning mechanism uses five gears. The tuning capacitor drive gear is spring loaded to prevent backlash. Band calibrations are on a plastic cylinder which rotates into proper position behind the rectangular Lucite window in the panel when the band switch is turned. The dial drum is string driven from the band selector switch. The slide-rule dial pointer is also string driven from a large pulley located on one of the gear shafts. The dial scale is approximately five inches long, and thirteen rotations of the tuning knob are required for covering each band. The dial is calibrated every 20 kc. on 10 meters and at 10-kc. intervals on the rest of the bands. If more accurate frequency interpolation is desired, the flat dial pointer can be given a half twist at the time of assembly, so that its edge is perpendicular to the dial drum.

Assembling a kit of this sort is definitely not an undertaking for the beginner or inexperienced constructor. However, anyone who has previous kit-building experience under his belt and is willing to follow the well-laid-out and detailed construction manual can come up with a very satisfying finished product. Wiring of the r.f., high-frequency oscillator and mixer coils in the front end must be completed before the band switch is installed, since the coils become fairly inaccessible afterward. Because of the confined quarters, use of a pencil-type iron is highly recommended.

Alignment of the finished receiver requires an accurate signal generator, or a frequency meter such as the LM or BC surplus series. Included with the kit is the required alignment tool and a soft plastic nut starter which is an invaluable aid in starting nuts on screws in tight spots.

In the unit this reviewer constructed, the r.f. stage was slightly regenerative at maximum gain setting; however, this was readily cured by

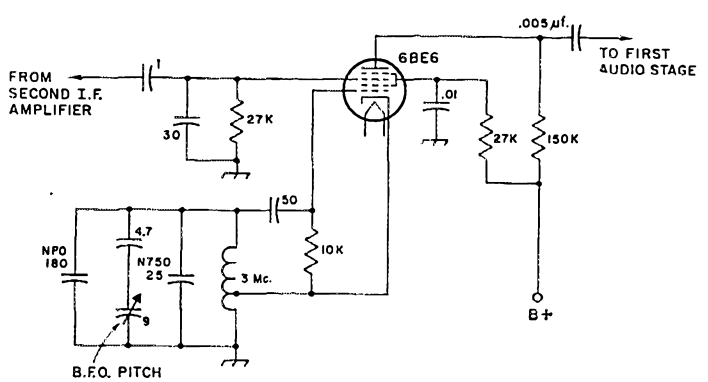
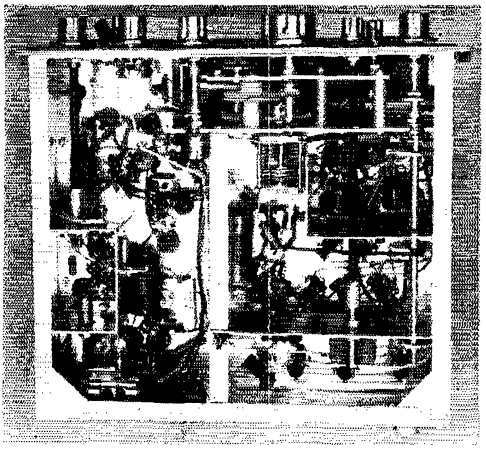


Fig. 2—Product-detector circuit uses a converter tube with self-excitation. The rectified d.c. voltage developed at the oscillator grid (No. 1) is one or two volts (negative) as operated in the Comanche.



Bottom view of the Comanche receiver. At the right, from bottom to top, are the r.f. coils, mixer coils, oscillator coils, and gear-driven tuning mechanism. The three sets of coils are shielded from each other, and a vertical partition separates the front end from the i.f. and audio sections. The rectangular shield compartment at the left houses the product detector.

installing small parasitic chokes in the plate and grid leads of the r.f. amplifier. When peaking the r.f. stage be sure the antenna trimmer is carefully set; its adjustment is critical. One slight improvement which perhaps might be desirable would be to increase the available audio level, which is a little on the low side.

Power requirements for the Comanche receiver are 350 volts d.c. at 125 milliamperes, maximum, and either 12 volts at 1.65 amperes or 6 volts at 3.3 amperes. The finished unit weighs 15 pounds and measures 6⅛ by 12⅛ by 9 15/16 inches — slightly less than a half cubic foot in volume. Our total construction time, including alignment, was 31½ hours.

Cheyenne Mobile Transmitter

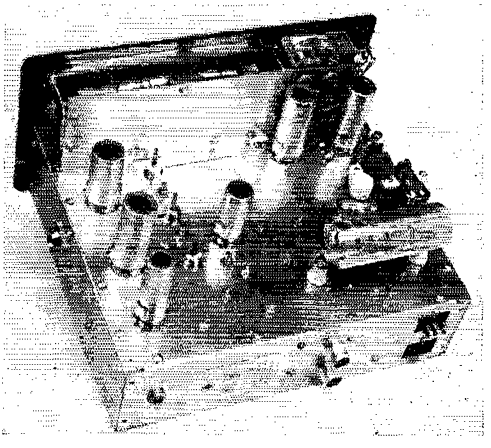
The Heathkit MT-1 mobile transmitter is a v.f.o.-controlled all-band (80 to 10 meters, inclusive) rig with a built-in controlled-carrier modulator. Referring to the block diagram, Fig. 3, it can be seen that the r.f. tube lineup is fairly conventional, with a 6AU6 v.f.o., 6CL6 buffer, 5763 driver, and 6146 final. The audio section has a 12AX7 speech amplifier and 6DE7 screen modulator. The controlled-carrier screen modulation system permits peak-envelope inputs up to 90 watts, which should result in an effective maximum carrier output of about 30 watts at 100 per cent modulation.

The v.f.o. is a series-tuned Colpitts circuit with output on either 1.75 or 7 Mc., the proper range being internally selected depending on the setting of the transmitter band switch. A spotting switch arrangement allows the v.f.o. to be turned on for frequency checking prior to putting the transmitter on the air. The v.f.o. screen and plate voltages are regulated by an 0A2 tube. The buffer stage is untuned on 80 meters, slug-tuned to 40 meters for operation on 40, 20, and 15, and slug-tuned to 20 meters for final output on 10 meters. The driver is straight-through on 80 and 40, doubles to 20, triples to 15, and doubles to 10 meters. Pi-network interstage coupling is employed between the driver and the final stage, and the correct coil tap is selected by the exciter-section wafer of the band switch. The final amplifier tank is a pi network, shunt-fed through a 2.5-mh. r.f. choke. For c.w. operation the buffer and v.f.o. run continuously, with the final amplifier and driver cathode-keyed. The metering circuit in the transmitter can measure either final amplifier grid current or final amplifier cathode current.

The modulation system is similar to that in the DX-35 and DX-40 transmitters,[1] using a triode as a series screen modulator. The modulator tube in the Cheyenne is the "heavy" triode section of the 6DE7. As in the earlier transmitters, the modulator's average plate current is adjusted, by means of a control tube which responds to the average speech level, to vary the r.f. carrier level to correspond to the modulating level. The "light" section of the 6DE7 is used for this purpose. The speech amplifier preceding the modulator and control tube is a cascade resistance-coupled affair using a 12AX7.

Many of the mechanical details in the Cheyenne are similar to or identical with those in the Comanche mobile receiver. Both the dial drive arrangement and front panel are alike. The dial length and frequency calibration are also the same — that is, 20 kc. per division on 28 Mc.

[1] "Recent Equipment," *QST*, September, 1956, p. 29.



In this view of the Cheyenne mobile transmitter the tubes starting at the top right, are the 5763 driver, 6CL6 buffer and 6146 final amplifier. The 6AU6 v.f.o. tube is in the center. Along the left are the 12AX7 speech amplifier, 6DE7 modulator and carrier control tube, and 0A2 voltage regulator. The plate r.f. choke, tank coil, and tuning capacitor are grouped around the 6146 tube at the right. Located from right to left on the rear wall of the chassis are the power plugs, antenna connectors, and key jack. The microphone connector is mounted on the left-hand chassis wall.

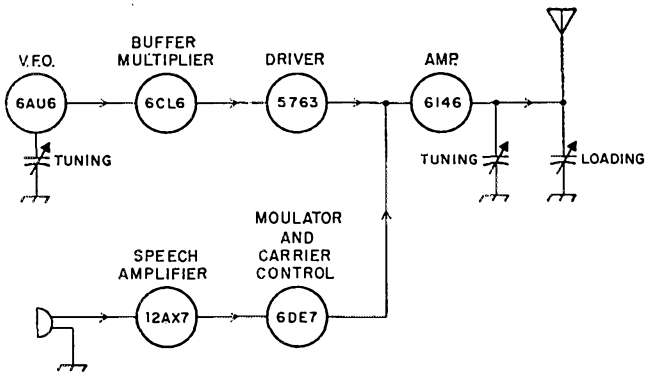
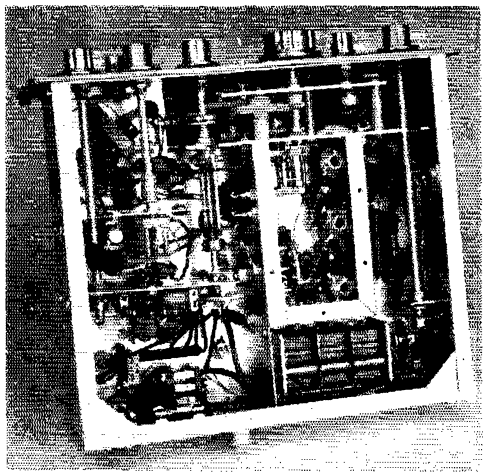


Fig. 3—Block diagram of the Cheyenne transmitter.

and 10 kc. per division on all other bands.

The v.f.o. is completely shielded, and power connections are brought out through feed-through bypass capacitors. The buffer, driver and amplifier stages are isolated from one another by rectangular shield plates, minimizing stray coupling between stages which could result in instability. The plate tuning capacitor, mounted above the chassis beside the 6146, is driven by a right-angle gear arrangement. The loading capacitor, underneath the chassis at the rear, is also driven by a set of right-angle gears.

All control switching, including antenna changeover from receive to transmit, is handled by an internal relay. Power input and output receptacles are mounted at the back of the chassis, and are wired for the compatible Heathkit power supplies (MP-1 and UT-1) and Comanche receiver. Included with the transmitter is a ceramic-type push-to-talk microphone.



Underneath the chassis of the Cheyenne transmitter. The center shield compartment contains the v.f.o. To its left are the band switch, buffer, driver and final amplifier circuits. The relay for control switching and antenna changeover is at the lower left. The speech section is to the right of the v.f.o. compartment. The 3-section capacitor at bottom right center is the final amplifier loading capacitor.

Power requirements for the Cheyenne are 300 volts d.c. at 100 milliamperes, 500 to 600 volts d.c. at 150 ma., and either 12 volts at 2.35 amperes or 6.3 volts at 4.7 amperes. The finished unit weighs 15½ pounds and measures 6⅛ inches high, 12⅛ inches wide, and 9 15/16 inches deep. Total construction time in our case was approximately 28 hours.

Transistorized Mobile Power Supply

The Heathkit MP-1 transistorized power supply was designed primarily to furnish all the necessary power to the Heathkit mobile transmitter and receiver units. This supply is the usual transistor type having a feed-back winding on the power transformer to set the transistors into oscillatory switching, as has been described several times in recent issues of *QST*. However, the rectifier-filter arrangement differs from most of those previously described in using a full-wave voltage doubler circuit rather than a center-tap or bridge rectifier. This is apparently a matter of economics, primarily; the doubler circuit requires only half the number of semiconductor rectifiers that would be needed with either the center-tap or bridge circuits to deliver the same output voltages. (This is because the peak inverse voltage on each rectifier group is twice as great with either of the latter rectifier circuits.) The circuit is shown in Fig. 4. The 100-ohm resistors between the first and second filter capacitors in each leg add considerably to the ripple attenuation since they represent about 20 times the impedance of the 40-μf. output capacitance at the 800-cycle ripple frequency.

The pilot lamp across the 20-ohm resistor serves as a current indicator, lighting up to about normal brilliance at the maximum permissible current drain on the supply.

A 1000-μf. electrolytic capacitor is connected directly across the battery at the primary input side of the supply to bypass the battery circuit and prevent the 400-cycle hash from feeding back into the transmitter and receiver. There is also a self-contained control relay for turning on

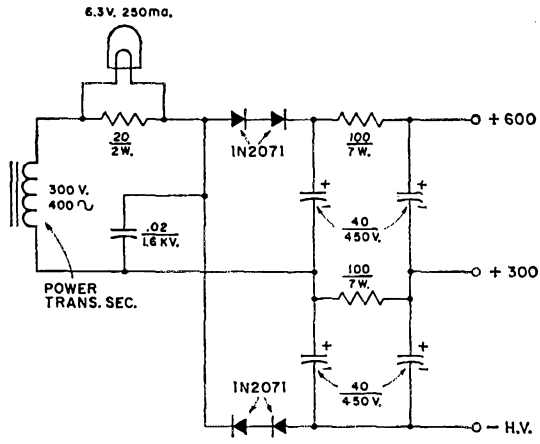
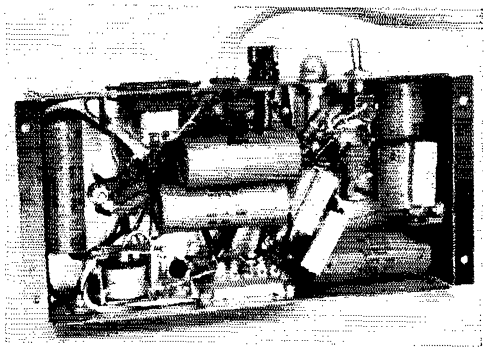


Fig. 4—Rectifier-filter circuit used in the transistorized power supply.

the supply, operated by the auxiliary control circuits in the mobile transmitter and receiver. A manual toggle switch on the chassis offers an alternative means for turning on the supply. The 12-volt primary circuit is protected by a 15-ampere fuse.

After constructing the power supply unit it would be wise to check the relay contacts with an ohmmeter before applying power. In the unit constructed here these contacts were covered by some type of insulating coating which had to be cleaned off before the supply would function.

Power specifications of the supply are as follows: Input voltage 12 to 14 volts; input current, 4.5 to 15 amperes (varies with load); maximum output power, 120 watts. This maximum power may be taken from either tap alone or distributed as desired between the two taps. In the transmitter-receiver combination the distribution is 90 watts from the high tap (600 volts at 150 ma.) and 30 watts from the low tap (300 volts at 100 ma.). Over-all dimensions are $9\frac{1}{16}$ by $4\frac{3}{4}$ by $5\frac{1}{16}$ inches. The total weight is 5 lb. 8 oz. Total construction time was approximately 6 hours.



The transistorized mobile power-supply chassis. From right to left on front (top) wall are the external power switch, output-current indicator bulb, primary fuse, primary input power cable, and power-supply output plug. The semiconductor diode rectifiers are mounted on the terminal strip at the lower center. The control relay is to the left of the terminal strip.

Mobile Accessories

Optional accessories styled to match the receiver, transmitter and power-supply units include a 5-inch speaker (AK-7) to be used in conjunction with the receiver, and a mobile mounting base (AK-6) which is designed for mounting of the mobile transmitter and receiver on the transmission hump of the car floor. Also available is an all-band mobile antenna (RM-1). The manufacturer is the Heath Company, Benton Harbor, Michigan. — *K. C. L.*

Strays

Hams interested in good-paying jobs with generous vacation, sick leave and retirement should investigate the civilian positions of electronic inspectors for the U. S. Navy. Write to Executive Secretary, Board of U. S. Civil Service Examiners, 17 Brief Avenue, Upper Darby, Pa., for application form 5000-AB. Applicants are graded on written examinations plus experience.

—•••—

A couple of novel QSOs. On aurora the other night K1JWK worked K8III and W8MMM, both of whom are in Novelty, Ohio.

—•••—

W6TKV gave a call on 80 c.w. the other night and who should answer but W7TKV from Boulder City, Nev., who said he used to be W6TKV back before World War II. The present W6TKV uses a ten-meter dipole for an antenna.

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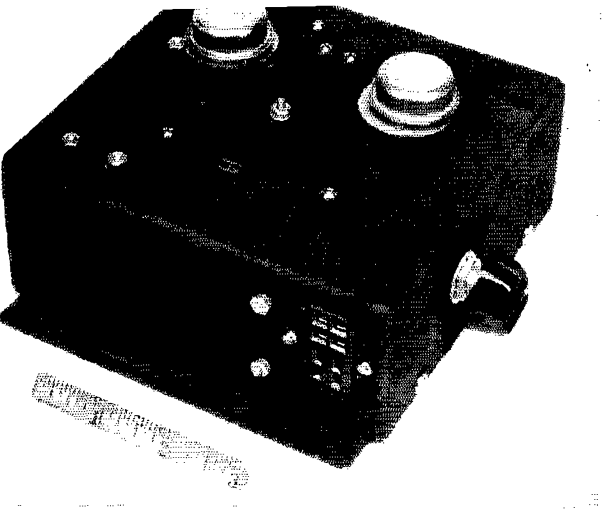
W9DBO's post office box number is 73!



This mobile power supply is only six inches square, but delivers 120 watts of d.c. at 550 volts. The circuit is given in Fig. 6.

It's economical to build your own transistor mobile power supply, but you have to know how to arrive at a satisfactory design. This article outlines the procedure. It also describes a high-power supply that you can duplicate without any paper work at all.

BY J. G. TETZ,* K2BQK

Design and Construction of Transistor Power Converters

THERE has been a growing interest in transistorized power converters for mobile operation, because they are more efficient, more reliable, and can have less noise and ripple than either a vibrator type or a dynamotor. Over the past two years many articles on transistorized power converters with emphasis on the theory of operation [1] have been published. This paper is primarily intended to facilitate both calculations and construction. The following is a collection of design approximations and formulas suitable for an initial design. The major problems considered are core selection, transformer design and winding, feedback and bias design, and heat dissipation.

Core Selection

The first problem to consider in designing a power converter is the selection of a transformer core. The selection of the core is controlled by several related variables, namely: saturation flux density, core area, available winding space and frequency. For a high-power converter — 100 watts — all of these must be considered but among them, available winding space is most important. Both the primary and secondary windings occupy appreciable volume; the primary has few turns of large wire and the secondary has many turns of small wire. The author has used successfully a toroidal core which has an inside diameter of 1.25 inches for a 100-watt converter. Any one of a variety of core materials which have a square hysteresis loop may be used. Materials such as Deltamax (Arnold Engineering Co., Marengo, Ill.) have been found satisfactory and economical.

Winding the Transformer

There are three windings to be put on the core (Fig. 1). The primary should be first, the secondary may be next, and the feed-back winding last. There is a possibility that the feed-back turns might need modification after assembly, and winding the feed-back coil last enables such modifications to be made.

The number of primary and secondary turns can be calculated from the following formulas:

$$\text{Primary: } N_p = \frac{V_s \times 10^8}{12.9 f A B_s} \text{ turns}$$

$$\text{Secondary: } N_s = \frac{N_p E_o}{2V_s} \text{ turns}$$

where: N_p = total turns in primary winding
A = cross-sectional area of core in square inches
V_s = d.c. input voltage
f = operating frequency in cycles per second
B_s = saturation flux of core in gausses
N_s = secondary turns
E_o = peak-to-peak output voltage required from transformer

A practical procedure for determining the number of primary turns is to work experimentally, using the formula as a check. First choose a wire size that will handle the current (see wire table in *The Radio Amateur's Handbook*). Then wind the maximum number of turns that will fill the inside circumference of the core following the

* 79 Western Ave., Morristown, N. J.

[1] Chambers, "Transistorized Power Supply," *QST*, February, 1958.
Johnson, "High-Power Transistorized Mobile Power Supply," *QST*, April, 1958.
Karl, "100-Watt Transistor Mobile Power Unit," *QST*, June, 1958.

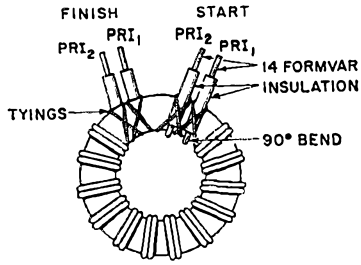
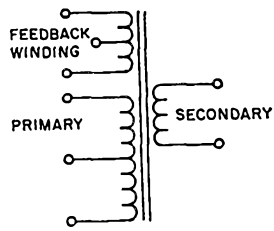


Fig. 1—Transformer winding details.



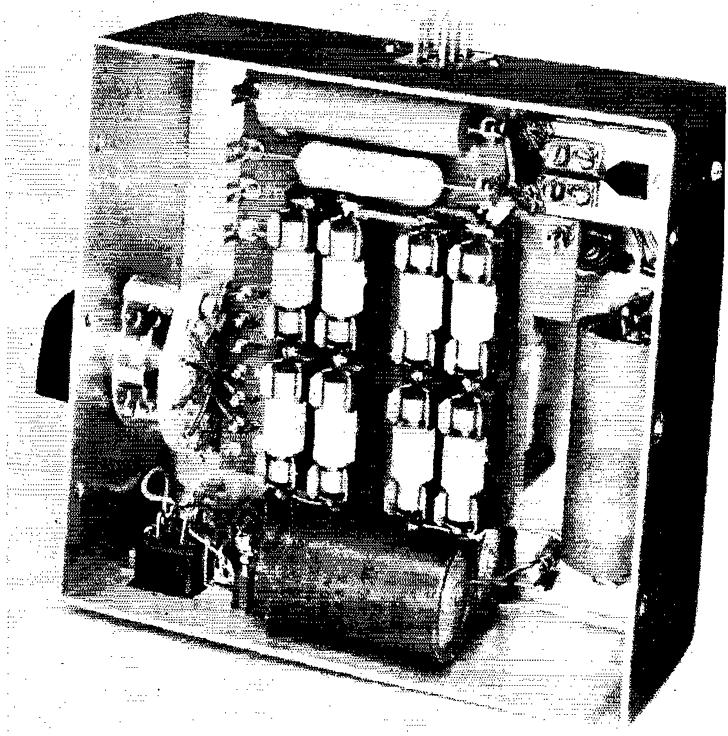
procedure described below. Next, the formula may be used to find the expected frequency. This frequency should not be so high that the transistor switching times are an appreciable part of the cycle nor should it be too low since this will cause excessive copper losses. A frequency of about 1000 c.p.s. is optimum for most power transistors. If the calculated frequency is very much different from this the number of primary turns should be changed.

To protect the first layer of the winding, first wrap the core with Scotch electrical tape (acetate cloth) overlapping each turn about half the width of the tape on the inside surface of the core. Wind the primary first (Fig. 1). This winding must be bifilar to effectively eliminate spiking. To start, bend a 90-degree angle approximately 3 inches back from the ends of a pair of No. 14 Formvar wires. Insulate the two leads up to the first bend to protect against mechanical damage. Tie the two leads snugly to the core (Fig. 1). Proceed to wind the primary by keeping the wires tight, and square off the turns around the core. Finish the windings the same as they were started -- i.e., the same insulation, tying, and so on. It is necessary to distribute the winding evenly around the inside circumference of the core for further suppression of spiking. Cover the entire primary winding with ½-inch wide crepe-paper tape.

To wind the secondary, a shuttle must be made. A Popsicle stick with a V cut in both ends makes an excellent shuttle. The shuttle will not hold enough wire to wind the complete secondary, so splices will have to be made. The supply can be made more versatile by making use of the splice points for output taps. For the first three or four times around the core, the secondary turns will lie between the primary wires on the outside circumference of the core. After that, the core should take a smooth doughnut shape. Finish by covering the windings with ½-inch crepe-paper tape.

Feedback and Bias

Feedback and bias are very closely interrelated. Fig. 2 shows a simplified feed-back and bias network for the common-emitter configuration. Note that R_1 and R_2 form a voltage divider that lowers base bias to enable oscillations to start. Note also that R_1 is in series with the feedback windings. To compute the number of turns in the feed-back winding and the values of R_1 and R_2, proceed as follows: First choose the ratio



The transformer is not visible in this view, being mounted on the other side of the phenolic board that holds the silicon rectifiers and the bias resistors. The high-voltage bleeder resistors are at the lower left, between the filter capacitors and the output socket. The control relay is in the upper right corner.

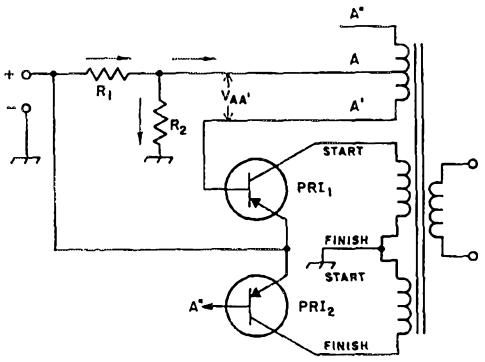


Fig. 2—Simplified feed-back and bias network for common emitter configuration.

of feed-back to primary-winding turns. A good approximation is 1/5 to 1/6. Then, for example, if $N_p = 36$ turns,

$$N_{AA'} = \tfrac{1}{5} \times 36 \quad \text{(where } N_{AA'} = \tfrac{1}{5} \text{ total feed-back turns)}$$
$$= 7 \text{ turns, approximately}$$
$$V_{AA'} = \frac{N_{AA'} \times 2V_s}{N_p}$$
$$= \frac{7 \times 24}{36}$$
$$= 4.7 \text{ volts}$$

To continue the calculation, it is necessary to know the base voltage *vs.* collector current and base current *vs.* collector current characteristics of the transistor (Fig. 3), which may be obtained from the transistor manufacturer. From these

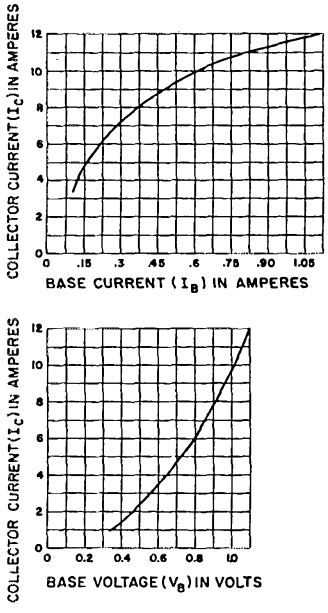


Fig. 3—These are typical power-transistor curves of the type used in calculating the bias-network constants in a transistor power supply.

curves we obtain the base voltage and current required for the desired power output. For a Delco 2N441, assuming a collector current of 12 amperes to get the required 100-watt output,

V_B required = 1.1 volt
I_B required = 1.1 amp.

Therefore

$$V_{R1} = V_{AA'} - V_B \text{ req.}$$
$$= 4.7 - 1.1$$
$$= 3.6 \text{ volts.}$$
$$R_1 = \frac{V_{R1}}{I_{B1} + I_{R2}}$$

where $I_{R2} = \frac{1}{10} I_B$

for proper cold starting. Therefore

$$R_1 = \frac{3.6}{1.1 + 0.1}$$
$$= 3 \text{ ohms}$$
$$R_2 = \frac{V_s - V_{R1}}{I_{R2}}$$
$$= \frac{12 - 3.6}{0.1}$$
$$= 84 \text{ ohms}$$

A resistance of 100 ohms would be satisfactory, since the value of R_2 is not highly critical.

Temperature and Heat Sinks

It is necessary to provide a heat sink of the proper size to dissipate the heat developed at the collector junction. The chassis itself may be used for this purpose. The collector junction power, the maximum rated junction temperature, the thermal gradient, and the temperature drop from mounting base to heat sink (see Fig. 4)

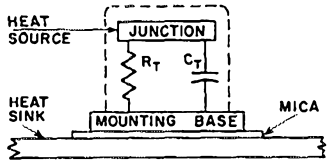


Fig. 4—Schematic representation of heat dissipation of transistor on heat sink.

must be obtained from the manufacturer's data for calculating heat-sink area. The procedure is as follows:

1) Thermal Gradient (Delco 2N441)
Gradient from junction to mounting base (R_t) = 1.2°C./watt
From base to mounting = 0.2°C./watt
Through mica washer = 0.5°C./watt
Therefore the total thermal gradient = 1.9°C./watt.

2) Collector Power

The measured power dissipated in one transistor while turned on was measured to be 8.5 watts (0.7 volt at 12 amp.). Because each transistor works half the time, this is also the average power for both transistors.

3) The temperature drop from collector junction to heat sink is therefore:

$$1.9°C./watt \times 8.5 \text{ watts} = 16°C.$$

4) If the maximum rated junction temperature is 85 degrees C., then the thermal resistance required of the heat-sink area is

$$= \frac{\text{coll. temp.—temp. drop—air temp. of heat sink}}{\text{collector power to be dissipated}}$$

$$= \frac{85°C. - 16°C. - 45°C.}{8.5 \text{ watts}}$$

$$= 2.8 \text{ deg. C./watt.}$$

The heat-sink area may now be determined from a curve of temperature *vs.* area (Fig. 5)

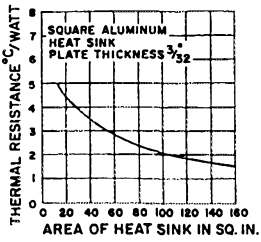


Fig. 5—Thermal resistance of 3/32-inch aluminum sheet.

supplied by the manufacturer. In the above case it is 60 square inches for two transistors. Thus there is no need to make the converter excessively large. In building most power converters the chassis area required to mount the components (including the transformer, relay for switching, output voltage switch, output and input filters) is sufficiently large for adequate heat dissipation. For the example, the unit described below has a chassis area of 150 square inches.

A 120-Watt Converter

Fig. 6 shows the circuit diagram of a converter designed to deliver 120 watts output, ICAS rating. Output power *vs.* efficiency and voltage are shown in Fig. 7. One method of checking the performance is to take a load curve. If all components — transistors, primary wire, secondary wire, and rectifiers — are within their maximum current ratings there should be no significant drop in efficiency at high power levels. If the efficiency curve begins to drop off at or near the power that the converter is expected to deliver, an optimum design has not been achieved and a dangerous heating condition may exist: the transistors are not driven into complete saturation and are absorbing an excessive portion of the input power. A decrease in the value of R_1 usually will correct this condition.

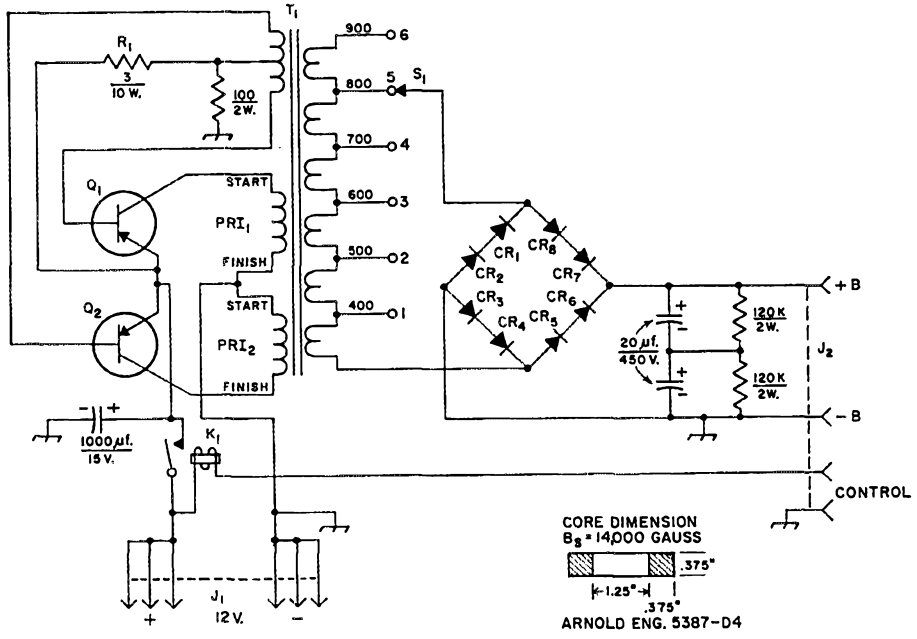


Fig. 6 — Circuit of 120-watt power supply. Resistances are in ohms.

CR1-CR8, inc.—Silicon rectifier, 500 ma., 400 volts inverse peak (Sarkes Tarzian M-500).
J1—6-contact male chassis-mounting connector (Jones).
J2—Chassis-mounting connector, female, 4 or more contacts (Jones).
K1—S.p.s.t. relay, 12-volt coil, 15-20 amp. contacts (Potter & Brumfield MB series).
Q1, Q2—P-n-p power transistors, 13 amp., 40-volt breakdown (2N441).
R1—3 ohms, 10 watts.
S1—Rotary, 1 section, 1 pole, 6 positions.
T1—Wound as described in text on core shown above. Primary, 36 turns No. 14 Formvar, center-tapped; secondary, 900 turns No. 26 Formvar, tapped at 400, 500, 600, 700 and 800 turns; feed-back winding, 15 turns No. 26 Formvar, center-tapped.

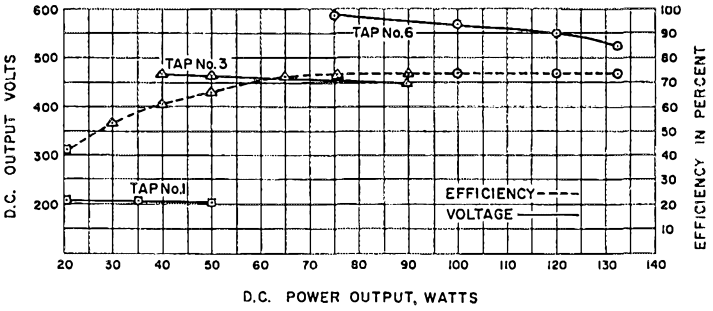


Fig. 7—Power output, output voltage, and supply efficiency of the transistor power-supply circuit shown in Fig. 6.

Because of the bifilar winding of the primary, no spike transients occurred in the design during the turn-off and turn-on of the transistors. This enabled good performance to be obtained with transistors having a 40-volt breakdown rating.

Construction of power converters would be an excellent club project. Items such as the acetate tape, crepe-paper tape and wire could be used more efficiently. Transistors, cores and diodes can be bought in volume much more cheaply, thus making the cost of such a project well below commercial prices. QST

Strays

K4EEU has had numerous inquiries concerning his Phasing-Type Sidebander (November, 1959, *QST*, p. 15), especially about the round object circling T_3. This is a magnetic shield constructed from a piece of pipe, and was eliminated in a second model merely by moving the bias power transformer T_1 a few inches further toward the rear of the chassis. K4EEU will furnish a ¾-scale layout print of the front panel and chassis, at his cost of $1.00, which clarifies some of the constructional details. With this print he also includes some mimeographed data on typical r.f. voltage readings.

—···—

Referring to the first Stray on page 63 of February *QST*, W0GXV now tells us that the two tapes he donated to the Voicespondent Club cannot be copied for non-members of the Club, sightless or otherwise. But, W0GXV will try to arrange for the sightless to get free copies of these two tapes if they will contact him first by tape or letter. Don't send any more inquiries direct to the Mr. Griffith mentioned in the original Stray. That gentleman was swamped with requests.

Have any old political campaign buttons or badges, or other souvenirs of presidential election campaigns in the United States? Contact K2TMJ, who has a prize-winning collection.

—···—

K1JFF had been working toward WAS, WAVE, and WAC for two years, and still needed two states, a VE7, and an Asian. On three successive nights he worked the two missing states, the VE7, and a KR6, and it was the first time he had even heard any of these prefixes!

—···—

The Army's Deputy Chief Signal Officer, Earle F. Cook, W4FZ, was recently promoted to the rank of major general.

—···—

The Franklin Technical Institute Radio Club has learned that there *is* a Santa Claus. W1NWO has just donated to the Club his entire station, consisting of a.m./s.s.b. kilowatt transmitter and 75A-4 receiver. Incidentally, the Club gives code and theory classes each week, and further info on these could be obtained by contacting W1QZF.

Thirty-five years service was the record rung up by Communications Manager F. E. Handy, W1BDI, on February 20 of this year, it having been that number of years since he first reported to the Headquarters as Acting Traffic Manager.

QST for

Announcing the formation of

LARSEN E. ENTERPRISES, INC.

"Servicing the amateur from coast to coast"

TO BORROW a slogan from our favorite radio magazine, we are "devoted entirely to amateur radio." We will not sell to anyone who is not a licensed radio amateur, except at list prices. As the authorized dealer for every manufacturer in the world, we stock only the finest equipment in every price range.

You are invited to park your car free in our spacious lot at the rear of the west wing, just off Route 128. If you fly in, avail yourself of the facilities on the landing strip, and our smiling pilot will be pleased to bring you without delay to our heliport on the roof. However you travel, a short escalator ride brings you to our SHACK OF TOMORROW, where the latest in new transmitters and receivers are on display and ready for your personal tests and comparisons. Any normal questions you may have will be cheerfully answered by our college-trained hostesses; sticky questions of a highly technical nature will be referred to the proper Resident Field Engineer. Ask to see the revolutionary QS-59 receiver, which *QST* calls "one of the best-kept secrets of the radio industry" (April, 1959, page 67).

The budget-conscious amateur is invited to use the Family Entrance to our GIVEAWAY SALON, where we feature the finest in slightly-used equipment. Every transmitter, receiver, beam and tower on display in this department has been brought to better-than-new perfection by our graduate engineers, and only factory-authorized parts and test procedures are used for the purpose.

The do-it-yourself amateur will find a wide variety of kits on display in the KIT CABIN in the east wing. We include *free* with each kit purchase the full use of our WONDER WORKSHOP, with tools, free solder, air conditioning and helpful advice by the KIT COUNSELOR. If you don't have the time to assemble the entire kit yourself, one of our engineers will be glad to do it for you, just for the pleasure it gives him. No tipping, please.

When you have made your selection, one of our constant attendants will be pleased to introduce you to our CREDIT CHAIRMAN, who is also president of the local chapter of the Optimist's Club. He will be happy to arrange time payments like you have never seen before.

In the basement the OLD TIMER is in charge of YE PROVERBIAL JUNKE BOX, where the discriminating buyer may purchase *individual parts* for experimentation and replacement. We suggest you telephone first (be our guest — reverse the charges) to insure that we have your component in stock, to avoid disappointment on your part and embarrassment on ours. Sorry, but all JUNKE BOX sales are strictly cash.

No visit would be complete without a stroll through the PRINT SHOPPE. Here you will find exciting authentic reproductions of the rarest QSL cards in the world, many at fairly reasonable prices. Included in the purchase price will be your call and signal report, filled in by our PATIENT PENMAN in an exact duplicate of the original handwriting and ink. These QSL cards are rapidly becoming very popular for decorative and other purposes; they make excellent gifts for "the ham who has everything, almost."

Next month we will tell you about our mail-order department, featuring free Air Express to any point on the globe. In the meantime, if you are in the vicinity, drop in and see us; we think our service will please you.

73,

Larsen E. Rapp
President

Larsen E. Enterprises, Inc., Kippering-on-the-Charles, Mass.

The Santa Clara County (Calif.) group had W6ZRJ (l.) and W6OOY on the job.

Flexing Our Emergency

Communications Muscles

The 1959 Simulated Emergency Test

BY GEORGE HART,* WINJM

THE 1959 SET was another good test of the Amateur Radio Emergency Corps and the National Traffic System, complete with its high points, low points, good and bad performances and unusual occurrences. After it was all over and reports had stopped drifting in and your NEC had cursed and sweated his way through the statistical analysis, it turned out that the national point total, as well as most other data, showed a slight increase over the 1958 performance. There were the usual "old faithful" ECs who turned in complete and accurate reports, a goodly number of new reports from eager-beavers taking part in the SET for the first time, and about the customary amount of sloppiness in reporting. But all in all, it looks as though the SET is here to stay.

This SET — What Is It?

Early in October of each year, after everybody has come back from vacation and is tired of loafing, we pry off the lid of the active operating season by throwing a nationwide test of our amateur emergency communication and traffic handling facilities. Each Emergency Coordinator appointee is requested to conduct some kind of a simulated emergency shindig during a specified week end, in cooperation with his local Red Cross or civil defense organization. Each AREC member originates a message to ARRL Headquarters, and messages are also filed from local Red Cross chapters to their national headquarters and from local c.d. directors to state c.d. director and OCDM regional and national administrators. It is at once both a local and nationwide activity of both emergency communications and traffic handling facilities for the purpose both of a public demonstration and an annual evaluation of our capabilities. If you weren't in it, you missed some fun, OM.

ARRL Activities

Almost 1500 messages were received from ECs and AREC members, and another two hundred were received from other officials at ARRL headquarters. Altogether, the count of traffic delivered to the headquarters stands at 1667, this largely concentrated over a period of three or four days. W1AW was kept real busy, copying 835 messages over the air. W1YBH, Connecticut's active PAM, phoned in 315 received at his station. W1NJM delivered 192 and W1BDI 131. Other Connecticut amateurs who delivered messages to headquarters, either by telephone or mail, were K1EKJ (45), W1YNC (41), W1EFW (17), K1HZT (7), W1DPO (6), W1HRO (2) and W1DAV (1). The rest were mailed in from outside Connecticut, 56 of them from the west coast.

Although all participating AREC members did not send us messages, we can conveniently break down receipts into call areas as a pretty good general indication of activity concentrations. As usual, the Fourth Call Area is 'way out in front in this respect, 369 messages having been received from AREC members in the southland. The Ø (Zeroth?) Call Area sent us 240 messages to take second place in '59. Following down the list, we have the Second Call Area with 145, the Ninth with 139, the Eighth with 133, the Seventh with 119, the Fifth with 102, the Sixth with 100, the First with 59 and, down at the bottom as usual, the Third with 36. We also received 27 messages from the VEs and 11 from the KP4s.

The greatest number of reports was received from Minnesota (37), but most of these were included in the report of the SEC. From the standpoint of separate reports, Michigan and Ohio were tops, with 12 each. Michigan contributed the highest score (4309) to the national total, largely because of the Detroit Metropolitan score of 3222. Among other high scoring sections were New York City-Long Island (2385), Eastern Florida (1796), Ohio (1396), Santa Clara Valley (887), Illinois (839), Indiana (839), Eastern New York (697), Tennessee (655),

* National Emergency Coordinator, ARRL.

Colorado (593) and Massachusetts (592). In most of the high-scoring sections, the performance of a single large city or metropolitan area was the principal contributing factor. Among large cities taking part we note Detroit, Chicago, New York, Miami, New Orleans, Cleveland, Houston, Louisville, Washington, St. Louis, Baltimore and Toronto. Conspicuous by their absence were Los Angeles, San Francisco, Seattle, Minneapolis, Philadelphia, Dallas, Kansas City and Pittsburgh. But the big city performance was much better than in 1958.

And we can't help but remark what a whopping national total we would have had if all who reported by radio had also reported by mail to submit their scores!

V.I.P. Messages

Headquarters received messages from a number of non-amateur officials. South Carolina was a major contributor in this respect, with messages of greetings and felicitations from officials of Spartanburg, Rock Hill, Fort Mills, Lancaster, York County, Ebenezer, Hickory Grove, McConnels, Sharon, Smyrna and Clover. Also heard from were officials of Dade County, Miami Springs, Pollack, Cocoa Beach, Eau Gallie, Brevard County and Pinellas County, Fla.; San Gabriel, Sunnyvale and Oakland, Calif.; Sioux City, Iowa; Kansas City, Kans.; Harris County and Houston, Texas; Berrien County, Mich.; Chicago, Ill.; Denver and Jefferson County, Colo.; Pine Grove, Pa.; Cincinnati, Ohio; Schenectady County, N. Y.; and Moorestown, N. J. Formal messages were also received from the director, OCDM Region 1 and the Communications Officer, OCDM Region 6. Thanks to all the above and to any we may have missed for taking the trouble to let us hear from you during the SET.

Red Cross Activities

As a primary to-be-served agency, the American National Red Cross has always played an important part in the SET as AREC groups file messages from local chapters to national headquarters. ANRC communications headquarters in Richmond, Va., has informed us that during the 1959 SET messages were received from 34 states, a total of 275 messages. California headed the list, with 75 messages, and South Carolina was second with 72. Florida and Texas tied with 17, Minnesota 12, Michigan 8 and Oklahoma 6. Others originated five or less. Those states *not* heard from were Ala., Ariz., Ark., Conn., Del., Ga., Maine, Mass., Nebr., N. H., N. Mex., N. C., N. Dak., Tenn., Utah and Washington. Red Cross messages were collected at central points throughout the country and relayed to headquarters, and W4PHL calculates that 1230 message handlings were accomplished during the test.

Civil Defense Activities

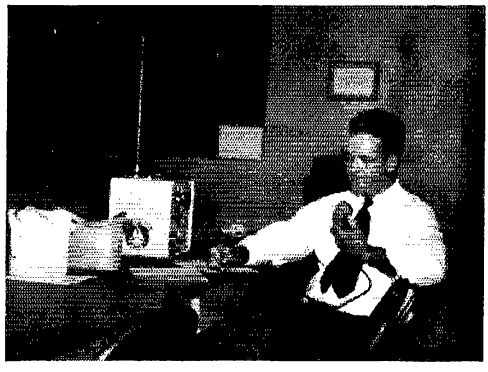
As usual, the SET had a strong civil defense flavor, with many RACES units participating in

Spark-plugging an active AREC group in Reno, Nevada, is EC W7PC/W7HPP, shown above operating from the Reno-Sparks-Washoe County C.D. Communications Bus during the SET.

their AREC hats, just as AREC units participate in their RACES hats during "Operation Alert."

Prior to the test (but not *much* prior) we wrote to OCDM Operational Headquarters in Battle Creek and to each of the eight OCDM regional offices. Considering the short notice we gave them, the response was excellent. Four regions definitely indicated that they would participate, and sent us monitoring schedules, which were put out over W1AW in the form of a special bulletin. OCDM Operational Headquarters (OHQ) at Battle Creek also asked all regions to participate and give them a report.

These reports were summarized by W8DUA and forwarded to us. They showed participation by five OCDM regions, plus the headquarters. Actually, only two regions did not participate, because the eighth region of OCDM was just being organized at the time of the test. We salute the active communications and radio officers of these regions, nearly all of whom are amateurs and very much interested in making a good showing: Region 1, K1IZU; Region 3, W4POI; Region 4, K8JAL; Region 6, WØWBC; Region 7, WA6FUN. W8DUA and K8BFI were active for



W7YXM, EC for Natrona County, Wyo., directing operations at the club house.

Five of the mobiles used during the SET in Gallatin County, Mont. Left to right, they belong to K7CPE, W7ZPT, W7ED (EC), W7FLC and W7TKZ.

OHQ, and 27 messages were received from c.d. officials throughout the country. Contact was made by amateur radio between most of the regions and OHQ, and some of the regions, notably Region 6, had their own intra-regional drills. A brief summary of each region's report is perhaps in order:

Region 1 (New England, N. Y. & N. J.) made a good try, but only one message was received, and that by mail. Messages were originated for ARRL and contact established with Region 2, K4LOJ/3 on 40 meters (which, incidentally, is the only indication we have had that this region was active in any way).

Region 3 (Southeastern U. S.) had eleven stations on a monitoring schedule of the National Calling and Emergency frequencies and contact was made with OHQ and with Regions 1, 4 and 6. Message traffic was light.

K8JAL was quite active for Region 4 (Eastern Midwest states) with four operators and contact was made with Regions 3, 6 and OHQ. Thirty-seven message handlings were completed.

Six operators were active in Region 6 (Rocky Mountain and Western Midwest states) from WØWBC for a total of twelve operating hours, plus some additional operating from home stations. Contact was established with Regions 1, 2 and 4, and with state c.d. headquarters in Wyoming and North Dakota. Eleven messages were originated and five were received. Regional Communications Officer WØWBC summed up the operation as very worth while.

Although WA6FUN and W6LMR both monitored for Region 7 (Far Southwestern States), no messages were received and no contacts were made.

Local Activities

We think we are safe in saying that there was more local activity in the SET in 1959 than in 1958, and you will notice that most of the figures are somewhat higher than last year's (in parentheses). But mail reports were lower and "hearsay" reports higher. Had it not been for the latter, our total of reports would be somewhat lower than in '58. A "hearsay" report is an indication that an AREC group was active only through receipt of a message from a participating AREC member or inclusion on an SEC's summary; the EC was not heard from directly. Here's the 1959 summary:

Miscellany

You know, fellows, it isn't considered good policy to gripe in print, especially when you're trying to give an activity a big build up, but some of the traffic handling during this last SET was really stinking. We reach the inescapable conclusion that a lot of our emergency people just don't know how to handle traffic. Out of 100 messages that ECs said they sent us, *twenty-two were not received* here at the headquarters. This "ain't good." Much of the traffic received was sloppy, garbled and old. We were still getting SET traffic ten days after the Oct. 10-11 week end. One west coast amateur labeled it "junk" and mailed it in all the way from California rather than "clutter up" the NTS with it. Others delayed it for days on end as unimportant. We'll have more to say on this subject, but not here.

We want to compliment some of our wide-awake SECs for their part in the activities. In Minnesota, WØTUS held a pre-SET forum of all interested Minnesota amateurs on 3820 kc., marshalling his forces for the big week end, resulting in the big Minnesota showing as reflected by the reports. Missouri SEC KØLTP and SCM WØBUL sent out a card to all ECs calling their attention to the upcoming SET, urging them to take part and announcing that he would be on 3900 kc. at a certain time to receive any traffic. In Eastern Florida, SEC W4IYT was conspicuous by his presence and gave us a full report, as did Maritimes SEC VE1BL, West Virginia SEC W8HZA, San Diego SEC W6LYF and several others. We dare say that in most of the sections that made a good showing, the efforts of the SECs were primarily responsible and deserve a great deal of credit.

"Our score was less than last year's, but we gained valuable operating experience and the SET was enjoyed by all who participated. Next year . . ." — *W6DEF, EC Redwood City, Atherton & Menlo Park, Calif.* "Our SET problem was a railroad box car containing radioactive materials which had been humped and broken open, releasing dangerous radiation." — *K6KIV, SEC Sacramento Valley, Calif.* ". . . and that gives us 113 points, which I do not think is too bad." — *KØDCC, EC Montrose, Colo.* "We also had an actual emergency and the hams did a commendable job." — *KØBOH, EC Pueblo, Colo.* "We hope to do much better next year . . ." — *KØCEZ, EC Boulder County, Colo.* The SET for Hillsboro County, Fla., was conducted by asst. EC K4LLG in the absence of an interested EC; K4LLG deserves much credit for his initiative. "K4SJH handled SET traffic direct to W1AW; all SET traffic was in Hartford Sunday night." — *W4IYT, SEC E. Fla.* "This test was pulled 'cold' on the fellows; only the club president and myself knew when it would be carried out." — *W9MUL, EC Fulton County, Ill.* "Tremendous interest and activity in this county; over 100 *active* members." — *W9EJW, EC Marion County, Ind.* "This is the first SET in this zone since 1951. Hope to have a very active group from now on." — *KØIZM, EC Kansas Zone 11.* "Hams are not emergency conscious these days, some four years since the last disaster hit this area." — *W1SPF, EC Worcester, Mass.* "Just like on purpose, my antenna relay burned out during the test." — *W8RHD, EC Emmet & Cheboygan Counties, Mich.* "We will do better next year." — *WØTHY, EC Ramsey County, Minn.* "There was much good will and publicity and respect for the amateur created during this test." — *W7ED, EC Gallatin County, Mont.* "The gang fooled me! They reported two extra (simulated) emergencies besides one I started with. We learned a lot and had a fine drill." — *W7COH, EC Missoula Area, Mont.* "The number one need is for more portable and emergency equipment; we are planning how to overcome this and other obstacles. Will be looking forward to next year's AREC SET." — *W2OKS, Acting EC, Chautauqua County, N. Y.* "The hams in Pembina County and vicinity have been more than willing to cooperate. Being EC is an easy job when you have such people to work with." — *KØHOZ, EC Pembina County, N. Dak.* "The SET went well. Next year ought to see even more participation with a bigger rating." — *W8WAB, EC Seneca County, Ohio.* "We

had our SET in conjunction with the Sheriff's Department on Hallowe'en night, thereby serving in the public interest." — *W8QLJ, EC Lake County, Ohio.* "Drove back 450 miles from hunting trip to put on SET. Absent members were out hunting." — *W7MW, EC Benton County, Ore.* "We expect to have an active AREC group going here to supplement existing RACES facilities by the first of the year." — *W3WRE, Acting EC, Cambria County, Pa.* "Much better SET than last year." — *W4AOY, Johnson City & Washington County, Tenn.*

In the Kingsport, Tenn., SET, all messages coming into the control center were recorded, then given to typists to transcribed. This cut down on-the-air time, because messages could be read at normal reading speed. Good idea?

"If every ham that hasn't had to handle traffic during an emergency had to do so, they would find that more harm than good can be done without practice." — *W5DSF, Acting EC, Harris County, Texas.*

Total reports of activity: 266 (216)
By mail: 145 (154)
By radio: 137 (123)
By "hearsay": 57 (24)
AREC members represented by mail reports: 6556 (5496)
Total known participation (mail reports): 2997 (2712)
Mobiles and portables: 999 (957)
Fixed stations on emergency power: 139 (142)
AREC member messages dispatched to ARRL: 1594 (1488)
AREC member messages received by radio a ARRL: 1480 (1457)
EC radio reports dispatched to ARRL: 100 (161)
Total points compiled: 23,733 (21,794)

Area	*Reported By*	*Points*
ALABAMA		
Chambers County [2]	W4PHY	106
Jefferson County [3]	W4EOH	...
BRITISH COLUMBIA		
Southern Section [2]	VE7APH	152
CALIFORNIA		
Eureka [3]	W6SLX	...
Fresno County [1]	K6BGO	120
Milbrae	W6WIS	...
Mountain View, Sunnyvale, Santa Clara, Los Altos [2]	WA6EIC	187
Redlands & vicinity [1,2]	K6GGS	138
Redwood City, Atherton, Menlo Park [2]	W6DEF	316
Region 7, Area F (Long Beach)[7]	W6RUC	95
Sacramento County	K6QIF	152
San Bruno	W6VYH	...
San Diego Section	W6LYF	220
Santa Barbara [1]	K6DXW	164
South San Francisco [2]	W6QIE	306
Southern Alameda County [1]	K6JNW	248
Tulare County [1,2]	W6ARE	79
Vallejo Area	W6ZZF	124
COLORADO		
Boulder County [2]	KØCEZ	81
Denver & Jefferson Counties [1,2]	WØSIN	199
Montrose & Delta Counties [2,3]	KØDCC	113
Pueblo [2,9]	KØBOH	155
Yuma	WØYMP	55
CONNECTICUT		
Danbury [3]	W1ADW	...
Falls Village [2,10]	K1BEN	45
Newington [2]	W1NJM	44
DISTRICT OF COLUMBIA [3]	W3ECP	...
FLORIDA		
Brevard County [1]	W4BWR	194
Broward County [1,2]	W4DLM	259
Dade County [1,2]	W4SJZ	754
Hillsboro County [2]	K4LLG	...
New Smyrna Beach	K4TDN	...
Okaloosa County [1]	W4BPJ	130
Okeechobee County [1,2]	W4PZT	60
Orange County [2]	W4NKD	152
Pensacola [4]	.....	...
Polk County [3]	W4BJI	...
South Pinellas County [1,2]	K4PMK	243
Volusia County [1,2]	K4UJW	134
GEORGIA		
Cobb County	W4FTB	49
IDAHO		
Bannock County [2]	W7GCO	148

The net control station for the Schuykill County, Pa., SET was K3BHU, above.

Bingham County [7]	K7GHY	5
ILLINOIS		
Cook County [2]	W9IIPG	592
Fulton County [8]	W9MUL	...
Greene, Jersey, Calhoun Counties [2]	W9IFA	80
McLean County [2]	W9SXL	157
Monroe County [5]	W9ICF	...
Skokie [4]	.....	...
INDIANA		
Cass County [2]	K9GMH	114
Davis County [3]	W9RAT	...
Henly County [3]	W9ZSC	...
Jackson County [3]	W9RTH	...
Lake County [3]	.....	...
Marion County [2]	W9EJW	158
Morgan County [1,2]	W9ZSK	88
Orange County [2]	W9QYQ	65
Porter County [2]	W9EHE	165
Switzerland County [3]	W9FFE	...
Vanderburgh County [1,2]	W9DGA	249
IOWA		
Des Moines County [2,12]	KØAFN	82
Polk County [1]	WØMJH	325
Sioux City [3]	WØERG	...
Story County [3]	KØCLI	...
KANSAS		
District 16 [13]	WØLNZ	179
Douglas County [4]	.....	...
Zone 5 [3]	KØBXF	...
Zone 9 [3]	WØONF	...
Zone 11, Butler, Marion & Chase Counties [2]	KØIZM	175
KENTUCKY		
Barren County [3]	W4TQD	...
Jefferson County & area [1]	W4BAZ	243
LOUISIANA		
Westside Area, New Orleans [1,2,14]	W5INL	104
MARYLAND		
Baltimore City [2]	W3MAZ	198
Baltimore County [3]	W3GME	...
Calvert County [3]	W3WG	...
MASSACHUSETTS		
Fall River [2]	W1YHY	92
Groveland [1,2]	W1MRQ	116
Holden [3]	W1DXS	...
Waltham [1,15]	W1JSM	95
Winchester [2,16]	K1GYM	96
Winthrop [1,10]	W1BB	283
Worcester	W1SPF	...
MICHIGAN		
Antrim County [2]	K8DNV	76
Barry County [2]	W8TOX	85
Berrien County & part of Cass County [2]	W8QQO	184
Calhoun County [2,14]	K8CIS	114
Detroit Metropolitan Area #1 [18]	W8WFA	3222
Emmet & Cheboygan Counties [1,2,13]	W8RHD	90
Genesee County [2,10]	W8DTZ	193
Isabella County [1,17]	W8PDF	65

K8LCL, one of the operators in the Lawrence County, Ohio, SET.

Kalamazoo [4]	.....	...
Menominee County	W8GGQ	91
Shiawassee County [2,13]	W8UOQ	189
St. Clair County [3]	W8QFQ	...
MINNESOTA		
Aitken County [4]	.....	...
Anoka County [2]	WØHEN	34
Beltram County [4]	.....	...
Benton County [4]	.....	...
Carlton County [4]	.....	...
Cass County [4]	.....	...
Clay County [4]	.....	...
Cottonwood County [4]	.....	...
Crow Wing County [2]	KØMAH	76
Douglas County [4]	.....	...
Faribault County [4]	.....	...
Freeborn County [4]	.....	...
Hennepin County [4]	.....	...
Itasca County [4]	.....	...
Jackson County [4]	.....	...
La Sueur County [4]	.....	...
Marshall County [4]	.....	...
Mille Lacs County [4]	.....	...
Mower County [4]	.....	...
Nobles County [4]	.....	...
Olmsted County [1,2]	WØTJA	179
Ottertail County [4]	.....	...
Pennington County [4]	.....	...
Pine County [4]	.....	...
Pipestone County [4]	.....	...
Ramsey County [2]	WØTHY	137
Red Lake County [4]	.....	...
Rice County [4]	.....	...
Rock County [3]	KØKYK	...
Saint Louis County [2]	KØQLM	72
Stearns County [4]	.....	...
Steele County [4]	.....	...
Swift County [4]	.....	...
Tood County [4]	.....	...
Waseca County [4]	.....	...
Windom [19]	KØIKU	66
Winona County	KØGIW	46
MISSOURI		
Columbia [4]	.....	...
Dixon [4]	.....	...
Gilman City [4]	.....	...
Harrison & Mercer Counties [3]	KØOLW	...
Raytown [3]	WØOMM	...
Redwood County [3,5]	KØEPT	...
Springfield Area [1,2]	WØHUI	218
West Plains [4]	.....	...
MONTANA		
Broadwater County [3]	W7ED	...
Butte [2]	W7JFR	124
Gallatin County	W7ED	111
Missoula Area [1,2]	W7COH	167
Wheatland County	W7INM	48
NEVADA		
Boulder City [2]	W7HJ	125
Reno	W7PC	71
	W7HPP	
NEW BRUNSWICK		
Charlotte County [4]	.....	...
Restigouche & Madadaska Counties [4]	.....	...
Sunbury & Kings Counties [4]	.....	...
NEW JERSEY		
Atlantic County	K2BKG	43
Wood-Ridge [2,20]	W2DMJ	70
NEW MEXICO		
Dona Ana County [3]	WØOME/5	...
Roswell [4]	.....	...
NEW YORK		
Albany County	W2AWF	140
Bayside	K2JLD	14
Bethlehem [2,22]	K2GTI	96
Chautauqua County [2]	W2OKS	208
Dutchess County & Poughkeepsie [1,2,21]	K2GCH W2HZZ	268
Five Towns Area	W2GQP	98
Kings County [2,13]	K2CTK	421
Livingston County	K2GSO	45
Nassau County [1]	W2FI	1679
Nassau County Area #7 [16]	K2DHC	...
Onondaga County [4]	.....	...
Orleans County [5]	K2QKM	54
Queens County [3]	W2LGK	...
Queens County, 10 Meters [1]	W2IAG	173
Rockland County [14]	W2EHZ	77
Schenectady County [2]	K2HNW	116
Staten Island [3]	W2VKF	...
Steuben County [2]	W2YIY	182
NORTH CAROLINA		
Winston-Salem [3]	K4DVE	...
NORTH DAKOTA		
Burleigh County [3]	KØESO	...
Pembina County [13]	KØHOZ	121
NOVA SCOTIA		
Halifax City & County [4]	.....	...
Annapolis County [4]	.....	...
OHIO		
Cincinnati [4]	.....	...
Clermont County [3]	W8WYS	...
Cuyahoga County [1,23]	W8AEU	567
Franklin County	W8TSE	34
Jackson County [3]	W8WRT	...
Lake County [1,25]	W8QLJ	114
Lawrence County [1,2,24]	W8EPJ	83
Montgomery County [3]	W8HEQ	...
Muskingum County [1]	W8RVU	134
Seneca County [2]	W8WAB	162
Stark County [1,2]	W8AL	214
Washington County	W8VZ	88
OKLAHOMA		
Comanche [3]	W5HFN	...
Craig County [4]	.....	...
Garfield County	W5MFX	109
Grant County [2]	K5BAT	36
Jackson County [3]	W5IZM	...
Muskogee County [2,26]	W5WAX	84
Oklahoma County [3]	K5HTF	...
Okmulgee County [3]	W5WAF	...
ONTARIO		
Belleville Area [2,16]	VE3AUU	73
Toronto Metropolitan, 75 Meters [27]	VE3DSM	141
OREGON		
Benton County	W7MW	78
Coos County [4]	.....	...
Lane County	W7WPW	112
Lincoln County [3]	W7RXJ	
PENNSYLVANIA		
Cambria County [2,29]	W3WRE	96
Delaware County [3]	W3ICZ	...
Luzerne County	W3ZLP	35
Montgomery County [1,2,28]	W3ZXV	275
Schuykill & Lebanon Counties [3]	W3QJG	...
York County [4]	.....	...
PUERTO RICO [3]	KP4ABN	...
RHODE ISLAND		
Barrington [1]	W1TGD	140
Newport [1]	W1JFF	74
SOUTH CAROLINA		
Aiken County [4]	.....	...
Barnwell [4]	.....	...
Holly Hill [3]	K4MBN	...
Lancaster [3]	K4OLO	...
Rock Hill [2,30]	W4UMW	167

Spartanburg [4]	.....	...
Winnsboro [3]	W4MVX	...
SOUTH DAKOTA		
Brown County [3]	WØNWM	...
Clay County [3]	WØDKJ	...
Tripp County [2,31]	KØBMQ	19
Union County [5]	WØWUU	...
TENNESSEE		
Anderson County [3]	K4EDB	...
Johnson City & Washington County [1,2]	W4AOY	128
Kingsport [2,13]	W4PID	108
Knox County [2]	W4ZBQ	114
Knoxville	W4YZJ	98
Memphis & vicinity	W4BAQ	198
Oak Ridge [4]	.....	...
Roane County [8]	W4VNU	39
TEXAS		
Corpus Christi, Nueces County [2]	W5AQK	209
Harris County [1,2]	W5DSF	440
Palo Pinto County	W5HRN	89
Taylor County [1,2]	K5LGT	130
Tyler & Hardin Counties [3]	W5ZTB	...
VERMONT		
Burlington [2]	K1BNL	...
Rutland [4]	.....	...
VIRGINIA		
Arlington County [4]	.....	...
Bristol [1,2,13]	W4THM	46
Fairfax County [3]	W4MIB	...
Prince William County [2]	W4PVA	49
WASHINGTON		
Pierce County [4]	.....	...
Spokane Vicinity	K7BEO	105
WEST VIRGINIA		
Cabell County [2]	W8FUM	114
Kanawha County [2]	K8CSG	...
Princeton [4]	.....	...
Wheeling [4]	.....	...
WISCONSIN		
Dane County [3]	W9CWQ	...
Dunn County [3]	K9DAC	...
Eau Claire County [2]	W9REW	92
Door-Kewaunee Counties [32]	W9UFY	44
Marathon County [3]	W9VHA	...
Milwaukee [4]	.....	...
Washington County [2]	W9SAA	41
WYOMING		
Natrona County [2]	W7YXM	141
Sheridan	W7BFL	74

[1] Bettered last year's score. [2] Report received by both mail and radio. [3] Report received by radio only. [4] Hearsay report; EC not heard from directly. [5] Reported no SET held. [6] Data included in Nassau County report. [7] Oct. 17. [8] Oct. 25. [9] Oct. 9. [10] Oct. 5. [11] Oct. 10–12 & 17. [12] Sept. 26–27. [13] Oct. 18. [14] Oct. 12. [15] Oct. 19. [16] Nov. 8. [17] Nov. 12. [18] Oct. 30. [19] Oct. 28. [20] Oct. 21. [21] Oct. 3, 5, 8 & 9. [22] Sept. 12. [23] Oct. 7. [24] Sept. 29. [25] Oct. 31. [26] Oct. 4. [27] Oct. 24. [28] Oct. 8. [29] Oct. 13. [30] Oct. 30–31. [31] Oct. 23. [32] Oct. 3. QST

California Mobilecade and Field Trial

April 10, 1960

HERE'S a mobile event that other parts of the country might want to imitate. This will be the second year that it has been tried in California, and it appears well on its way to being an annual affair at San Luis Obispo. In essence, this is a contest to select the most efficient mobile, and will be held at San Luis Obispo Air Field. The committee in charge of arrangements includes K6VIC, W6OZS, K6MAU, and K6SKU. Contact any of these fellows for further details. The complete rules are printed, below.

1. The mobile transmitter must be provided with leads, external to the transmitter, available in the front seat of the automobile to permit measuring final plate voltage and current independent of the transmitters meters. This is to provide access for standard meters that will be used by the contest judges. (Suggestion: The B+ lead be removed from the final amplifier r.f. choke and extended through the transmitter case. An additional lead should be soldered to the B+ end of the final amplifier choke and also brought through the case. These leads may be wrapped together and taped for protection for normal operation prior to arrival in test area.)

2. Each participant will be limited to one official trial which will be made on a first come — first served basis. Time permitting, additional unofficial trials may be made after all participants have had an official trial.

3. The official frequency for competition will be 3995 kc. All tests and tuning in the San Luis Obispo area must be done before 0930 on April 10. Any contestant testing on this frequency after the official starting time of 1000 hrs. will be disqualified.

4. Antenna Specifications; any type mobile antenna may be used in the contest provided it is capable of normal operation on the highways of California and is the antenna which was mounted on the automobile before leaving the home QTH and driving en route to San Luis Obispo.

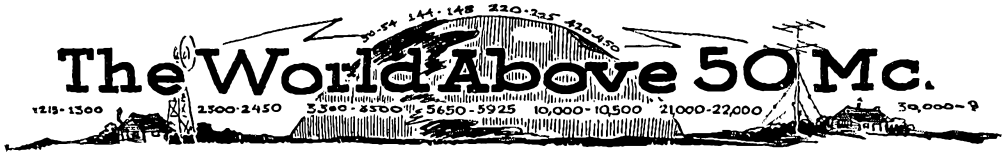
5. The official field-strength measurement will be made approximately 4900 feet from the transmitting point, received on a pick-up antenna consisting of a mobile whip mounted on an automobile. The field strength will be measured with a logarithmic a.c. v.t.v.m. An efficiency factor will be determined by:

$$\frac{\text{Received r.f. volts}^2}{\text{Power imput to final amplifier}}$$

Unofficial readings for comparison will be attempted at several points (5 to 100 miles).

6. Time Schedule: Sign up begins at 0930, April 10, 1960
Contest starts at 1000.

7. Prizes: Perpetual trophy "The Five Foot Golden Whip"
Permanent trophy "The Mobile Oscar"
Both will be presented to the ONE mobile station exhibiting the highest efficiency.



CONDUCTED BY EDWARD P. TILTON,* W1HDQ

BACK in the days when a V.H.F. Sweepstakes brought in a few hundred logs we could get a summary of the contest in the April issue of *QST*. Now that participation is many times its early proportions, this kind of reporting is no longer possible. We can't even tell you how many logs were submitted, at this writing, but they make quite a pile!

Because there was almost no F_2-layer DX to give 50-Mc. operators a chance for astronomical section multipliers, scores are not as high as in the two previous contests where this mode of propagation was a factor. There were two excellent sporadic-*E* sessions, however, and some 6-meter DX was worked in every corner of the country. A brief flash of F_2 across the Pacific provided a few West Coast operators a shot at Hawaii. Two-meter activity was at a high level, and this band was probably a larger factor in the scoring than it has been for some years past.

An all-time high for number of contacts by a single operator was set by W3KKN, Willow Grove, Pa., with 483 stations worked on 50, 144 and 220 Mc. This was good for 27,048 points, the country's top score. The Philadelphia area was the scene for the four top scores. In addition to W3KKN, note the fine records of W3TYX, W3HYJ and K2TYW. This region was so loaded with activity that K2ITP was able to work 400 stations for 18,400 points, even with more than 9 hours of the contest period away from home. Interest was spread well over the country, however. Dozens of logs, representing most sections of the country, show contact totals over 300.

Multiple-operator stations turned in impressive records. W2ADE, Mountain Lakes, N. J., with 7 operators sharing the load, made 512 contacts on three bands, for 32,016 points. Some of the coldest weather of the winter couldn't keep the Waltham Amateur Radio Association crew at home. They set up, as so often in the past, on Pack Monadnock Mountain, Peterboro, N. H., running up 428 contacts for 24,621 points. The father-son team of W2REB and K2MPV, Chews Landing, N. J., turned in 428 contacts also, for 23,112 points. One of the finest West Coast scores ever was the work of the Southern California V.H.F. Club, W6VHF, with 470 contacts on 3 bands, for 15,024 points. Leading the Middle West were two single-operator stations: K9KLU and K9HWY, both of Chicago, with 346 — 17,922 and 278 — 17,792, respectively.

The sporadic-*E* skip made possible some surprising totals by operators who have only limited local activity to draw on otherwise. W4LIP, Miami, Fla., leads in this category with 205 50-Mc. QSOs in 19 ARRL Sections, for 15,990 points. K5TKR, Arlington, Texas, was 220–21–13,640, all on 50 mc.

Some kind of record may have been set by W1UZL/1. Operating from a police radio building atop Mt. Wachusett, near Princeton, Mass., W1UZL and K1IZM combined forces to put a kilowatt s.s.b. rig on the air on 50 Mc. Using only s.s.b. and c.w., they worked 117 stations in 24 sections. Of these, 97 QSOs were with s.s.b.

This preliminary report is based on claimed scores only. The logs concerned have not been checked, so figures are not final. Official scores, club standings and final contest statistics will be in *QST* as soon as checking can be completed. Guess on the club award winner: It looks like the South Jersey Radio Association again, but they had a battle on their hands.

HIGH CLAIMED SCORES
1960 A.R.R.L. V.H.F. SWEEPSTAKES

Single Operator

W3KKN	27,048
W3TYX	26,660
W3HYJ	24,752
K2TYW	24,264
W1RJA	23,460
W2BLV	23,188
W3HFY	20,944
W1GEF	19,600
W3TDF	19,500
W3CL	19,432
W2EIF	19,240
K2ITP	18,400
K9KLU	17,992
K9HWY	17,792
W2PAU	16,475
W4LIP	15,990
W8NRM	15,392
W2BV	15,120
K2HOD	15,012
W1HDQ	14,880
W1FTX	14,849
W1RFU	14,732
W2NSF	14,625
W3CKP	14,352
W3FSC	14,352
K2HHS	14,050
W2JAV	14,040
W2TUR	13,720
K5TKR	13,640
W4LTU	13,206
W2KFC	12,792
W2IQVF	12,600
W2LBX	12,581
W3HKZ	12,213
W1LGE	12,122
K3IUV	11,820
W2YHP	11,760
W3JSD	11,550
K3BPP	11,520
K3ECF	11,450
K3AAX/3	11,424
W2HTL	11,400
W3IBH	11,400
W1MIT	10,956
K3KMN	10,868
K1ICM	10,854
K3IUZ	10,150
W3FQD	10,428
W2LWI	10,410
K2KCI	10,311
W3FOZ	10,080

Multiple Operator

W2ADE	32,016
W1MHL/1	24,621
W2REB	23,112
K2AA	16,224
W6VHF	15,024
W9ROS	14,554
K2RRM/2	13,804
W3DJW	13,200
K2YIB	12,768
W3VXJ	12,400
K8DJB/8	11,822
K6TJL/6	11,268
K8GYK	11,000
K1JCU	10,584

Here and There

V.h.f. men who hide out ten months in the year, waiting for the tropopsheric openings commonly experienced in September and October, miss out on some good stuff. Example, superb tropospheric propagation of late January,

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

50 Mc. WAS

1	W0ZJB	19	W3OJU	38	W7ILL	57	W1SUZ	
2	W0BJV	20	W6TMI**	39	W0DDX	58	W1AEP*	
3	W0CJS	21	K6EDX	40	W0DO	59	W5LFH	
4	W5AJG	22	W5SFW*	41	K9DXT	60	W6NLZ**	
5	W9ZHL	23	W0ORE	42	W6ABN	61	W7MAH	
6	W9OCA	24	W9ALU	43	W6BAZ	62	W8ESZ	
7	W6OB	25	W8CMS*	44	VE3AET	63	W2BYM	
8	W0INI	26	W0MVG	45	W9JFP	64	W7ACD	
9	W1HDQ	27	W0CNM	46	W0QIN	65	K6PYH*	
10	W5MJD	28	W1VNH	47	W0WWN	66	W4HOB	
11	W2IDZ	29	W0OLY	48	K9ETD	67	K0JJA	
12	W1LLL	30	W7HEA	49	W0FKY	68	K6RNQ**	
13	W0DZM	21	K0GOG	50	W8LPD	69	W9QWI*	
14	W0HVW	32	W7FFE	51	W0ZTW	70	W6EDC**	
15	W0WKB	33	W0PFP	52	W6GCG	71	K6VLM**	
16	W0SMJ	34	W6BJI**	53	W2RGV	72	K6GOX**	
17	W0OGW	35	W2MEU	54	W1DEI	73	W0EDM	
18	W7ERA	36	W1CLS	55	W1HOY	74	W9JCI*	
		37	W6PUZ	56	W6ANN	75	W0LLU*	

*19 states **50 states

VE7CN	45	VE4HS	41	LU9MA	26	LA7Y	20
KL7AUV	44	SM6ANR	30	ZS3G	26	VQ2PL	18
VE1EF	42	CO2ZX	30	CT1CO	24	JA8AO	18
XE1GE	39	SM7ZN	29	CO8WW	21	JA8BU	17
VE2AOM	38	PZ1AE	28	LA9T	21	JA1AAT	17
KH6UK	37	SM6BTT	28	LU3DCA	20	JA1AUH	16
EI2W	37	ZE2JV	26	SM5CHH	20	VP5FP	7

that had the entire Middle West agog. Beginning Jan. 29 and running through Feb. 2, this session compared favorably with the best any season can offer. Signals out to 400 miles or so were like locals, and solid voice contacts were made over distances of 600 to 700 miles.

Everything from locals on out was affected, and some phenomenal 144-Mc. contacts were made with low power and simple antennas. WØDWB, Independence, Mo., using a Communicator with a 5-element Yagi resting on the rafters of his garage, was able to work K9EEK, Frankford, Ind., 450 miles away. KN9RVG, mobile in Chicago with a Communicator and a halo antenna, had an S7 signal at W9JFP, Milwaukie, more than 100 miles away. W5FYZ, Minden, La., worked W9LF, Peoria, Ill., and heard W9EGH, Goshen, Ind.

Many areas were linked on 220 Mc. for the first time. KØITF, Prairie Village, Kan., worked W8PT, Benton Harbor, Mich., W9JIY, Indianapolis, W9EQC, Aurora, Ill., W9ZIH, Chicago, and W9AAG, Woodhull, Ill., running only 10 watts input. The hop to W8PT is about 500 miles. W8PT's list included KØDGU WØDDX and KØITF, all worked with strong voice signals. W9AAG worked Kansas, Missouri, Indiana and Ohio, all for the first time on 220.

A winter propagation surprise of a different sort broke on Jan. 23, but we didn't hear about it until too late to make March *QST*. W6NLZ heard 50-Mc. sporadic-*E* skip coming in from under 350 miles. This meant that the m.u.f. was shooting up very high for a winter opening, so John fired up on 144-Mc. c.w., calling CQ in an easterly direction. After about three tries he raised W5UNH, Kerrville, Texas. This is the first instance we know of where E_s DX has been worked on 144 Mc. in other than the peak of the summer DX season. Contact was made at 1817 CST, and signals held for some 20 minutes thereafter, strong on peaks with deep and rapid fading — typical high-m.u.f. E_s characteristics. We have believed sporadic-*E* skip to be very rare on 144 Mc., but fairly frequent instances of it in the last few years indicate that it may have been possible more often than we have realized. Very short skip on 50 Mc. is the best clue. If you hear someone on 50 Mc. 300 to 600 miles away working a station another 300 miles farther away, get going on 144. Your chances are at their best right then. Loud signals from 500 miles or more on 50 Mc. probably have little significance for the 144-Mc. operator. They merely mean that the m.u.f. is well above 50 Mc. for that distance, but by no means up to 144 Mc.

Meteor-scatter work on 144 Mc. need not always rely on a major shower. Just to see what would happen, W1JDF, Methuen, Mass., and WØBFB, Mitchelville, Iowa, have been keeping skeds at 2100 EST Tuesdays. The night of Feb. 2 W1JDF heard WØBFB five different times in a 1-hour test. Mostly this was just short pings, but at 2127 a burst long enough for identification was received. Sumner has heard WØBFB regularly on both morning and evening skeds, with bursts up to 8 seconds duration.

To further v.h.f. interest in an area where activity comes hard is the objective of the Chinook V.H.F. Society, according to VE6HO, News Editor for the Society. Branches are being established in Calgary, Lethbridge and other Canadian cities, and in adjacent areas of this country — all "favored by the sweet gentle breath of the Chinook Wind." VE6HO is getting set for a move to a new location, but beginning next September he will be looking for schedules on both 50 and 144 Mc. He is particularly interested in aurora work.

It may be a surprise to some to learn that there are about 50 stations on 144 Mc. around Boise, Idaho. W7OL, Caldwell, Idaho, says that nearly all work is with f.m., and he would like to see more mention of this in *QST*. We have a start in this direction coming up, in an article dealing with the conversion of commercial gear, now available in large quantities at reasonable prices. We will be glad to run more — if we get it. As for news, remember that this section of *QST* depends on *you* for its material.

Getting skeds lined up as to time is something of a problem, what with GMT, 4 U. S. time zones, and daylight saving time to contend with. W7RUX, Phoenix, Ariz., plugs for GMT for all scheduling, so that everyone can use the same clock indication. We're not sure that v.h.f. men are ready for conversion to GMT (or even that it is desirable to try to think in terms of GMT for domestic scheduling) but we do feel strongly that daylight saving time has no place in amateur work. We also feel that 24-hour time is a must for ham purposes, and we have used 24-hour standard time in this department for some years now. It will help reporting accuracy if contributors will do likewise. Please report sked times, contacts and the like in EST, CST, MST or PST — 24-hour time. If a major portion of you want GMT, we'll consider that, but daylight saving time and A.M. and P.M. are just confusing gimmicks, for our purposes. Let's throw them out of ham radio, once and for all.

W9SCH, Deerfield, Ill., voices a familiar complaint, one that has been with us since the earliest days of v.h.f., or of amateur radio as a whole. Too often, Rock says, there is nothing doing on the 2-meter band. Nobody on? Let some DX break through and you find out soon enough where people are — but a thousand receivers don't make a sound. It's the sound of activity that begets activity, particularly among newcomers or prospective converts. We have no complaint against the fellow who drops his local QSOs and goes after the DX; the problem is the fellow who tunes for hours and never makes a sound except when something exotic turns up. Remember, the fellow who is considered DX is probably no better than the man in the next town. If all of us don't all make a point of getting on the air regularly, who will know when there is DX coming through? Careful listening is good policy — but just listening alone is not enough!

There have been schemes for combating this evil since time immemorial. They work only if complete cooperation exists, with schedules integrated carefully between areas. W2ESX, Moorestown, N. J., volunteers to call CQ on 144.006 nightly at 2300, first in a westerly direction, listening for the balance of a 5-minute period. If no contact is made, procedure would be repeated the next 5 minutes to the southwest, and then for 5 minutes to the south. He has what it takes: 500 watts, a 36-element 4-bay array, and a 417-A converter. John also decries lack of c.w. ragchewing on 144 Mc. Though a few fellows regularly operate on c.w. (for other than weak-signal DX) W2ESX feels that experienced c.w. men could be enticed into v.h.f. work to a greater extent if they were sure of being able to enjoy a good fast ragchew on c.w. at will. Any v.h.f. band is a wonderful c.w. medium for distances up to 300 miles or so.

Though 50-Mc. DX has not been what it was for about three years previously, the band is by no means dead. January PRP reports showed a considerable pickup from December, particularly in the low latitudes, and along the *TE* routes. PZ1AE, Surinam, logged 50-Mc. DX on all but 5 days in January. Rene heard European TV Jan. 10 and 31. ZC4WR had crossband contacts with ZE2JV on only 6 days in January, a low for the Cyprus-Southern Rhodesia circuit, but *TE* from Argentina north was in good form. LU3EX logged Puerto Ricans 10 days in January, and DX of some sort on all but 11 days. HC1FS, Quito, Ecuador, worked Tennessee, Alabama, Louisiana, Florida, Mississippi and Texas Jan. 17. WØCNM, Grand Junction, Colo., logged KP4s Jan. 10.

W6BJI, Fresno, Cal., got a pleasant surprise Feb. 13, when the band opened to Japan. Gib worked JA2AAM

JA1CDF and JA1BWD between 1655 and 1720 PST. Midway teletype signals just below the band edge had been in for some time before, and were heard again on the 14th. This is W6BJI's first JA opening at this season of the year.

The unexpected break across the North Atlantic at the end of January was reported on a last-minute basis last month. Here is more dope, from W. A. Brady of the U. S. Embassy in London. He just happened to be tuning the 50-Mc. band at the right time and heard K1DIT, W1GP, W1LKD, and W1MIFM Feb. 1, from 1648 to 1710 GMT, all S9-plus.

Our discussion of changing weather patterns and v.h.f. propagation in February *QST* brought information from W1KCT as to means by which weather data can be obtained. Information in considerable detail, revised every 6 hours, is available to anyone who has a radioteletype printer. Transmitted in World Meteorological Organization code, it contains details of cloud cover, wind direction, wind velocity, visibility, present weather, weather 3 hours previously, barometer, temperature, types of storm clouds, dewpoint, shape of barometric curve for past three hours, and net barometric change. Other information, also in code, gives details of fronts, occlusions, principal air masses and the like. The simple code can be obtained from the Government Printing Office.

The Michigan 6-Meter Club was formed a year ago to serve 6-meter men of the southeastern section of Michigan and adjacent Ohio. Net membership now includes about 120 stations. Their second annual club contest gets under way at 1400 April 23, running 24 hours. Any out-of-stater who works 10 or more Michigan stations is eligible for a certificate, to be issued by K8JGF, 19925 Greenview, Detroit 19. This information is from K8OXI.

From Illinois, K9BDJ writes that 4 of the 16 Skokie 6-Meter Indians are now on s.s.b. K9AMG W9BOD W9RWQ and K9BDJ are on 50.305, and they find that even low power gives very nice coverage. Their net (all types of emission) meets on 50.298 Mc. Mondays at 2100 CST. Indian certificates are available to operators within 50 miles who work 6 members, or to others who work 3. They have issued 78 of these thus far, to 5 call areas.

220 Mc. and Up

Coverage on 220 Mc. is surprisingly good, even with low power, provided good antenna systems are used, says WØITO, Kansas City, Mo. Several of the gang have surplus Navy MAR gear, with a 2C39A in the final stage, running about 10 watts. Normally this transmitter is capable of putting 7½ watts into the antenna, but in a test WØLRC reduced his power until only ¼-watt output was indicated. His signal was still readable over the 18-mile path to WØITO.

WØLRC, KØTZN, and KØWPI are all using corner reflector arrays. WØITO has a modified 10-element Channel 13 Yagi. A ridge directly to the south, some 100 feet higher than the antenna, seems to have little effect on the 220-Mc. coverage. While low power works nicely, simple antennas do not. When all bands in this area were using groundplanes and dipoles, results were practically nil.

Amateurs having good receiving gear and antennas for 1250 Mc. may want to listen for tests to be conducted at Haverford College under the direction of Prof. Benham, W3DD. Both lunar and satellite-reflection tests will be made, using high power, a 12-foot parabolic reflector, and a receiver equipped with a parametric amplifier.

At the opposite end of the power scale is work being done on 2350 Mc. by K2DHE and WA2GAV, Wanamassa, N. J. Art and Chuck are using simple modulated oscillator and superregenerative receiver gear, built from information in the *Handbook*. With this simple equipment they have had good results over unobstructed paths of 50 miles.

Converted APX-6 rigs have been the life of the 1215-Mc. band in Southern California, according to W6MMU. This is a modulated oscillator, with a superhet receiver having a broad passband. Obviously, these are not in the same league with crystal control and low-noise receiver techniques, but with about 50 of the units on the air they keep interest alive between contests. Don has worked into San Diego with his APX-6 at his home location in Los Angeles.

Amateur television seems well established in Ohio. K8AGO, Columbus, puts a good video signal across the city to W8RRJ, 14 miles to the north, and a better one to W8TYY, about 8 miles away. His rig is *Handbook* style as far as the r.f. section is concerned, being a combination of the 144- and 420-Mc. rigs described therein: 12AT7-12AT7-2E26 exciter, 5894 tripler, 5894 amplifier. The camera is a rebuilt ATK, and the antenna a 17-element Yagi. His sound is on the 50-Mc. band. Five stations are on with TV in the Columbus area, with several more in the works.

W8HCC, Sandusky, recently worked W8JLQ, Toledo, two-way TV, after a nightly 432-Mc. sked. He works W8IHRC, Detroit, 75 miles, and W8RRJ, Columbus, 90 miles, regularly on 432 Mc. Several of the gang on 432 have recently added 416B r.f. stages, making a marked improvement in the reliable coverage. Mel has a 4X150 tripler driving another as an amplifier, and a 416B-6BC4 r.f. lineup ahead of his crystal-mixer converter.

2-METER STANDINGS

Figures are states, U.S. call areas, and mileage to most distant station worked

W1REZ	32	8	1300	W5SWV	10	3	600
W1AZK	27	8	1205	W5UNH	6	3	1200
W1KCS	24	7	1150	W5YYO	5	3	1330
W1RFU	23	7	1120				
W1AJR	23	7	1130	W6WSQ	14	5	1390
W1HDQ	21	6	1020	W6NLZ	12	5	2540
W1MMN	20	6	900	W6DNG	9	5	1040
W1IZY	19	6	875	W6AJF	6	3	800
K1CRQ	19	6	800	W6ZL	5	3	1400
W1AFO	17	6	920	W6MMU	3	2	950
K1AFR	17	6	675				
W1CLH	17	5	450	W7VMP	15	5	1280
				W7JRG	10	4	1040
W2NLY	37	8	1390	W7CJM	5	2	670
W2CXY	37	8	1360	W7LHL	4	2	1050
W2ORI	37	8	1320	W7JIP	4	2	900
K2GQI	33	8	1200	W7JU	4	2	353
W2AZL	29	8	1050				
W2BLV	27	8	1020	W8KAY	38	8	1020
K2IEJ	25	7	1060	W8SDJ	35	8	990
W2AMJ	25	6	960	W8PT	34	8	985
W2DWJ	23	6	860	W8IFX	34	8	980
K2HOD	23	7	950	W8LOF	33	8	1060
W2PAU	23	6	753	W8RMH	32	6	910
W2SMX	22	6	940	W8SVI	30	8	1080
K2CEH	22	8	910	W8SFG	30	8	1000
W2LWI	21	6	700	W8EHW	29	8	860
W2RXG	20	6	700	W8LPD	29	8	850
W2UTH	19	7	880	W8WRN	28	8	680
W2RGV	19	6	720	W8BAX	28	8	960
W2WZR	18	7	1040	W8NOH	26	8	975
W2ESX	18	5	740	W8DX	26	8	720
K2RLG	17	6	980	W8ILC	25	8	800
				W8JWV	25	8	940
W3RUE	30	8	975	K8AXU	24	8	960
W3TDF	29	8	1050	W8GFN	23	8	540
W3GKP	29	8	1020	W8LCY	21	7	610
W3KCA	28	8	1110	W8BLN	21	7	610
W3SGA	27	7	700	W8GTK	17	7	550
W3EPH	22	8	1000	W8NRM	17	7	550
W3BYF	22	6	660				
W3LNA	21	7	720	W9KLR	41	9	1160
W3NKM	20	7	730	W9WOK	40	9	1150
W3LZD	20	7	650	W9GAB	34	9	1075
				W9AAG	32	8	1050
W4HJQ	38	8	1150	W9REM	31	8	850
W4HHK	36	9	1280	W9ZIH	30	8	830
W4ZXI	34	8	950	W9LVC	27	8	950
W4AO	30	8	1120	W9EQC	27	8	820
W4LTU	30	8	1160	W9OJI	26	8	910
W4MKJ	28	8	850	W9ZHL	25	8	700
W4UMF	28	8	1110	W9BPV	25	7	1030
W4VLA	26	8	1000	K9AQP	24	7	900
W4EQM	25	8	1040	W9PBP	24	8	820
W4WNH	24	8	850	W9LF	22	7	825
K4EUS	24	6	765	W9KPS	22	7	690
W4JCJ	23	6	725	W9CUX	21	7	800
W4VVE	21	6	720	W9OEV	20	7	750
W4TLV	20	7	1000	W9PMN	19	6	800
W4IKZ	20	6	720	W9ALU	18	7	800
W4OLK	20	6	720				
W4AIB	19	7	840	W0SMJ	29	9	1075
W4RMU	18	7	1080	WØIHD	28	8	1030
W4CPZ	18	6	650	WØBFB	27	8	1060
W4RFR	18	7	820	WØQDH	24	9	1300
W4MDA	17	6	750	WØRUF	23	7	900
K4YUX	16	8	830	WØINI	21	6	830
W4LNG	15	6	1080	WØUOP	21	7	900
				WØTGC	21	7	875
W5RCI	34	9	1215	WØRYG	20	8	925
W5DFU	25	9	1300	WØIC	16	7	1240
W5AJG	25	8	1360	WØIFS	16	6	110
W5LPG	25	7	1000				
W5PZ	24	8	1300	VE3DIR	30	8	1330
W5KTD	23	8	1200	VE3AIB	28	8	1340
W5JWL	21	7	1150	VE3BQN	19	7	790
W5VKH	15	5	720	VE3DER	17	8	1340
W5FYZ	13	4	735	VE3AQG	17	7	1300
W5ML	12	5	700	VE3HW	15	7	1350
W5FSC	12	5	1390	VE2AOK	13	5	550
W5HEZ	12	5	1250	VE3BPB	14	6	715
W5CVW	11	5	1180	VE7FJ	2	1	365
W5NDE	11	5	625				
W5VY	10	3	1200	KH6UK	1	2	2540

OES Notes

K1CXX, Auburn, Maine — Worked G3EHY 50–28 Mc. at 1045 EST Jan. 29.

W1LGE, Windsor Locks, Conn. — Heard on 50 Mc. by G3EHY Jan. 27; worked him crossband Jan. 29 and 30.

W1NKA, West Concord, Mass. — Cheapest v.h.f. halo: 25-cent hula hoop with folded dipole made of Twin-Lead inside. Teenage net operating on 50.28 Mc. Everyone welcome; contact W1NKA or W1GFX.

K2SJP, Brooklyn, N. Y. — Power under 1 watt works out nicely for local QSOs on 50 Mc. Running lowest usable power could beat the TVI problem in many cases.

W3BWU, Pittsburgh, Pa. — Held 6-station 5-state QSO on 50 Mc. with W8IWT, Ohio, W3UFR and W3BWU, Pa., K3BOB, Md., K8KZR, W. Va., and K4VWH, Va., 0815 Jan. 31. Group checks on 50.11 each Sunday morning and Wednesdays at 2000.

W4CIN, Birmingham, Ala. — Stacking two 5-element 50-Mc. Yagis netted marked improvement in checks with K4MBM, Huntsville, 100 miles.

K4EUS, Chester, Va. — Completed 66-foot wooden tower and now have 15-element 2-meter long Yagi up 73 feet.

Central Virginia 6-Meter Net meets nightly at 1900, with K4PUD as NCS.

W4FNR, Ft. Lauderdale, Fla. — Having worked KP4s No. 24, 25 and 26, hope soon to get first 50-Mc. WPR certificate. W4s RMU LIP GJO and FNR honored at Miami Hamboree for "meritorious service in pioneering v.h.f. communications in Florida."

W4FWH, Atlanta, Ga. — Activity on 50 Mc. at high level in Atlanta area, with perhaps 75 stations on, practically all fairly new in ham radio. These are nucleus of the recently-formed Atlanta V.H.F. Society.

W4HHK, Collierville, Tenn. — Geminids QSO with WØIC on 2130 sked Dec. 13 was first Colorado-Tennessee 144-Mc. contact. Work W4RFR, Nashville, 190 miles, almost nightly. His 144-Mc. s.s.b., 150 watts, seems to balance the 750 watts n.f.m. at W4HHK nicely. Also keep regular skeds with W9QXP, Wheaton, Ill. Signals over this 450-mile circuit are near the minimum detectable, but with patience and much repeating contacts can be made regularly, as was the case with W9WOK, over similar distance.

Need circuit diagram of R-32/ARW2 radio control receiver. Can anyone help?

W4KDH, Chatham, Va. — Find regular monitoring of WBTV, Charlotte, N. C., 130 miles SW, WSVA, Harrisonburg, Va., 115 miles NNE, and WTAR, Norfolk, 170 miles E, very helpful in catching favorable v.h.f. propagation. These stations are all Channel 3, but offset 10 kc. Converter for Channel 3 serves nicely.

W4LTU, Springfield, Va. — Tests during Jan. 16 balloon short with W4FJ, K4EUS, K2LMG, K2GQI, and W3GKP gave only questionable results, in no way equal to those of Oct. 28 during similar Wallops Island shot.

K6HCP, San Jose, Cal. — Anyone interested in forming microwave experimenter group in Santa Clara Valley?

W6ORS, Altadena, Cal. — Ramona Radio Club building simple modulated oscillator and superregenerative receiver gear for 420 Mc. as club project. Transmitter uses 6J6 with halfwave line, similar to May, 1949, *QST*, and in *Handbooks* of that period. Receiver uses 955, but change to 6J6 is contemplated. While this gear is elementary in nature and admittedly not suitable for DX work, it does provide quite a few hams their first incentive to try the experimental side of ham radio.

W6OYM, Sherman Oaks, Cal. — Experience working portable from peak northwest of Santa Barbara indicates repeater at that point could link many California coastal cities reliably on 144 Mc.

W6PIV, Sacramento, Cal. — Using successful 420-Mc. receiver that is comparatively simple, if one has surplus i.f. strip. Uses "guard channel" surplus i.f. strip on 28 Mc., converting to 2 Mc. Second crystal oscillator was changed to variable with 400-kc. tuning range. Front end is 416B trough-line r.f. amplifier, crystal mixer and crystal-controlled injection.

Injection hint: If you have trouble with 12AT7s in multiplier stages at 300 to 400 Mc., try a 6BQ7 or similar type tube. The r.f. amplifier triodes seem to work better at this frequency.

K7BBO, Tacoma, Wash. — KH6s worked by Seattle and Tacoma 50-Mc. stations Jan. 10. At least one JA heard Jan. 16.

220- and 420-Mc. STANDINGS

220 Mc.

W1AZK	9	3	412	W5RCI	8	5	700
W1HDQ	11	5	450	W6NLZ	3	2	2540
W1OOP	12	4	400	K6GTG	2	2	240
W1RFU	15	5	480	W6MMU	2	2	225
W1UHE	11	4	385	K7ICW	1	1	250
W2AOC	13	5	450	K8AXU	8	5	680
K2AXQ	8	3	230	W8IJG	9	5	475
K2CBA	10	4	325	W8LPD	6	4	480
K2DIG	4	3	140	W8NRM	8	4	390
W2DWJ	14	6	740	W8PT	10	5	550
W2DZA	12	5	410	W8SVL	6	4	520
W2NTY	8	4	200	W9AAG	9	4	600
W3AHQ	4	3	180	W9EQC	8	4	740
W3FEY	8	4	296	W9JCS	5	2	340
W3LCC	8	5	300	W9JFP	9	4	540
W3LZD	15	5	425	W9OVL	6	3	475
W3RUE	6	4	225	W9UED	4	4	605
W3UJG	11	5	400	W9ZIH	2	2	270
W3ZRF	5	4	112	KØITF	6	3	515
K4TFU	8	4	400	KH6UK	1	1	2540
W4UBY	7	5	320	VE3AIB	7	4	450
W4UMF	11	5	420				

420 Mc.

W1HDQ	8	3	210	K2UUR	5	2	110
W1RFU	7	4	410	K3EOF	6	3	250
W1OOP	9	3	390	W3FEY	5	2	225
W1UHE	8	4	430	W4HHK	3	3	520
W2AOD	6	4	290	W4VVE	6	4	410
W2BLV	11	5	360	W5RCI	5	3	600
W2DWJ	6	4	198	W7LHL	2	1	180
K2CBA	5	3	225	W8HCC	3	2	355
W2DZA	5	3	130	W8NRM	3	2	390
W2NTY	3	2	100	W9GAB	7	4	600
W2OTA	5	3	150				

W7EGN, Harlowton, Mont. — Work W7CJB, Missoula, 200 miles, regularly on 50 Mc., but W7JIZ, near Missoula, has not yet been heard. Worked W7GUH, Portland, Ore., via aurora Jan. 14.

W7QDJ, Clearfield, Utah — Heard signals from slightly south of west on 49.75, 49.72 and 49.71 Mc. Feb. 13 and 14, 1650 to 1800 MST Saturday and 1610 to 1713 Sunday. Now have 4–400A on 50 Mc., resulting in marked improvement in results on Sunday morning scatter skeds with W6NLZ.

K8BGZ, Lansing, Mich. — Worked WØTMJ, Independence, Mo., on 144 Mc. at 0035 Jan. 31. Many signals in nearer states, not normally heard, were coming through well. Indiana and Ohio were heard working stations in Kansas, not audible in Lansing.

W8WRN, Columbus, Ohio — W8TSE, EC for Franklin County, has AREC net going on 50.82 Mc. Crystals for this frequency are available from him. Much activity on 420-Mc. TV, with K8AGO W8JVD and K8MZH among new stations. Tricounty Net Mondays, 2000, 51.15 Mc., CD Net on 145.27 Mc. Tuesdays, 2000.

K9MLI, Winnetka, Ill. — New Cook County RACES Net on 50.4 Mc. 2000 CST Mondays, W9ZKQ NCS. Experimenting with d.f. systems (Midwest V.H.F. Club and V.H.F. Club of Chicago sponsoring 50-Mc. hunts) shows standard d.f. loop as good as anything. It is small, has a sharp null, and can be built with little expense.

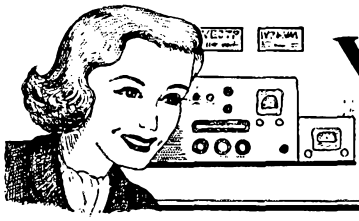
W9PNE and K9DCF, Lancaster, Ind. — Worked W4LRT, Miami, Fla., on 50-Mc. s.s.b. Jan. 27. Though running only 2½ watts he had good signal.

K9RRS, Racine, Wis. — Have large rhombic for working on KG1FN or other far-north stations.

WØHAJ, Kansas City, Kan. — Phenomenal opening of Jan. 30 and 31 first observed when strong signals were spotted on high TV channels. Worked 9 Illinois stations, KN9UIF, Hobart, Ind., and W8BPG, New Buffalo, Mich., all on 144-Mc. phone. Many Ohio and Indiana stations heard. Signals at S9-plus levels for hours, with none of the usual fading or aircraft flutter. Opening extended from Olathe, Kans., and Pawnee City, Neb. along the Ohio and Missouri Valleys, across Ohio and Indiana to the southern tip of Michigan. Entire area was under very heavy cloud cover, with dense fog in many places. Ground temperature in Kansas City area just above freezing, but between 3000 and 7000 feet, above cloud cover, it was 43 degrees.

KØJWT, McPherson, Kan. — Transmitted TV picture for first time Feb. 3. Local interest in amateur TV developing, with several working on transmitters.

Note to OES: The volume and interest of OES reports on file this month is the best in the history of the appointment. Keep up the good work! QST

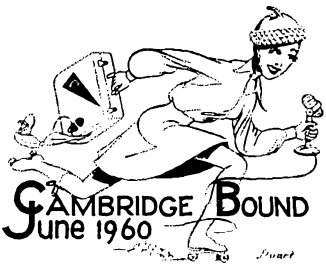


YL NEWS AND VIEWS

CONDUCTED BY ELEANOR WILSON,* W1QON

THIRD INTERNATIONAL CONVENTION of the YOUNG LADIES RADIO LEAGUE CAMBRIDGE, MASS.

June 17–19, 1960



YOU'RE going too, aren't you?

Whether you pack as hastily as Miss Acorn did, or whether you've been getting ready ever since the big dates were announced about a year ago, your ticket to the Third International Convention of the Young Ladies Radio League in June should buy you one momentous, memorable week end in Beantown, U. S. A.

Hear ye pertinent facts of the big event!

Sponsor: The Young Ladies Radio League, with the Women Radio Operators of New England as hostess club.

Dates: June 17, 18, and 19, 1960.

Convention Site: Hotel Commander, Cambridge, Mass. (in historical Harvard Square—10 minutes by subway to Boston).

Co-Chairmen: Onie Woodward, W1ZEN, and Mildred Doremus, W1SVN.

Special Events: See program below *plus* Ye Olde WRONE Gift Shoppe and raffle of most fabulous bedspread in hamdom. (The one-of-its-kind spread consists of squares of embroidered replicas of all of the various YL certificates available sent from YL clubs around the country.)

Registration: For YLs, $10.00 covers the cost of coffee hour, Saturday luncheon and banquet and Sunday outing. OM registration for the banquet is $5.00. For tickets contact Eunice Gordon, W1UKR, 55 Malibu Drive, Springfield, Mass. W1UKR will also handle hotel reservations. Tickets for the bedspread (see above) may be purchased for 25¢ each from Chata Swenson, W1RLQ, Box 193, Morningdale, Mass. You do not have to be present to win the spread.

Hotel Rates: The Hotel Commander is featuring special rates of $8.00 for a single room with bath and $15.00 for a double or twin bedroom with bath until May 1 (in order that all rooms may be reserved on one floor). Reservations may be made through W1UKR (see registration information above).

Program:

Friday, June 17 — 2:00–5:00 P.M. Informal registration, YLs and OMs. 8:00 P.M. Informal get-together.

Saturday, June 18 — 9:00–11:30 A.M. — Registration.

9:30 A.M. — OMs: All day tour.

Millstone Observatory. Lunch on road. Visit to Radio Shack, Boston. Return 4:00 P.M.

YLs: YLRL Forum. Welcome, W1HOY. Business session, W6DXI.

10:15–10:30 A.M. — Coffee break.

11:30 A.M. — Recess.

1:00 P.M. — Luncheon. Greetings from K6ENK, W5RZJ, W1QON, and DX YLs. Introduction of 1st year YLRL members. Longtime YLs (New England). Picture taking and identification of YLs present. Bedspread drawing.

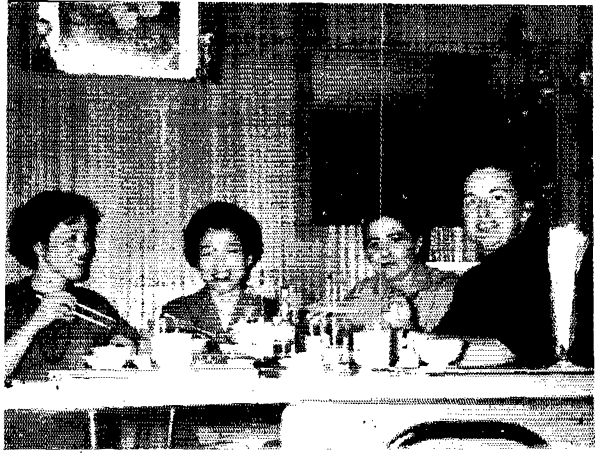
4:00 P.M. — Recess.

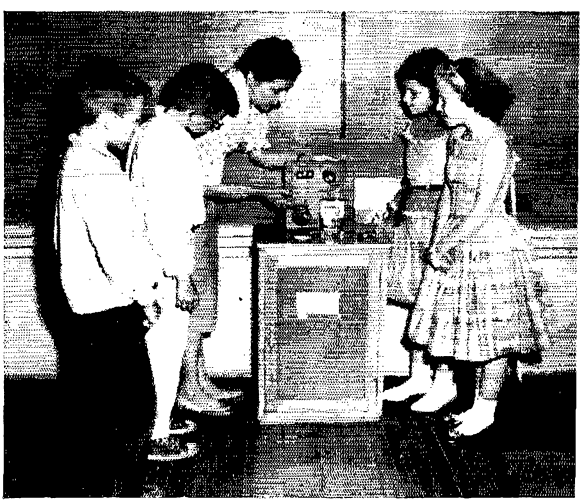
6:00 P.M. — Cocktail hour.

7:00 P.M. — Banquet.

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

At the annual installation of officers of the New York City YLRL outgoing President Dot Westcott, K2DPN, handed over the gavel to Amy Samuels, W2EUL. Reorganized in 1942, the N. Y. C. YLRL meets monthly. All YLs in the N. Y. C. area are invited to membership. ***(Photo courtesy W2EEO)***





Adding to the display of JA YLs in February, here are four more photos from Japan. This time a pair of well-known American YLs enter the Japanese ham picture too. In JA land with their husbands on government assignments, Hilda Andrew, W4HWR/KA2HA, and Lois Jennings, K4CXJ/KA2YL, have appreciated the opportunity to meet some of the country's leading lady operators in "ground contacts" (JA1YL's substitute expression for "eyeball QSO").

Upper left photo: JA1CLJ, Yoshiko, JA1YL, Kuni, W4HWR/KA2HA, Hilda, and K4CXJ/KA2YL, Lois, enjoy lunch at a "Chinese" restaurant. In spite of a language barrier, the conversation was animated.

Lower left: JA1CLJ and JA1YL pose prettily while K4CXJ operates as KA2YL in a sideband contact with a W7.

Upper right: Hilda, W4HWR operates as KA2HA while her OM KA2JA peers over her shoulder.

Lower right: Science teacher Mrs. Andrew explains an electric dry cell battery to students at Grant Heights Elementary School near Fuchu Air Station, Japan.

JA1YL, Kuni, has been active on 80, 40, 10, and 6 phone during the past two years, especially during contests. Kuni's OM, JA1CO, is a technical engineer at Radio Research Laboratories.

JA1CLJ, Yoshiko, is the wife of prominent JA OM JA1ANG. Yoshiko's four-year-old harmonic does not appreciate her mother spending much time in the shack, so extensive hamming for JA1CLJ has yet to come.

Well-known YL Hilda, W4HWR/KA2HA, ex-K2IWO, is the wife of Chaplain (Lt. Col.) Joseph Andrew, staff chaplain for the 6000th Support Wing at Fuchu Air Station, Japan. Chaplain Andrew ("Joe") is W4EFG/KA2JA. In Japan the Andrews have operated as an Auxiliary Military Radio Service team. Hilda, as a dependent, is not authorized to operate such a station, but as a Department of the Air Force civilian employee (substitute teacher at Grant Heights Elementary School) she is allowed to do so.

Both W4HWR and Lois Jennings, K4CXJ/KA2YL, have enjoyed being rare YL DX, but they look forward to coming back to the States this spring. Hilda says she will attend the YLRL convention in Cambridge in June, if she has recovered from moving clothes, furniture, rig, and three children 10,000 miles! *(Photos courtesy W4HWR)*

Speaker — Father Dan Linehan, W1HWK, Director of Weston Observatory, presents his scientific travels from a "Ham's eye view."

Sunday, June 19 — 12:30 P.M. Picnic at QTH of W1HOY, in suburban Medfield. Swimming — bring your own suit.

CU in CAMBRIDGE!

AHEM!

108-22 Inwood St.
Jamaica 35, N. Y.

YL Editor, *QST:*

I felt a need to write to you on behalf of c.w. Every month I read the YL column in *QST* — I find one fault. In 99% of the pictures published in amateur radio magazines (*QST* and others) most of them picture a YL in front of a microphone (how dismal). In some of the photos there just might be the outline of what looks like a bug or straight

The golden plaque beside W6NAZ is inscribed "Eternal gratitude from the men of Sondrestrom . . ." Twice weekly for nearly four years Lenore Conn, W6NAZ, of Sherman Oaks, California, has maintained schedules with KG1FR, Air Force Base at Sondrestrom, Greenland, making it possible for the airmen there to talk to families back home. Lenore uses a KWS-1, 75A-4, a 3-band beam, and "the constant cooperation of Joe, W6MSC," for her s.s.b. skeds. Also well-known in professional radio and TV, Lenore recently received the Radio and TV Women of Southern California Merit Award for 1959.

key (those things you make the dots and dashes with) sitting behind a few dozen microphones.

Even in the pictures of the Japanese YLs published in February 1960 *QST* there were microphones only showing — not a brass pounding machine in the lot.

So, please, won't you show a few pictures of YLs, YYLs, and XYLs peacefully and happily getting along with a key? Be seeing the YLs in future YL/OM contests — on c.w., of course. — *George Walczyk, WA2FCC*

Believe it or not, there are some YLs who are on c.w. exclusively. That 99% figure should be revised downward somewhat. A check of rig photos appearing in the YL column in 1959 revealed that about 20% of the photos indicated that the subject YL was a bona fide brass pounder. Nevertheless, George, you make a big point. — *Ed.*

DX YL JAMBOREE

The YL SSB Net invites all YLs, especially DX YLs, to participate in a YL Jamboree on single sideband. Dates for the affair are April 27 at 2300 EST or April 28, 0200 GMT. NCS will listen for DX YLs first on the net frequency 14,260 kc. and will then tune 14,320 to 14,330 kc. for other stations not on the net frequency. Contact NCS of the YL SSB net Harriett Woehst, K5BJU, for further information. The net meets regularly each Wednesday, 1300–1500 CST on 14,260 kc.

SQUAW VALLEY

As this is written, the 1960 Winter Olympics are about to take place. Plans for amateur communications at Squaw Valley are extensive, and a number of W6 YLs have worked on some of the arrangements for many months. Next issue we hope to report on this participation by YLs in communications for the Winter Games.

Meet a young Young Lady from Parsippany, New Jersey. Miss Margie Aurick, WV2IIS, age eleven, augments hamming with Girl Scouting and straight A work in Grade V. Margie's Dad is W2QEX (a former Asst. Secy. of the ARRL).

TWO MORE CERTIFICATES

Announcement is made of two more new YL certificates.

The ALAMO YLs of San Antonio, Texas, will issue a certificate to any amateur outside of Texas who contacts three ALAMO YL members and to any Texan ham who contacts four club members on the air. Send a list with date, time, call, and frequency of contacts, along with ten cents to Inez Cole, W5WXT, 320 Meadowbrook, San Antonio 12, Texas.

The WAYLARC (Washington Area YL Amateur Radio Club) will issue a certificate to any amateur who contacts on the air at least five members of WAYLARC. DX amateur stations must contact at least three club members. Contacts made during club net time are not acceptable. Any contacts made on or after Jan. 1, 1960, will be honored. Submit verifying QSL cards (they will be returned) to custodian Camille Hedges, W3TSC, 2202 Culver St., Washington 21, D. C.

COMING GET-TOGETHERS AND EVENTS

WRONE Annual Spring Luncheon — May 14 at Robinhood's Ten Acres, Route 20, Wayland. All YLs in New England cordially invited. Plans for YLRL Convention in June will be discussed. Luncheon is $2.50 — contact Marie Welsh, W1COL, 1228 Cambridge St., Cambridge 39, Mass.

Midwest YL Convention — The tenth annual will be held in Indianapolis, Ind., May 20–21, 1960. Pre-registration is $2.00. W9RTH is chairman; K9IXD, co-chairman.

Third International Convention of the YLRL — June 17–19, 1960, at Cambridge, Mass. See details on page 62.

1960 AWTAR — The fourteenth annual air derby of women pilots will start at Torrance, Calif., July 9 and will terminate July 13 at Wilmington, Del. Carolyn Currens, W3GTC, chairman of AWTAR radio net, invites YL participation in the net. (See March column.)

KEEPING UP WITH THE GIRLS

CLUBS:

YLRL — From Vice President W6DXI: "Referring to January 1960 *QST*, pp. 80–81, the YLRL will count both Alaska and Hawaii for state and for DX — this covers our WAS-YL and DX-YL certificates."

R. I. YLRC — New officers: Pres. W1GSD; V.P. K1GEF; Secy. K1AAK; Treas. K1DCW.

Penn-Jersey YL Club — New officers are Pres. W3GTC; V.P. W3SLF; Secy. K3EHG; Treas. K3EHH. Pres. W3GTC will chairman AWTAR operations in July for the third year (see Coming Get-Togethers and Events).

ALAMO YLs — New officers are Pres. K5OPT; V.P. W5WXT; Secy.-Treas. K5OPS. Club nets meet Friday at 0900 CST on 7235 kc., K5OPS, NCS, and Tuesday at 1900 CST on 145.2 mc., W5TSE NCS. (See rules for new certificate.)

WAYLARC — See rules for new certificate.

HAWK (Hoosier Amateur Women's Klub) — Member-

Ann Ogilvie, VE1TK, has been QSOing from the Land of Evangeline for more than 25 years. Proud of her "Old-Timers Certificate", Ann has operated 10, 20, and 75 meters consistently since she was licensed in 1933 Ann and her OM VE1CV radiate 100 watts with their home-built transmitter.

OM KZ5TJN writes that if you have worked a Canal Zone YL lately on c.w., bets are high that it was his XYL, Julie Herrman, KZ5WWN, on forty meters. Work the Herrmans, including son KZ5VV, and Julie will send you a special handmade card.

ship has risen close to the sixty mark. New officers are Pres. and editor of *HAWK's EYE VIEW*, K9IXD; V.P. K9ILK; Secy. K9QJR; Treas. K9SUT; Directors W9LYU and RTH.

FLORIDORA YLS — A new Central Floridora FLORIDORA YL net meets Thursday at 50,330 kc. at 2000 EST with K4ANR, Mgr. The Sunday phone net has been reactivated and now meets on 7225 kc. at 0900 EST with K4UIZ, NCS. QST

Strays

Here are the April schedules for the various MARS technical nets.

First Army MARS

(Wednesday evenings, 2100 EST, 4030 kc. upper sideband)

April 6 — Filter Design and Applications.
April 13 — New Semi-Conductors for High Frequency Circuits.
April 20 — Modern Trends in Electronic Instrumentation.
April 27 — Tacan and Similar Aircraft Navigation Systems.

AF-MARS Eastern

(Sunday 1400 EST: 3295, 7540 and 15,715 kc.)

April 3 — Television and Scanning Techniques in the Field of Medical Electronics.
April 10 — Applications of Tunnel Diodes.
April 17 — Easter Recess.
April 24 — Transistor Circuit Considerations.

AF-MARS Western

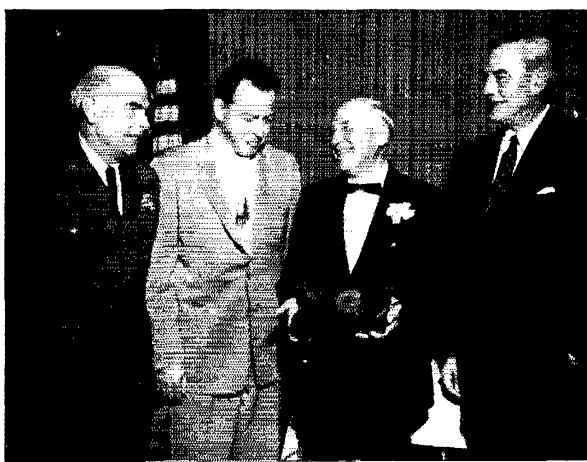
(Sunday 1400 EST, 7832.5 kc., 3295 kc. and 143.46 mc.)

April 3 — Advanced Telemetry Techniques.
April 10 — Mobile and Portable High Frequency Antennas.
April 17 — Brain Power and the Missile Gap.
April 24 — Technical Net Session and Project Reports.

—···—

Maybe this is where we should get *QST* printed? W8EFW sends in the name of a Berea, Ohio, printer — C. W. Dash.

John L. Reinartz, K6BJ (ex-1QP and ex-1XAM) was recently honored on his retirement from Eimac. Reinartz won lasting recognition in amateur radio circles for his operating and technical achievements. His "Reinartz tuner," first described in June, 1921, *QST*, was widely used as a superior device for tuning in the new c.w. stations. In 1922 he became one of the first two U. S. stations to work 8AB in France. In 1925 he published a theory on the reflection of radio waves, to account for skip distance. He was interested in many technical phases of radio, and was awarded 28 patents. This photograph taken at the banquet in San Mateo shows Lt. Gen. "Butch" Griswold, KØDWC, at the left; Bill Eitel, W6UF; Reinartz; and Master of Ceremonies Herbert Hoover, jr., W6ZH.



U. S. S. R. INTERNATIONAL TELEGRAPHIC CONTEST, REPORT OF MAY 7-8, 1960

Call Sign.....*Name*.....

Number of Operators.....*Address*.....

Country.....*Transmitter Input Power*.....

Receiver.....*Antenna*.....

Date	*Band*	*Time GMT*	*Correspondent's Call Sign*	*Control Number Received*	*Control Number Sent*	*Points*	*Jury's Notes*
1	2	3	4	5	6	7	8
May 7	14 Mc.	2103	OK1AX	569003	579001	1	
May 7	14 Mc.	2106	UR2AA	579002	589002	1	

Number of Points for Contacts.....*Number of Countries*.....

Total Number of Points.....

May....., *1960*

.....
Operator's Signature and Call

FIFTH ANNUAL PACC CONTEST

C.w.: Apr. 30-May 1

Phone: May 7-8

Netherlands' VERON invites amateurs throughout the world to participate in the Fifth Annual PACC Contest to be held (c.w.) 1200 GMT April 30 to 2000 GMT May 1; the phone contest is the following week end May 7-8 same times.

Stations outside Holland will strive to contact PA stations once per band by calling "CQ PA" and exchanging the usual RSTOO1, RSTOO2, etc., serials ("T" omitted on phone, of course). Count three points for each completed contact. For final score multiply QSO points by the number of Netherlands band-multipliers collected, these based on Dutch provinces as indicated by the following suffixes appended to PA call signs: *DR*, Drente; *FR*, Friesland; *GD*, Gelderland; *GR*, Groningen; *LB*, Limberg; *NB*, Noord-Brabant; *NH*, Noord-Holland; *OV*, Overijssel; *UT*, Utrecht; *ZH*, Zuid-Holland; *ZL*, Zeeland. To be eligible for merit certificates, logs must be mailed to Contest Manager P.v.d. Berg, PA0VB, VERON, Keizerstraat 54, Gouda, Netherlands, no later than June 15, 1960.

INTERNATIONAL TELEGRAPHIC CONTEST

May 7-8

The Central Radio Club of the U.S.S.R. invites worldwide participation in the International Telegraphic Contest to develop skill in radio operating techniques and strengthen friendly relations among amateurs throughout the world.

A radio amateur should score the maximum number of points possible for contacts with radio amateurs from as many *different countries* as possible. This contest is being held from 2100 GMT on May 7, 1960, to 2100 GMT on May 8, 1960. Although logs are solicited for the entire 24-hour period, only contacts made over a *continuous* 12 hour period will count for score. So you can work as much as 24 hours, but pick your best 12 *consecutive* hour stretch in figuring your score. Contacts should be established on 28, 21, 14, 7, or 3.5 Mc., c.w. only. The exchange consists of a six-digit number made up of RST and QSO number, starting with 001. Your first exchange might be 599001. Stations may be contacted only once *per band;* stations may be worked again on different bands. Contacts with stations of one's own country will not be credited; the ARRL Countries List shall be the official list of countries for the contest. *Scoring:* Each completed contact counts one (1) point. Final score is the number of contact points multiplied by the number of different countries worked on all bands, *not* the sum total on each band. A single discrepancy on a contact will void that contact. *Awards:* Award winners will be from each country for both single-operator and multiple-operator scores. Winners will also be determined for single band entries for both 7 and 3.5 Mc. Single-operator awards of a certificate and contest badge will be awarded to the five highest scoring single-operator entries from each country. Multiple-operator awards of a certificate will be awarded to the five highest scoring entries from each country with a contest badge to each operator. All participants who establish contact with 100 different Soviet operators will be awarded a "W100U" award; all participants who establish contacts with six continents will receive the "P6K" award; and contact with 150 different countries will merit the "P150C" award. Each participant, irrespective of the number of points scored, should make a report following the above sample, not later than May 15, 1960, to Chief, Judging Board, Post Office Box 101, Moscow, USSR.

Strays

Somebody on the staff of the Bridgeport (Conn.) *Post* is really hep. In discussing shortwave listeners, the newspaper said, "SWL's (Sky Wave Layers) are radio enthusiasts, who transmit on the sidebands of existing, assigned frequencies, using the cloud layers in the sky to reflect their signals and send them a greater distance than the average assigned "ham" frequency will usually travel. All SWL's transmit on the same frequencies, which are open to anyone who cares to use this type of transmission in preference to the assigned frequencies."

How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

Whereas:

Pragmatic individuals who maintain that phone is phone, c.w. is c.w., and never the twain shall meet, are flaunting a false premise. The twain met and mingled successfully long ago, long before Morse, Marconi and Fessenden. A French explorer named Bethencourt, visiting the Canaries in the fifteenth century, discovered that audio experts on the island of Gomera even then were fully aware of the DX advantages attainable through narrow bandwidths and high frequencies. Gomerans had already perfected the wonderful "Whistled Language of Gomera," a communications achievement about which *Encyclopaedia Britannica* has this to say:

> Many Gomerans possess the ability to talk by whistling. . . . Whistlers commonly insert two fingers into the mouth, using the same modifications in position of lips, tongue, etc., as in speech. In this manner they are able to produce greatly magnified birdlike sounds, which closely imitate the rhythm, tone and other intricacies of spoken Spanish, permitting them to converse across distances which the voice could not bridge. The most expert are found among the goatherds dwelling in the mountains around Chipude, where there is no other means of swift communication. There, illicit charcoal burners are rarely apprehended because details of the sheriff's approach are announced in whistling.
>
> In the chronical of the expedition of Jean de Bethencourt in 1402, an implausible legend of missing tongues is related, to account for the origin of the whistled language. A more scientific explanation is that it has been of slow development, perfected from necessity after generations of practice. Rene Verneau (1891), Earnest A. Hooton (1925) and others who visited the archipelago for research state that whistling is not a code system but a true method of conveying thought.

Lest you think this EA8 bird bit is a mere extension of street-corner wolf whistles and other procedure signals, *Britannica* goes on :

> In 1934 an official test was conducted by the insular government to authenticate the fact that conversations phrased in simple words could be carried on. Separated beyond shouting distance, whistlers exchanged 13 unrehearsed messages, composed by a witness and dictated to them. All messages, as sent and as received, were thereupon recorded in writing. Upon subsequent comparison of notes, 11 messages proved to have been transmitted and understood with exactitude; 2 showed inconsequential discrepancies: the expression "piece of paper" had been substituted for the less familiar word "newspaper"; and the command, "pick up two stones," was performed by picking up only one. A document certifying to the particulars of the test was placed in the archives of the island; official copies are in the library of the University of Arizona (Tucson) and the Free Library of Philadelphia.

Gomera's niche in DX history is further secured by the fact that the island was the last Old World stop for Columbus on his epic expedition of 1492. The house in which Chris stayed and the church he attended still stand. Now *there* was a DX man.

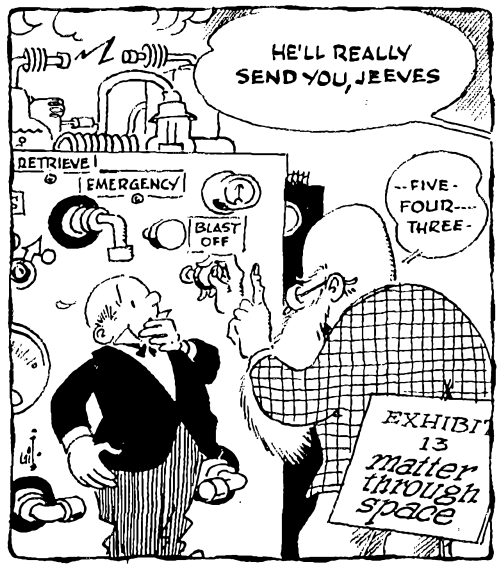
—•••—

Two-year-old Charles Guevara of Los Angeles demonstrates that DX men are born as well as made. A recent front-page item in the daily press reports how Charlie nonchalantly picked up the telephone while mama was QRL in the kitchen, dialed a few numbers and raised an XYL in New York. Those doggone Sixes start out *young*.

What:

DX conditions have rarely given a more capricious and interesting performance than that of recent weeks. From "How's" correspondents on every continent and every band, 1.8 through 28 Mc., come reports of transoceanic signal barrages of electrifying audibility. These joyful sessions are regrettably punctuated by abrupt propagational depressions, but such beguiling unpredictability is what makes DXing the dynamic sport it is. Man, when you turn on that receiver you don't know whether you'll wince, smile, grimace, cheer, moan, groan or drop dead twice. But you can be sure, in any event, that you'll get the challenge you bargained for! Let's see what the lads are working, hearing and chasing. . . .

40 c.w.'s long-haul possibilities are being rediscovered nightly by OT DXers, and newcomers are quite surprised to hear 20-meter-type juicy ones banging through on what they thought was just another rag-chew band. Yes, indeed; W1BPW, K1JFF, W2WAS, WA2s EFN FCC, K4ZYI, K5JVF, KN5TTN, W6s JQB KG, K6s CJF DV KDS SXX, W7s DJU LZF, W8GKB, KN8OOK, W9s JJN ZYD, KØHIL, EL4A, A. Rugg, J. Howard, ISWL, VERON and WVDXC mention the workability of **APs** 2AD 2KN 4M 22, **CM5**HF, **CN8s** DJ DS, **COs** 2CT (7015 kc.) 7 hours GMT, 2MO 2PY (7) 5, 2WC (30) 2, 6NV (77) 12, **CT2s** AC AI, **CX2**TF, **DM3s** HL XJ, **DU7SV**, **EA8s** CG (31) 8, CU, **EL4A** (3) 6, ETE3CE, **FAs** 2VH SEC, **GC2**FZC (25) 7, **HA8**KWE, HB9YG/mm, **HH2**LD,



*4822 West Berteau Ave, Chicago 41, Ill.

April gallantly routs winter's chill solitude in our latitude, calling forth many a hamshack recluse to join the nearest hamfest. Operators at the DX end are equally gregarious, a fact pointed up by the panels on these facing pages. In the group at upper left are (front row) ZEs 1JC 4JM 1JV 5JU 5JJ 2JS 1JN 4JU; (second row) good ladies of the gathering, and ZE7JY; (third row) ZEs 2JR 2JU 6JJ 2JB 6JR 4JR; (rear row) an s.w.l., ZEs 4JC 6JY 3JJ 1JT 7JN 2KO 1JE 1JL 6JT 3JY 5JE 4JX 4JZ and 6JA. (Photo via ZE5JU and W6DA) _..._ The army at above right comprises (front row)

HKs 6IC (9), 7MM (60) 4, **HZ1AB** 21, IT1AGA, JA1-2-3s en mass, **JAs** 4AHA 4AHX 4CX 4FF 4VJ 4VQ 4YC 5MU 5MZ 6AFL 6AGL 6AKY 7LK 7SM 7UJ 7WB 7XF 7XN 7ZP 8HO 8IJ 8JC 8JD 8SN 9FV 9JG 9MS 9OS 0RC all around breakfast time out west, **KGs** 1AQ 1BX 4AG (6) 0, 6CY (23) 11, **KX6CO**, **KZ5s** MQ TJ, LA2TD/p 9 of Svalbard, **LZ1KGZ**, **MP4QAO**, **OD5LX**, **OHØNC**, **OX3RH** (15) 20, **PJ2AN**, PYs in most call areas, **PZ1AR** 0, **SP8s** CK KAF, **ST2AR** (8) 23, **SVØs** W1/Crete WJ, **TF3AB**, TI2s in number, **UAØs** AZ EH 15 of Sakhalin KCB (1) 11, KDA (16), KID KJA, **UB5s** FJ KED UG WF ZE, **UD6FA**, **UL7IG** (20), **UM8KAB**, **UO5AA**, VE6AAE/SU, VKs in all districts, **VPs** 2KD (4) 9, 2KE (5) 0, 3FM (33) 10-11, 4LA 6RG 7BB/mm 7CC (21) 2, 9BO 9EO 9EP, **VQ4GQ** (23) 21-22, **VR2DK** 9, **VS9OM** (2) 20, XEs in quantity, **YN4AB**, **YO8KAE**, that YS4RA chappie, **YVs** 4CI 5DE, **ZC5AF** (5), **ZB2I**, **ZA1KC**, **ZS3AU**, ZLs a-plenty, **5As** 2CV 5TR and **9G1BQ**. Oh, we could go on and *on*.

40 phone deserves some attention, however, and we can't usurp all of *QST*. So suffice it to say that **CO2ZS**, **DJ2HC*** (296) 2, **EL4A**, **HA7KLL**, **HK7MM** (275) 8, **HP3FL**, **HR3HH*** 5-6, **HAIM***, **KG1BX*** (297) 5, **KP1s** PZ USA, **OA4CX***, **OHØNC**, **OX3RH**, **PX1PA** (97) 22, **PY8BD***, **PZ1s** AX* AZ* (217) 10, **SP1BC**, **TF5TP**, **TI2RC** (296) 0, **UAs** 1DZ 3NB, **UC2KSM**, **UP2KNP**, **XE3AH**, **YO30V**, **YV5EK** and **ZL3ID*** (130) 10 are giving W8GKB, ISWL and VERON a dandy show.

75 phone inspires the latter two monitoring organizations to sing the 3.8-Mc. praises of **DJ2UE***, **DLs** 1CW* 8BQ, EI8I, **HA1KSA**, **HB9LF**, **LX1GJ**, **OY7ML***, **OZ8RK***, **PAØBW***, **UA1DZ** and **UR2KAE**. Oh, the asterisks (*) indicate single-sideband employers in these radiotelephone paragraphs. Any W/K/VEs bagging this stuff? Don't forget that the European segments of "75" are narrow slots 'way down around 3.6 and 3.7 Mc.

80 c.w. gave way to EL4A (5) 6, enabling Ken to corral W/Ks all through the land. Even 15-watt W6/K6s made the 3.5-Mc. grade to Liberia! Ws 1BPW 6EBY, IT1AGA, A. Rugg, ISWL and VERON recommend **CO2QP**, **CRs** 6AI (5) 20, 7NL (8) 20, **CT1PM**, **DM2AQL**, IT1TAI 4, **TI2CMF** (5) 7, **UAs** 6LF 6LI 6MA 9CM (14) 20, ØAZ (9) 11, **UC2OM**, **UN1AE**, **UP2AA**, **UQ2AN**, **UR2AI**, **VS9OM**, **ZC4LL** (2) 20 and a host of lesser lights near the low edge. Atmospherics will be on the increase now in our latitudes, but that means less noise on the far end of the transequatorial path by the same token. Grin, bear it, and log it!

10 c.w., now, for an abrupt change of pace and wavelength. Ws 1BPW FZ MD, K1s CCA JFF IMP, K2s YFE YXC, K3CUI, W4ORT, K4ZYI, K6s CJF SXX, WA6DNM, W8YGR. W9CLH, KØs JPJ LEQ OSV OSW SAJ UAF WQI (the Zeroes really go for Ten!), HER and A. Rugg suggest consultation with **AP4M** (110) 17, **CRs** 4AX 6DB (400) 16, 7IZ (110) 18, **CX2AZ** (50), 22, **DM3VCI/p** (50) 18, **EA9AP**, **EL4A**, **FA8TT**, **FG7XS** (180) 12, **FQ8HA** (50) 20-21, the 5-watter of G3IGW, **HKØAI** (80) 22 of San Andres, IT1TAI, JA1-2-3s muchly, **JAs** 6AA 6AGA 8BP, **KA2KS**, **KG6FAE**, **KV4BO** (53) 0, **OQ5BB**, **OX3DL**, **PJ2CM**, **RH8ABC** 13, **SPs** 5ADZ (50) 16, 6LB (120) 15-16, 7HX (5) 10, **UAs** 1FR 2KAA 10, 3HP 4IF, **UC2BB** (150) 15, **UP2KCB** 12, **UQ2AB** (100) 14, **UR2BU** (150) 16, VE8OM, **VP2s** AR DY (50) 22, **VQ2WR** (50), **VR3W**, **XE3BL**, **YV5HL** (15) 21, **ZEs** 1JU 2KG (100) 14-15, 3JJ (100) 22, 8JO (100) 19, **ZS7M** and **4X4FU**.

10 phone holds up well with increased amplitude in the magnitude of its ups and downs. Said ups were well exploited by Ws 1FZ PNR RJJ YQF, K1s HRM HWB IMP, K2YFE, W4IUO, K4ZYI, W6KG, K6CJF, WA6JNM, W8YIN*, KØLEQ, VE3BIF, TG9TI and listener A. Rugg to the tune of **CN8JD**, **CRs** 4AV 6BJ 6CA 6LA 7ES 7FG, **CXs** 2AY* 5BR, **DU1VVS**, **FB8CM**, **FF8AP**, **FQ8s** AF AT, **GB2SM** (300) 16 just England, HA9OZ, **HC1FO**, **HH2RS** (300) 23, **HI8CM** (110) 19, **HKØAI** (420), scads of JA1-2-3s, **JAs** 6JY 7GB 8BY 9CQ (420), K6QPG/**KW6** now heading homeward, **KAs** 2GI (380), 8RB (440), **KC6PE**, **KGs** 4AK (200) 17, 4AX (400) 17, 6AFA (700), 6AHF 6FAF, **KM6BI** (880), **KR6s** CE OT, KW6DA/**KM6** (300) 1, **OA9B**, **OD5CL**, **OQ5FV** (275), **RAs** 1AEF 3JQH 6LGM (603) 13, **RB5KFL**, **RN1AAA**, **RO5KWG** (379) 15, **RP2KCK**, **SL5AB** (500) of Sweden, **TF2s** WEE WEV (600) 15, **TG9HC**, **TI2OE** (410), **VK9CP**, **VPs** 2DX (405) 23, 3HAG (310), 5DM 6ZX 8EM, **VQs** 2AB* (651), 2SB (304), 4RF, **VR2BC** (410), **XEs** 1PA 3BL, **YO3WL**, **ZDs** 2RJO 3E (270), **ZP5LZ**, **ZS7s** C L (200) 19, other **ZSs** and **ZLs**, **4X4s** CK FZ, **5A1TJ** and **9G1CO**. The north-south paths take over 28 Mc. for the summer pretty soon, but keep your beams ready for the east-west stuff at frequent intervals. And don't be too sure that a silent nighttime band means a dead band.

VQ2s AS DC, an s.w.l., Mrs. VQ2LB, offspring and friend, VQ2s SB JC, Mrs. JC, VQ2RW; (rear) VQ2s FC DA HA SP, s.w.l., VQ2NS, another listener, VQ2s HJ JP and WM. (Photo via VQ2RG and W1ICP) — . . . — At lower left (left to right) are PYs 1BKR 4AS 1BIG 1AF 2CK, Mrs. ex-CN8MM, PY4TK, ex-CN8MM and PY1AQT. (Photo via PYØNA) — . . . — New officers of the Okinawa Amateur Radio Club (lower right) are KR6s LL HD CP DZ IF QM and HL. Okay, let's roll out that barrel!

15 **c.w.** enjoys a lively spring. Our nominating committee, W1BPW, K1s CCA HRM JFF JTL, K2s MBX UTC (143 worked on 21 Mc, phone and c.w.), YXC, WA2s EFN FCC, K3s CUI GCS, K4s BYK LRO ZYI, K6s CJF HDI/mm LAE SXX, WA6CRQ, W7s DJU POU, K7s GPG HDB, W8YGR, K8POU, W9LNQ, WØTRF, KØs JPJ LEQ OSV OSW UAF WQI, A. Rugg, H1ER, KH6DGL and VE2BCL, approves the credentials of **CE3LV** 18, **CN8**DJ, **CR5**AR 20, **CT1**NA, **CX7**CO (22), **DM2**BCH, **DU7**SV (60), **FA8**CF, **FB8**CJ, **FF7**AG 23, **FK8**AI, **GC2**FZC, **HA8**KCU, **HCs** 1LE 1JW (100) 22, 2IU (80), **HKØ**AI, **HL9**KG, **IT1**TAI (25) 14, **JAs** 1ACA 1ACB 1BQR 1GC 2DO 3CS (50) 4-5, 7AD (50), **KAs** 2RB 5MC 21, **KB6**BH (280), **KGs** 4AH 6AAY, **OA3**D (20), ON4TX/mm near VP8, **OQ5**IP, **OR4**KR of the Belgian antarctic regions, **PJ3s** AD AH, **SPs** 1IB (20), 6DB 10, **ST2**AR, **TF2**WEN, **UAs** 2KAW 4IF, **UB5s** CK FY KAA QF UW WF, **UAØs** AZ CF FR KID (29), **UC2**AA, **UD6**AM, **VE8s** DJ RX, **VPs** 2AR 2DX 7NE 18, 8BS (50) 5, 8EG 8ES 9EU 19, **VQs** 3CF 4EZ, **VR3s** V W, **VSs** 1EA 1KM 4FC, **VU2**MD, WH6DMU/**KH6**, **YOs**AW 9, **YVs** 3CD 5BZ, **ZB2s** I R, **ZD2**JKO, **ZS3**AH, **5As** 2CV 5TA (216) and **9M2**GA.

15 **phone** enabled W1s PNR (141/136 worked/confirmed) RJJ, K1s CCA HRM IMD IMP JFF, K2UTC, W4s QCW UWC, K4s LRO ZYI, W6KG, K6LAE, K7GPG, W9LNQ, KØJPJ, EL4A, A. Hovey, A. Rugg and N. Perlman to put the cuffs on **CM2AE***, **CN8**FT, **CO8**ES, **CR5**SP, **CX2AX***, **ELs** 2V 19, 4A (225) 18, **FB8**CD (191) 18 of the Comoros, **FG7XE** (243), **FS7RT***, **HKs** 3LZ 19, 0AI (215) 4, **HP1**AC, **HV1**CN, **HZ1**AB*, **I5**FL (225) 18, JA1ACB, **KCs** 4USB* 6PE, **KGs** 1FD* 1FR* 6AIO*, **OK3**KGI, **OX3**KW, **PJ2s** AI MC*, **PZ1s** AA (220) 22, AR (227), AX (401), **UA4FE***, **UR2**BU, **VK3**AHO*, **VPs** 1AQ 2AR 2DX 2KW 2SL (213), 5FP 7BE 7BI* 7NT* 8CX (245) 1, 8DQ of the Falklands proper, **VQ4**FK, **VR2s** BC (210) 2, DF (210) 2, **VS9**AE (232) 19, **XE3s** AF AX, **YU6**BT, **YVs** 1BP 1DG 20, 5AJK (230), **ZD2s** FNX JSC (205), **ZL3**GJ*, **ZP6**BB*, **ZSs** 2MI (160) 20 of delicious Marion Island, 3D (171) 19, **7L** (236) 18, **4X4**FU and **5A5**TA.

15 **Novice** notes, contributed by KNs 1JTL (now N-less), 4FWJ 4MPE 8OOK 8QEX (42/16), 8RMN 9SRR, WV2s FCB HLZ and friends, feature **CE4**EC, DJ-DLs in number, **EAs** IGZ 5EZ, EL7GD/mm, numerous Gs, **GI3**NSM, **GMs** 3XO 8FM, **GW3**CBA, ubiquitous **HKØ**AI, H1CFY, **KH6**CYK, **KL7s** CDF DG, **KW6**FA, **KZ5**DTN, LUs and PYs, **OHs** 1QA 8NH, **OA4**RP, **OK1**LK, **ON4**RN, **OZs** 3UR 6RL, **PAØs** JDB SA, **PZ1**BA, **SMs** 5UW 7BEM, **UB5**ND, UO5AA, **VK3**XB, **VPs** 4LE 7BF 9EU, rare Midway Novice **WM6**BX, **WP4s** ALL ASN, **WL7**DCC, **ZBs** IFA 2I and ZL2GH. "Less fruitless CQs and more listening," advises KN9SRR.

20 **phone** fails to daunt W1s FZ* YQF, K1s CCA JFF, W4s IUO QCW*, K4ZYI, W8YIN*, s.w.l.s A. Hovey, C. Morrow and A. Rugg, KH6DGL and VE3DZL in their pursuit of items like **CE2**CO, **CN8**CS 22, **CRs** 6BW* (295) 20, 9AH* (307) 14, **CT1s** EV 22-23, JH (184), **FF8**AK* (305-334) 16-22, **HC2**JF (212), **HH2**PB, **HK3**MK, **HL9**TA, HP9FC/mm* (304) 13, **HS1**K (320) 11, **I5GN*** (343) 21, **KA2**CB*, **KG6**IJ, **KW6**CQ, **LA3**SG/p* (300) 8, **MP4**DAA (310) 16, OA4AX, OK7HZ/YI* (304) 4, **OX3**AS, **TF2**WEG (215) 15, **TI2**HP*, **UB5**KAB* (305) 8, **UI8**AK (221) 13, **VPs** 2DX (138), 2LS 3HAG 3IG, **VPs** 6BY (317) 1, 7BI*, **VR3**W (280), **VU2**MD* (312) 12, YN9BM, **YO3**YM, YS1MS, YV3CE, **4S7**PJ (116) 12, **4X4**DK* (306) 21, **5A5**TA (145), **9K2**AM* (304) 20, **9M2s** DQ (192) 12, GR* (314) 11 and Nepal's **9N1**GW* (305) 8-14, the asterisks, as usual, representing s.s.b. users.

20 **c.w.**, even with occasional nighttime fold-ups and daytime dry spells, remains the DX bargain counter that sets the pace of the market. Here we find W1s BPW FZ TS YQF (147), K1s CCA IMP JFF JTL, W2JBL, K2UYG, WA2EFN, W4s IUO ORT QCW (282/277), K4s ASU LRO ZKZ (122/95), ZYI, K5LLJ (36/20), W6s JQB KG, K6s CJF LAE (176/162), SXX (32/17), WA6DNM, W7s DJU POU (41/15), UVR, K7GPG, W8YGR (156/153), W9s CLH ZYD (69/39), KØs JPJ LEQ OSV OSW UAF WQI, VE2BCL, KH6DGL, EL4A, H1ER and A. Rugg clearing wall space for QSLs from **APs** 2BH (60) 15, 4M (33) 0, **BV1**USB (45) 13, **CNs** 2AV (86), 8CA (50), 8EQ (36), 8JW 8JX, **CO2s** EU QH (54), **CP3**CD (10), **CRs** 4AH (45) 5, 5AR 6BX 7AD 23-0, 7CS (50) 16, 7IZ, **CTs** 1KD 2AI 23, 2BO, **DM2**AGL, **DUs** 6IV 7SV (80) 14, **EAs** 8CG 9AQ (63), **EL4A** (50) 23, **ET2**US (341), **ETE3**CE, F2CB/**FC** (70) 20-21, **FAs** 2HL (50) 18, 9UO (10), **FB8s** CE (48) 16, XX ZZ (40) 16, **FG7**XC (40) 1, **FK8**AU (55) 7, **FO8s** AC (50) 6, AU (54) 3, **FQ8s** HA (50) 20-23, HO (20) 15, **FR7**ZD (55) 15, **FY7s** YE YF, **GD3**FBS (15) 5, **HAs** 3MA 7PZ (40) 17, **HCs** 1JU (35) 3, 1JW (25), 1LE (10), 2IU 0, 5CN (60), **HH2s** AR (120), CB (125), LD (65), **HKØ**AI (5), HP9FC/mm (100) 3, **HZ1**TA (30) 20, **IT1s** AGA TAI (55) 23, **JAs** galore, **JT1s** AB AW (35) 16, **KAs** 2GW 2KC (45) 0-1, 2SW 9JR (75),

KC4s USE (95) 8, USG (45) 10, KG1s AQ (20), BB, KM6BQ, KR6s AC DO (28), GF RB, KV4AA (81) 22, far-north LAs 1NG/p 3SG/p (17), 4CG/p (66), 5AD/p (10) 4, 8FG/p 9RG/p, far-south LUs 2ZB (71), 3XO (42), 6ZB (48), LX2GH (100) 22, LZs 1AF 1KSZ 2FA (30) 16, 2UR, OA4s FA (90), FM (8), OEs 1RZ (36), 2TO, OQ5s JR (53) 3, KY 0, RH (65), OR4s KR (35), TX (20), OY1J, PJs 2ME (10), 3AK, PZ1s AP (7) 1, AX (20) 3, RAEM of Moscow, SL5AB (74), ST2AR (30), SU1s KH PR MS, TFs 2WEW 3AB (83) 3, 3PI (27), 5TP (22), 6GI (30), TI2s ES LA PZ WR (5), UA9s AC (30) 12, BP BU 15, DC JR (7), KDD (40) 3, KGC (45) KJA (41), KOC (70), OH (55) 16–17, VA (60), VB (60) 5, UA0s AG (12) 12, BC 12–13, CK 1, CU EF EH 13, IK (40) 3, JJ KAR KDL KFI KID (21), KKB 1, KOA (50), KUA (70) 3, KYA (10) 4–5, KZA (11) 6, LR 13, OK 12, SK (40) 3, SU 14, UB5s DQ FJ JO KAW KBD KBE KKE 3, UC2s AD KAR, UD6s KAB (55) 15, KAF (53) 3, UF6PB (95) 5, UG6AB (15) 16, UH8s EN (20) 15, KAA 7, UI8s AC AK KAA (10) 5, UJ8KAA (46), UL7s IF (30) 5, KAD, UM8-KAB (71) 4, UN1AH (85) 15, UP2KBC, UQ2s AJ (82), AN BP (80), UR2AR, VEs 6AAE/SU (23) 3, 8DJ 8MH 8NH 8RX 8TQ 8TU 8YT 0NK afloat, VKs 9RO (70) 7, 0RH 0TF (78), VPs 2AR 2DY (50) 22, 2KD (5), 2KH (63) 12, 2LO (20), 3AD (60), 3YG 4LA (30), 4WI 6LN 6PJ (40), 6PV (10) 13, 7BB/mm 7BZ 7NT (80), 8BK 8EE 9EB 9EP 9WB (40) 0, VQs 2AB (42) 17, 2GW 2IE (50) 23, 2JG (45) 16, 2RG 2W (40) 3, 3CF (100), 3HV (27) 16, 4AP (60), VRs 2DA (65) 10, 2DK (24) 10, 3W (40) 10, 3Z 4–5, VS1KB (18) 16, VU2BO (25) 13, XEs 1YF 2HN, YNs 1OC 23, 4AB (10), YOs 2BM (30), 5KAD 7KAJ 19, YVs 4CI (50), 5AO 5BZ, 5GO, ZB2s I (63), N, ZCs 4PW 0, 6JB (27) 10, ZDs 1AW 19, 2JKO (27), 7SA 9AK (52) 18, ZEs 2KG (100) 14–15, 3JJ (100) 22, 8JG SJX (51) 3, ZKs 1AK 1BS (20) 6, 2AB, ZP5AY, ZS7M (50) 15, 4X4AU (51) and 7GIA (50) of Guinea.

160 c.w. terminated its formal 1959–'60 season in a veritable blaze of glory, according to informants W1BB, K7HDB and G2DHV, plus ISWL listening posts. All continents are represented among the collection of 1.8-Mc. DX observed active on low band in the past few weeks: DJ1BZ, DLs 1FF 1YA 3GZ, a hatful of Gs, GD3s FBS LXT UB, GI3NEB, GMs 3COV 6RI, GWs 3ALE 3DHY 3LEW 5BI, HA5TU, HB9J, HC4IE, dozens of OKs, VP3AD, ZB1FA, ZC4IP, ZL3RB and 5A2CW. The lads turn down their gains and begin to analyze 160's performance now; the preliminary consensus is, "FB!" W6KIP and associates will maintain experimental schedules with DX points, high static levels or no, though, so further 1.8-Mc. headlines could break out at any time. Kudos, meanwhile, to W1BB whose enthusiastic activity and liaison efforts year after year go far toward keeping a bright DX spotlight on his favorite band. Keep us posted, Stew! And now on to our stamp-licking department. . . .

Where:

Asia — "All QSLs for QSOs under my MP4 calls — BDA MAB QAO and TAE — have been cleared via the RSGB bureau," writes friend Bryan. "Anyone who has not yet received his card should write to [the address following]. S.w.l. Baines is my QSL manager and will be pleased to send a second card to anybody still requiring confirmation." . . . . . "I was the first AP station ever on c.w.," pens G3HS to W4OPM concerning his AP5B DX work of a decade ago. "AP5A and I operated almost daily from 1947 to '51 when he left for Australia and I departed for India. Since then I have been in Egypt and VK2. Been back in England now for some few years. . . . I have received over 200 letters and cards in the last two months [concerning AP5B operation after 1951] so I suggest those interested write Deputy High Commissioner for U.K., 4 Racecourse Rd., Lahore, to see if any of his staff are using my old call. I agree that AP cards are hard to come by I have only confirmed APs 2N 4L 4M and 5A, and need at least three more QSLs for AP contacts. Look out now for G3HS on phone and c.w." . . . . . MP4TAF acknowledges his 300-QSL backlog in lines to WGDXC but assures ultimate confirmation of each QSO . . . . . W3GJY denies any YI QSL commitments . . . . . "Paul Barton left Afghanistan early in August, 1959, and the call YA1PB has not been legally used since that time," testifies KH6OR in response to QSLs received for later "YA1PB" QSOs . . . . . XZ2OM writes from our own backyard (info also via W4LYV): "I am now in the U. S. undergoing training and will be here for one year. I have my logbook and will be glad to QSL any station who worked XZ2OM and still needs a card. Self-addressed envelopes will be much appreciated." Aung's Stateside QTH follows . . . . . "I still have a supply of Thailand QSLs," declares ex-HS1C (W4RIM), "and will be happy to oblige those who still have not received due confirmations." . . . . . The VS9OC gang apologizes for homemade QSLs, a move to dodge printshop delivery delay. Shucks, fellows, nobody minds the back of an old envelope if it confirms a new one! . . . . . WVDXC understands that W2JXH still functions as W3ZA's Stateside QSL rep.

Africa — Via W1WPO: FB8BC, sweating through QSL pile-ups for FB8s XX and ZZ, points out that air mail reply requires three IRCs, surface mail one Coupon; all others must go via bureaus. Vic receives the Amsterdam and Kerguelens log transcript via 14-Mc. skeds when conditions and DX hogs permit . . . . . ZS6IF assures W1TS there ain't no ZS8M . . . . . Secretary Peter Bysh of the International Short Wave League writes, "ZD2s AMS CKH GWS JKO and VPF all are members of ISWL. We shall be very pleased to accept QSLs for any of these stations. VQ6GM is another." Listener J. Howard notes that ISWL's bureau address has changed to: 12 Gladwell Rd., London N.8, England . . . . . SU1MS, writing K2UYG, emphasizes that he accepts no QSLs direct They must go via W6QNA . . . . . Contrary to earlier recommendations, W5HDS disclaims association with the QSL problems of FB8XX, FR7ZC and 3A2AF "Quite a few cards are reaching me, mostly for FB8XX, and it is a bit of trouble to send them back with notes of explanation," states Tom. "Luckily, most come with self-addressed stamped envelopes." . . . . . VQ8AD stresses the correct Mauritius QSL Bureau address: Paul Caboche, VQ8AD, Box 467, Port Louis . . . . . ZS8I QSLs direct in response to two IRCs, says W1YQF . . . . . W1OHA, ZD2AMS and others discover the late-'59 FD3S to be ungood . . . . . WGDXC diggers note that FQ8AE is another far-off stamp collector. Embellish your mail accordingly . . . . . The Gulfers also hint that the VQ4GT address may help you keep track of VQ8BBB whose St. Brandon activity terminates possibly in favor of Mahe isle and a VQ9 tag . . . . . Opr King of ET2US can be reached through his home QTH — W4OWW, 602 St. Andrews Blvd., Charleston, S. C., according to WVDXC . . . . . Existence is intermittently precarious these days in FE8AH's locale, resulting in sporadic shipment of log transcripts to QSL manager K1IVT. Chris and Jacques do their best to keep FE8AH QSL matters current, however. And don't omit s.a.s.e.

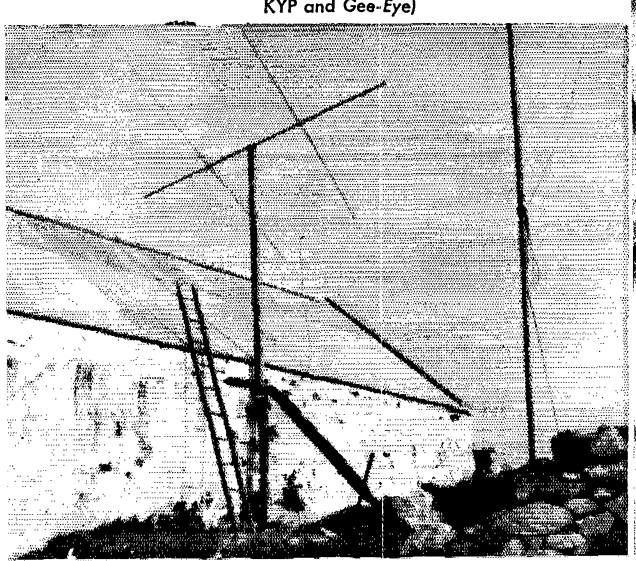
Oceania — "Arrangements have been completed with good friend ZK1BS for me to handle his QSL cards," notifies W7ZAS. "The usual s.a.s.e. are a must." . . . . . Ex-KB6BA, now K5YYP, emphasizes that he left Canton in October of '56 and can no longer assist in the dissemination of KB6-bound QSLs . . . . . VS5BY, set for another operational session featuring s.s.b., still has his QSLs handled by W6ZEN. For direct reply, s.a.s.e. please . . . . . SCDXC records that W6ZVQ holds the ZK2AD log for November, 1956, through December of last year. Full QSO data plus s.a.s.e. via the W6/K6 bureau will get the ball rolling . . . . . "VK9AD officially went QRT on October 24, 1959," writes Stan from new VK3AWX digs. "In my closing weeks on Norfolk Island many QSLs due for reply were accidentally placed in the 'out basket' which contained hundreds of already-answered cards. Now, unfortunately, it is impossible to lay hands on those which do not belong there. In the past each and every card bearing return postage (IRCs or U. S. mint stamps) has been dutifully handled. Kindly tell the fellows still awaiting VK9AD QSLs to reapply for direct reply." Stan does not accept W/K QSLs via bureau at this time . . . . . "VK9XN is a pirate," states ISWL. "The person using the call was located." ISWL, earlier designated as relay point for this joker, can't do a thing for you . . . . . "Just received a letter from ex-PK6CS after many years of trying to find him," notifies W6ZEN. "He is sending me PK6CS QSLs for [several dozen stations]. Fellows concerned should send me their own cards together with s.a.s.e. and I will shoot them QSLs as soon as received." W7GBW adds similar tidings via W1WPO: "Just received my Celebes PK6TO QSL after 12 years, 8 months! I was giving up on this one, but this QTH worked: Cor Steep, c/o Fed. Tel. & Tel. Co., Dept. of Government, Netherlands New Guinea. He was also PK6CS."

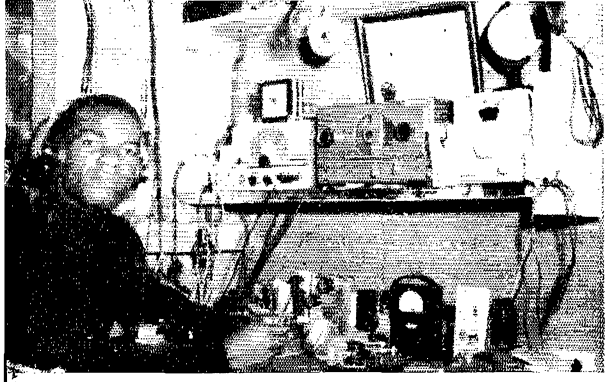
Europe — W1DGT recommends DM QSL Bureau, Box 37, Strausberg 1, D.D.R., for your East Germany cards in lieu of the Halle/Salle address . . . . . IT1AGA finds some amateurs using his invalid pre-1955 QTH with, naturally, minimal results. QSLs to Giuseppe's up-to-date address will be answered 100 per cent via bureaus, or direct if sufficient IRCs are included . . . . . From TF2WEN (W4WTK): "I have a stack of QSLs from all over the world for TF2s who used to be stationed up here, and I'm trying to push 'em along. All QSLs for stations whose suffixes start with 'W' (like my own) may be sent via APO 81, New York, N. Y. Other TFs are resident Iceland amateurs who have their own bureau. All Americans here use three-letter calls, never two-letter." And from ex-TF2WBZ, now back in business as KØTJX: "QSLs for my TF2WBZ sojourn were received from most stations worked but, like everybody else, I need a few rare ones for DXCC. If there is any station still needing QSL from TF2WBZ I will be glad to send a card if he will enclose s.a.s.e. with QSL to [the address following]. Incidentally, I'll also be glad to assist foreign DX stations with their QSL tasks." . . . . . WGDXC hears that QSLs for LA5AD/p QSOs dated prior to November 20, 1959, were dispatched by boat on that date.

Hereabouts — Apropos our fast-changing world, this switcheroo via traffic specialist W9NZZ: "For several years Fletcher's Ice Island (T-3) has had the call KG1DT. However, the ice cube has moved so far to the southwest now that it has been taken from the old Thule command and placed under the Alaskan command. Hence a new KL7 call sign and address [see following]." . . . . . "LU8BAJ has a neat QSL trick," declares K2UYG. "He has a 'heavyweight' QSL for ordinary use and a flimsy job for bulk mailings after contests. Four times as many flimsies can be sent for the same postage. By the way, slowness in some Argentine return QSLs can be attributed in part to a postal strike which ended in late January." . . . . . OX3DL and VP2KH join W2CTN's mammoth QSL-agency membership, s.a.s.e. required. But Jack declines YS4RA connections . . . . . "I've agreed to handle QSLs for YN4AB," advises K4ASU. "The usual s.a.s.e. courtesy will apply, and we believe this will solve his mail problems." . . . . . W6AM reports that OT QSL DXpert W6TI was appropriately feted at the joint January jamboree of Northern and Southern California DX Clubs. With 115 hawks on hand, this resolution was passed by a landslide: "Resolved that Horace Greer, W6TI, be commended for the excellent manner in which he handled the W6/K6 QSL bureau for twenty years, and that this resolution be published in *QST* as an historical entry for all time." And what really amazes Jeeves & Co. is that Horace also found time to make W6TI an outstanding long-haul institution over the same laborious period . . . . . "A loud cheer for all U. S. QSL managers," moves K6CJF. "Without them many of us would never hear from some of the places we work. And I wish more people would keep you posted on up-to-date QTHs." . . . . . K6BX urges W/Ks to ship not-too-ancient *Callbooks* to overseas operators who indicate need. February's *QST* "Stray" on the subject netted Cliff 52 candidates, and he welcomes further applications from the gang at the DX end . . . . . K1s EFI IVT and LST head for Vermont next month to help satisfy overseas WAS hunters. Resulting QSLs should go to their respective home addresses, s.a.s.e. requested — further details in "Whence" . . . . . "I am handling TG9TI's QSL matters, both Stateside and DX," informs W9YSQ. "Stress the customary s.a.s.e. procedure." Harry has over 250 confirmed on phone, by the way, and son W9YSX also wields a potent signal on DX bands . . . . . VP5ME (W5TGV) urges use of his home address for those seeking his Grand Turk confirmations, adding, "In exchanging a large volume of QSLs with U. S. stations, self-addressed stamped envelopes, or s.a.e.-and-IRCs, are greatly appreciated." . . . . . "About five years ago I operated W5MET/mm," writes K6VUH. "Anyone still desiring a QSL for contact with this station is invited to drop me a line." . . . . . WGDXC has it that VP2DX will take care of his own projected Dominica, Montserrat, Anguilla and British Virgins QSL accumulations upon return to W8VDJ . . . . . WA2EFN, K4s ZKZ and ZYI offer their services toward the assistance of rare-DX operators with QSL difficulties . . . . . W1MGP, of QRP A3 DX renown, commends the enclose-foreign-stamps approach to fast return QSLs championed by W2SAW. Check with the latter for details, s.a.s.e. requisite . . . . . WGDXC is assured that ex-VP4WD (G3TA) will complete his Tobago QSLing from Buckinghamshire . . . . . K1GKU, KH6DGL and others have suggested a yearly summation or cumulative index of QTHs previously presented in these pages. On its face, not a bad idea. But *QST*'s collections of rare-DX postal info, the most complete in amateur radio, would have questionable application on any but an informal per-issue basis. Many of the listings are so transitory and fragmentary that later repetition on an unconfirmed basis would be unjustified and possibly misleading. As it is, we usually repeat a given listing every six months or so if the *Callbook* hasn't picked it up, and if fresh information affirms its validity. Now let's see what the "How's" mailbag disgorges in the way of new postal recommendations, bearing in mind that this catalog is necessarily neither "official" nor accurate.

CM2QN, Apartado 6996, Havana, Cuba
CN2BE, R. Battaggion, Box 2057, Tangier, Tangier Zone
CN8JX (to W7GGO)
CO7RV, Box 16, Tamarindo, Camaguey, Cuba
CP5EL, P.O. Box 1088, Cochabamba, Bolivia
CR6CV, A. T. da Silva, Box 6252, Luanda, Angola
CT1KI, c/o S.K.F., Oporto, Portugal
DL4PS, R. Hatter (W4KCE), Hqs. & Hq. Det., Personnel, 379th Sig. Bn. (Spt.), APO 46, New York, N. Y.
EA8CG (via K1DCL)
EL2V, C. Crabaugh, Box 37, Monrovia, Liberia
ex-EL5A-EL5A/2 (to EL2V)
ETE3CE, C. B. Hassan (W9ZQF), P.O. Box 385, Addis Ababa, Ethiopia
ex-F8TC (to VE2AJP)
FB8CO (via FB8BA)
FD8AMS (via W6KUT or to ZD2AMS)
FF7AG, Nouakchott, Mauretania, W. Africa
FG7XS, M. Agastin, Box 2, Moule, Guadeloupe, F.W.I.
FP8BI (to W1KNU)
FQ8HO, Box 138, Ft. Archambault, Tchad, Fr. Eq. Africa
FR7ZD, G. Hoarau, 10 Km., Tampon, Reunion Island
FR7ZE, R. Bedier, 3 rue St. Bernard, St. Denis, Reunion Island
FS7WP (via W3KVQ)
ex-G3MRR (to VE2BDR)
G3NVA, F. Dodson, 78 St. Bernard Rd., Olton, Solihull, Warwickshire, England
GI3NQH, J. Beatty, 170 Lower Braniel Rd., Gilnakirk, Belfast 5, N. Ireland
GM3NZC, B. Wilson, 38 MacBeth Rd., Stewarton, Ayrshire, Scotland
HB9YG/mm (via USKA)
HCCC8 (via W8MXS)
HH6OR, P.O. Box 14, Les Cayes, Haiti

A half century ago—in the year of the Maine, to be more precise—one G. Marconi organized a wireless expedition to little Rathlin Island to initiate a radio link between that bleak outpost and the North Ireland mainland. This pioneering application of radiotelegraphy helped earn the great experimenter the Nobel physics prize in 1909. Last fall GIs 3HXV 3ILV 3KVQ 3KYP 3MUS 5UR and friends saluted the semicentennial of Marconi's triumph by revisiting the scene as GB3RI, scoring 575 QSOs with 46 countries in a three-day DXpedition. The installation's 28-Mc. quad is visible at left, and the second picture shows one pile-up battling another. (Data via GI3s HXV KYP and Gee-Eye)





VP2KH of St. Kitts can draw crowds on 20 c.w. but usually keeps his 6L6s 35-watter and S-38 on 7245 kc. with the famous Antilles Weather Net. There Cromwell, FG7XE, HH2Z, KP4s AEB APY, KV4BZ, VP2s AB DJ KW SL and others swap barometer and anemometer readings when Caribbean breezes grow too frisky. (Photo via W8KX)

HI7CJY (to HI8CJY)
HP1AO (via K4ASU)
HP9FC/VQ8 (to K1AJQ)
ex-HS1C, Capt. H. Christensen, W4RIM, 605 La Marre Dr., Fairfax, Va.
HS1K, c/o U. S. Embassy, Bangkok, Thailand
IS1EP, via Carrara 10, Cagliari, Sardinia
JA1COK, N. Ide, 671-1, Nakameguro, Meguro-ku, Tokyo, Japan
JA2JW, Y. Hoshiyama, P.O. Box 147, Shizuoka, Japan
JA7KH/mm (to JA7KH)
JT1AW, Box 639, Ulan Bator, Mongolian Peoples Republic
K6HDI/mm, S. P. Burke, USCGC *Winnebago* (WPG-40), FPO, San Francisco
KA2CB, M/Sgt. C. E. Benjamin (K1GAA), Det. 16, 10th Weather Gp., APO 323, San Francisco, Calif.
ex-KG1DT (now KL7FLB)
KG4AF, MCB No. 4, FPO, New York, N. Y.
KL7COI, L. Tallman, via FAA Stn. Mgr., Merrill Field, Anchorage, Alaska
KP4YD, C. M. Perez, Box 761, Arecibo, P.R.
MP4s BDA MAB QAO TAE, c/o Roger Baines, 56 Balmoral Rd., Gillingham, Kent, England
MP4TAF, Sgt. D. Leese, A Sqdn., Royal S., BFPO 64, Sharjah, Trucial Oman, Arabian Gulf
OD5CN, P.O. Box 4477, Beirut, Lebanon
OD5CQ, c/o U. S. Embassy, Beirut, Lebanon
OQ5IE (via K2MGE)
OQ5IP, G. Bastin, B.P. 1300, Bukavu, Belgian Congo
OQ5RL (to W8FTD)
OX3DL (via W2CTN)
OY7BS (to OZ7BS)
PJ2CO, J. L. Figueroa, VERONA, P.O. Box 383, Willemstad, Curacao, N.A.
PJ3AH, C. Webster, Z.W. 76, San Nicholas, Aruba, N.A.
PJ3AI, P.O. Box 161, Seroe Colorado, Aruba, N.A.
ex-PK6CS-PK6TO (see text preceding)
PY7AIO (via PY7AA)
PZ1AR, R. Zevenbergen, c/o Radio & Telephone Dept., Paramaribo, Surinam
TA3AI, E. Kumbaraci, (Kizolay) Sumir, Sokak 17-5, Ankara, Turkey
ex-TF2WBZ, D. S. Cope, KØTJX, 1301 S. Independence, Harrisonville, Mo.
TF2WEE, APO 81, New York, N. Y.
TF2WEG (via K6VQQ)
TF2WEM, Area Engr., APO 81, New York, N. Y.
TF2WEN, A/2c H. Thornley (W4WTK), 1400th ABRON (Comm.), APO 81, New York, N. Y.
TF2WEW (to K5QBG)
TF2WEZ, c/o MARS, APO 81, New York N. Y.
TF5TP (via W2MUM)
TG9TI (via W9YSQ)
TI2CMF (via RCCR)
UA3DR, L. Sharapov, Postbox 111, Moscow, U.S.S.R.
UI8AK, Radio Club, Tashkent City 31, Uzbek, U.S.S.R.
VE0NK, HMCS *Stettler*, c/o FMO, Victoria, B. C., Canada
ex-VK9AD, S. Davie, VK3AWX, 14 Avocet St., Doncaster E., Melbourne, Vic., Australia
VP2AR (via W3KVQ)
ex-VP2AT-VP6AT-VP6MC (to VP3MC)
VP2DX (to W8VDJ)
VP2KD, D. Fergus, Fiennes Ave., Basseterre, St. Kitts, W.I.
VP2KH (via W2CTN)
VP2KW (via K4SXO)
VP3WM, N. H. Woo-Sam, P.O. Box 308, Georgetown, B.G.
ex-VP4WD (to G3TA or via RSGB)
VP5ME (to W5TGV)
VP6BY (to VE6BY)
ex-VP7BB (to VP7BI)
VP7BI, C. Mowery (W4ISH), Navy 106, FPO, New York, N. Y.
VP7NT (via W2TQR)
VP7NY, Box 1007, Nassau, Bahamas
VP8DU, c/o RCU, Box 37, Montevideo, Montevideo, Uruguay
VP8EM, J. King, Ross Rd., Port Stanley, Falkland Islands
VQ2AB, A. Burgoyne, P.O. Box 1517, N'dola, No. Rhodesia
VQ3AC, Box 245, Babati, Tanganyika
VQ6GM (via 1SWL; see text preceding)
VR4JB, Box 49, Honiara, Solomons
VS1KB, Block 125-C, RAF, Changi, Singapore 17
VS5BY (via W6ZEN)
VS9ARF (to G3MJI or via VS9AHM)
W5EZB/KG6 (via W5ADZ)
ex-XW8AI (to FG7XS)
XZ2OM, Capt. A. Myint, BAF-4301, Keesler AFB, Biloxi, Miss.
YN4AB (via K4ASU)
YV5AHE, J. Dacall, Apartado 5327, Caracas, Venezuela
YV5AJK, Box 3974, Caracas, Venezuela
ZA1KC, P.O. Box 42, Tirana, Albania
ZB1FA (via RSGB)
ZB2N, c/o RAF, Gibraltar
ZC4MO, Olympus, Cyprus
ZD2IHP (via RSGB)
ZD3E (via W8EWB)
ZK1BS (via W7ZAS)
ZL3VH/3 (to ZL3VH)
ZS3D, N. Palmer, P.O. Box 1205, Windhoek, Southwest Africa
ZS3S, B. Bloch, P.O. Box 704, Windhoek, Southwest Africa
ZS3T, Johan D. Laufs, P.O. Box 267, Walvis Bay, Southwest Africa
ex-ZS6AJS (to ZS5AP)
3A2AV (to 11ZBS)
ex-5A2TL-MD2DW-MD5TS-F7CU (to DL2YU)
5A5TA, John Garrett (W5LAK), P.O. Box 638, Tripoli, Libya

Hurrah! for W1s BDI DGT MD UED VG YQF, K1s CCA IMP IVT JTL LVW, W2s BLP JBL MUM WAS, K2UTC, W3LC, K3CUI, W4s IUO LYV QCW, K4BYK, W5RX, K5JVF, W6KG, K6s BX CJF, W7s DJU GBW *LZF NRB*, *K8GHG*, W9s *CLH JJN LNQ NZZ ZYD*, WØTRF, KØLEQ, VEs 2ABE 3BIF, KG1BX, KH6DGL, VQ4ERR, A. Hovey, J. Howard, C. Morrow, A. Rugg, Far East ARL, International Radio Listeners League, International Short Wave League, Japan DX Radio Club, Newark News Radio Club, Northern California DX Club, OVSV of Austria, Southern California DX Club, Universal Radio DX Club, VERON *DXpress* of Holland, West Gulf DX Club, Australia's WIA and Willamette Valley DX Club — munificent colleagues all.

Whence:

Europe — Don't forget *USKA's H-22* DX Test on the first week end of this month, as well as the opening session of the VERON (Holland) PACC Contest on Apr. 30–May 1. And elsewhere in this *QST* you'll find announcement of the annual U.S.S.R. DX competition scheduled for May 7th–8th . . . . . K3CUI, who glides through Magyar with aplomb, relays notes on Hungarian amateur radio: "There are about 50 club-type HAs and 200 individual stations, plus 150 strictly-v.h.f. stations (HG prefix) and 400 s.w.l.s. Half of all Hungarian hams live in Budapest. Licenses are issued in three classes — (A) up to 10 watts input, 80-meter c.w. only; (B) up to 50 watts, all bands including two meters and 70 centimeters, c.w. and phone; and (C) up to 250 watts input, otherwise same as Class B. There are some exceptions to the power limit. For example, HA5KBP, the W1AW of Hungary, operates at one kilowatt on certain bands. Individual calls (two-letter) are obtained after apprenticeship at club stations." K3CUI received his Russian *R6K* diploma, an impressive-looking tapestry, and is about to register for the *W-100-U* certification . . . . . DJ4BF joined the 28-Mc. sideband club, and W8YIN was on the welcoming committee. UA3FN tells W2AZX that UF6FB is another imminent sidebander . . . . . DL4PS (W4KCE) relinquished his duties as K2USA chief operator and writes from the vicinity of Stuttgart: "I'm now on 10, 15 and 20, phone and c.w., with a Ranger, NC-300 and G4ZU beam,

working the States with ease. Two near-by hams and I intend DXpeditionary work in Monaco, San Marino and/or Luxembourg in the near future." . . . . . TF2WEN writes of local QRM from TF2s WDS WEE WEQ and WES. "There are other TF2s at remote sites but I'm not familiar with their calls. Almost every contact claims me as his first TF, so I feel I'm doing my part in this DX business! I use the MARS station here — an SSB-100, 75A-4 and rhombic directed at Washington, D. C. — mostly on 20 c.w., also 14,299-kc. sideband, 15-meter c.w. and s.s.b. The diamond doesn't work too well on 28 Mc. but we'll have an all-band vertical up soon." Neighbor TF2WBZ closed his four-month Iceland DX career for return to KØTJX: "I had a total of 1895 QSOs with 142 countries and 48 states — got W7GS for Wyoming three days before QRT —with a 5100-B, 51-SB, 75A-4 and 60-ft.-high Telrex. The W/K gang were swell!" . . . . From W3RPG: "I have copies of the revised rules for RSGB awards and the RSGB Countries List. Those who send requests with self-addressed stamped envelopes are welcome to them." . . . . . SP5HS writes of modified Polish ham regulations including four classes of license of 15-, 60-, 250- and 750-watt input authorization, the QRP ticket good for c.w. only. "Paragraphs 12 and 23 will be interesting for hams in the U.S. and all over the world. They indicate that foreign amateurs possessing a license in their own countries may obtain Polish amateur licenses for the duration of their visits to Poland. Requests for applications should be sent to Ministerstwo Lacznosci, Centralny Zarzad Radiostacji i Telewizji, Gorskiego 9, Poland." You will recall that Yugoslavia has issued similar permits in the past. . . . . K3CUI understands that UA1KAE of the Russian antarctic is often workable after 1600 GMT on Wednesdays and Saturdays. Twenty c.w. is favored . . . . . W8ZVT, formerly ON8GV, tells W1ICP he's cooling his DX heels on assignment in England . . . . . Rassa of UA3KAF is nominated for your YL DX collection by W6KG . . . . . IT1AGA hits 10, 15 and 20 meters almost daily and volunters to try skeds in the Italian segments of 80 meters, 3613-3627 and 3647-3667 kc. Gius is vice-manager of a Palermo bank when DX activities permit . . . . . LZ1AF writes W7DJU: "I began operating Central Radio Club station LZ1KAB in 1950, the first LZ licensed. You can imagine what it is to be the first and only one on the air! I was assigned the call LZ1AF in 1956 and now have worked about 140 countries from my home station. I am busy gathering news for our English 9.7-Mc. Bulgaria National Broadcasting Short Wave Service ham program transmitted to North America at 2000 and 2300 U. S. EST every first Friday of each month. We enjoy a wonderful readability in the eastern areas of your country but cannot say the same for the Pacific coast." . . . . . VERON and WGDXC contribute Continental comments: HB9MQ hopes to assist HE9LAA's Liechtenstein DX campaign shortly. . . . U.S.S.R. sports are said to be arranging a sideband trek to Franz Josef Land. . . . SVØWZ lists SVØs WAI WI WT WU WY and WZ on Crete, SVØs WAC and WV on Rhodes.

Africa — "I was transferred from Pakistan about three months ago and am enjoying ham life as 5A5TA," writes wandering seismic oil-hunter W5LAK. "Started out on 15 and 20 phone but will be glad to get back on c.w. when I'm settled in Tripoli. AP2M, who has been in the Philippines for 18 months, will arrive in Libya shortly." . . . . . "FB8CD's Comoros activity is limited to 1500-1800 GMT, the only period he has power," notes W4QCW. "Andre's 15-meter quad encourages him to use 21 Mc. mainly. FB8GP helps FB8CD represent the islands with a G4ZU beam and 200 watts on voice and code. Unlike Andre, 'GP has 24-hour power facility." . . . . . ET3CE (W9ZQF) is licensed at the College of Engineering in Addis Ababa as an experimental station, according to W5RX and others . . . . . W8YIN observes CR6BW making quite a bit around 14,300 as the first sideband station in Angola . . . . . VQ2AB returned from the United Kingdom and jumped into the 14,300-kc. s.s.b. swim without delay, say VQ4ERR and W2BLP . . . . . KØLEQ ran into one of those new FC7s who claim authorization by the Republic of Mauretania . . . . . W1YQF learns that Cabinda, an exclave of 3000 square miles north of the river Congo, is an operational objective for CR6s BX and CA, sideband and/or c.w. . . . . More via W1YQF: ZD3E returns from British leave around August. Meanwhile, Frank's second and third operators are studying for their own tickets and one of them is scheduled for removal to Nigeria . . . . . EL4s A and L are thinking of Togoland or Dahomey DXpeditionary action. EL4A (W7VCB) remarks, "Have not been too active lately for several reasons. One: The weather has been very pleasant and I hate to spend those rare nice days in the shack. Raised my 14-Mc. vertical to the 100-ft. level and my 1000-ft. 80-ft.-high long-wire has been doing well on 40 and 80. We are trying to form a radio net and ham organization here in Liberia; they are badly needed. Our intended frequency is 7050 kc. (phone) at 1400 GMT on Saturday and anyone is welcome to chime in. I often check into the Ghana net Sundays, 7025 kc. at 0800. Nigerians meet on 14,100 kc. at 0900 GMT." Ken worked his 100 countries in the first six weeks of his Liberia stay but months and months passed before the QSLs necessary for DXCC arrived . . . . . "SU1MS has a shiny new SB-10 to drive his homebrew rig and has revamped a Super-Pro for s.s.b. work on 14 and 21 Mc.," recounts K2UYG. "Mahmud will, however, continue his heavy helping of c.w. and a.m. activity. He's an engineering student and will go to Germany in three or four months to continue his studies." . . . . . ZS6IF apprises W1TS: "Ex-ZS8R, until recently working under a ZS6 call, has been transferred to Swaziland and promises to be very active on c.w. as a ZS7. ZS8I, active mostly on 10 phone, likes transmissions and QSOs short and snappy." ZS6IF plans a ZS9 tour around August, c.w. and possibly s.s.b. . . . . W1WPO hears that FB8BC lost his beam to Madagascar storms thrice in the past year and is about ready to settle for a multiband vertical . . . . . VERON, WGDXC and WVDXC chorus Africa snippets: Malaria put VQ5FS off the air but Terry expects to air Eire s.s.b. before long. . . . . FR7ZE's 807 is receiving considerable attention. . . . ZS5RD/7 contemplates d.s.b. emanations. . . . ZD9s AD and AK keep schedules around 1900 GMT Sundays, 14,080 kc.

OH3ND, jolly spouse of OH3QC, knows her way around 20 meters via mike or key. (Photo via W7TVF)

Asia — KA2DE does capable DX editorial duty for the resurgent FEARL(M) *News*. The Yanks-in-Japan DX marathon finds KA2s NY (102 countries confirmed), DE (93), CB (87), LL and ZZ (61), AA (52) and LP (30) burning the midnight oil with gay abandon. By the way, all those KA signals on March 11th were triggered by an FEARL DX QSO Party announced a bit too late for "How's" forewarning . . . . . Asian miscellany via ISWL, SCDXC, VERON and WGDXC detector detectives: One AP3D is mentioned in connection with East Pakistan potentialities. So are AP2BH and W5PQA. . . . OK7HZ/YI scores some KWM-1-style contacts from Iraq, much to the frustration of W/Ks constrained by the FCC-ITU Ban List. Now that Czech geographic research expedition is aimin' for Yemen. . . . BV1USE stands to lose a W9 staffer next month. . . . For the record, VU2ANI/5 called it quits at 1600 GMT, January 30th. . . . DL6OF prepares for a YA1BW outburst, and DL9PF yearns to start signing TA4PF this summer. . . . JA1ACB, harrassed by obstacles, still means to make it to Marcus isle.

Oceania — "Have a DXpedition to Palmyra Island planned for this spring — 48 hours, 100 watts on sideband and c.w., 14 Mc." This from adamant KH6DGL . . . . . Ex-VK9AD (VK3AWX) offers, "A very big thank-you to the many W/K stations I met hamwise who made amateur radio so extremely interesting during my three-year spell on beautiful Norfolk Island." . . . . . K6HDI/mm, aboard USCGC *Winnebago* out of Hawaii, is another of the many would-be DXpeditioners casting covetous glances toward Marcus island. Sam sports a KWM-1 and long-wire, preferring 21-Mc. c.w. and phone . . . . . K6QPG/KW6 used the OM's call, KW6CQ, in February ARRL DX Test action and then packed up for Sixland, winding up a vigorous Wake Island DX career. Well done, Mary . . . . . ZK1BS feels his recent Stateside visit provides sufficient material for a dandy book. "It will probably take me about twelve months to recover enough energy and strength to write it, though, after so many late nights in the States!" Bill set foot in fifteen states and covered some 15,000 miles . . . . . W4QCW confirms that CR10AA, vacationing in Portugal, intends to return to Timor late this year with improved DX-catching paraphernalia and determination to match . . . . . "Another hurricane hit ZK2AB," reports W6ZEN, "but this time he came through FB." ZK2AB currently experiments with s.s.b. . . . . DU7SV's QSOs

(Continued on page 154)

Correspondence From Members-

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

MORE ON GENEVA

¶ On behalf of the Amateur VHF Institute of N. Y., I would like to extend to you our appreciation of a job well done at the Geneva Conference.

We amateurs were well aware of the many services which were clamoring for the amateur frequencies. We count it as a minor miracle that we have retained all the frequencies we started with. Many thanks! — *Claire Rosenbaum, W2KQL, Corresponding Secretary, Brooklyn, N. Y.*

¶ We were all impressed with the splendid efforts put forth on the part of ARRL on behalf of all radio amateurs at the Radio Convention. — *E. G. Schweizer, W6YJU/KL7, Kodiak, Alaska.*

¶ Three cheers for the ARRL and for the fine job done at the Geneva conference!

I wonder how one can operate an amateur radio station without being a member of your organization. *QST* is as indispensable to a ham as a bible is to a minister. — *Conny Laviolette, VE2BCL, Montreal, Canada.*

¶ Just a word of commendation for the League's fine work at the Geneva convention. The results are quite pleasing. — *Carl R. O'Gara, K6RSV, San Diego, California.*

¶ Deeply grateful to you people in ARRL for your everlasting interest in our amateur activities. Many thanks for your efforts at Geneva this past year. — *Dick F. Swails, K7AYU, Boise, Idaho.*

¶ Nice job at Geneva! ! ! — *William H. Eacho, jr. K4ASI, Hampton, Virginia.*

¶ . . . My belated albeit sincere congratulations for a 4.0 job. I can appreciate the work of preparation and planning that went into this endeavor that assured us a successful outcome. Also my best wishes and congratulations include your efficient staff . . . — *Len Collett, KZ5LC, Balboa, Canal Zone.*

¶ . . . Sincere congratulations on the job at Geneva. I hope some of our benighted brethren have the sense to realize that, in spite of all their sniping, ARRL saved the day, again, for ham radio . . . — *George D. Meserve, W1FL/W0WYK, Mission, Kansas.*

¶ I just thought I would send along a note of TNX for for the job you did at the convention, and TNX again for saving our freqs. — *Joe Scuderi, W9ZXH, Chicago, Illinois.*

¶ . . . Want to congratulate you and the League for grand work done in behalf of the amateur fraternity in preparation for and at the Geneva conference. It was an outstanding effort! . . . " — *Ed G. Raser, W2ZI, Trenton, New Jersey.*

¶ We all heave a great sigh of relief that not a single kc. was lost to the American radio amateur at the Geneva convention. Throughout the months that preceeded the convention we were besieged with rumors, wild guesses and educated guesses — some well founded and some bordering on the ridiculous. There have been pros and cons written about the delegation of the ARRL being present at Geneva during the long period of time required for the convention and to the actual necessity of the delegation being there during the overall length of time. It seems to us had we not had someone there at all times to protect our interests the ARRL would not have been doing the job it is established to do. We, for one, feel that the U. S. delegation undoubtedly aided by the ARRL group did an almost impossible job. — *Virginia "Ham,"* (Jan. 1960).

¶ . . . I would like to thank ARRL for the job on behalf of the radio amateurs during the world-wide frequency allocation conference last year. Also for the countless other benefits that the ARRL has provided for the ham down through the years. — *William H. Smith, W3TZN, Bedford, Pennsylvania.*

HAMS AND THE MILITARY

¶ I think that the article by W5PYU, "Use Your Amateur License in the Naval Reserve," has done a superb job of answering many of the questions that young men in my age group (16-18) have no doubt been wondering about for a little while now. We have all heard rumors about the usefulness of amateur radio in the Armed Forces, but have been sadly lacking in facts. Mr. Hughes makes no bones about telling strictly the Navy side of the issue, and this is perfectly O.K. in an article of this type. The reason I am writing is that I would like to say that I think there would be quite an audience for a few more articles such as this, having to do with the Air Force and the Army, written by qualified people. This subject is, I believe, on the minds of many young amateurs and budding enlistees, or, perhaps draftees. — *Michael A. Rutkaus, K4QET, Fairfax, Va.*

160 MOBILE

¶ Your article, "160 for Mobile?", in the October 1959 issue intrigued me very much. In fact, due to its compactness I proceeded to build and follow the pictorial parts placement. As this is the first transmitter I have ever built, I took great pains in planning and wiring the "underside". When I finished the project I felt very proud of its construction and appearance, comparable to commercial units. Since I had decided from the beginning to stay on one band, I omitted the bandswitch and inserted a filament toggle. To make it deluxe I added a relay for push-to-talk. The initial "fire-up" resulted in complete success. I have wanted a mobile transmitter for quite some time and this one certainly fills the bill, from compactness to contact!

Congratulations to the author, D. A. King, K8EEY, for designing an excellent circuit. It has certainly put a dent into the mobile band in this area.

And thank you for a fine publication. I read it cover to cover. — *Eugene Cope, WA6DUW, Pasadena, California.*

E=IR

¶ While I realize that I am being a real nasty old man for raising such a "minor" point, I want to take exception to a statement made in February *QST*, page 39, under the title of "More Danger."

The statement says, "The power company said 7200 volts passed through his body." It seems to me that George Simon Ohm in all of his wisdom said that voltage never passed through anything. Voltage is a pressure which causes electrons to flow through a path when provided, and I believe in this case that the path was well and truly provided by the aforesaid body, in inverse proportion to the resistance of the path provided.

I have found that the beginning student in electricity seems to want to have everything moving, the voltage, the current, and the resistance, and until he can get a clear view of the voltage as a pressure, the current as a flow, and the resistance as a restricting force, he and Ohm's Law are completely at odds.

Now, if we leave loose little traps lying around in our technical literature, of a type that will bolster his misconceptions of what happens in an electrical circuit, I believe that we are doing our beginning reader a very great disservice.

In this case, I believe Pete received across his body a portion of the 7200 volts available dependent upon the ratio of the resistance of his body and the line, and bottom part of his body and the ground.

Let no one get the idea that I am suggesting that one should use this as a method of proving a very interesting point of Ohm's Law, but let's keep the ideas straight so that the reader may be more aware of the factors involved in becoming part of a series circuit placed across a 7200-volt source. — *J. O. Camden, VE3GZ, St. Pauls, Ontario, Canada.*

BREAD AND BUTTER PUBLICITY

¶ I'm interested in the ARRL publicity program; please send me the publicity aids explained in the February editorial.

I consider my membership in the ARRL very valuable to me and instrumental in helping me to become a better operator. — *James R. Nedbalek, KNØWUD, Collyer, Kansas.*

¶ Just about one hour after reading your editorial (I always read that first), I was interrupted in my favorite pastime of DXing by one of the other local DX hounds, commenting on a Chicago *Tribune* story about my DXCC, and he inquired as to who my press agent was.

In this respect, I must confess that it was none other than the ARRL itself. As a result of one of your routine press releases, which even in the big cities do not always end up in the waste basket, a woman reporter for the *Tribune* was prompted to call me and inquire as to what it was all about. We had quite a lengthy conversation in which I did my best to give her a good overall picture of ham radio and its many facets.

Keep up the good work. I like the old rag just fine and can't wait till the next one arrives in the mail. It is well balanced, and oh so interesting from editorial to want ads — I read it all! — *Edmund F. Molly, W9JFT, Chicago, Illinois.*

¶ I noticed in the editorial section of the February 1960 *QST*, an article on "Bread-And-Butter Publicity". I would like the booklets and press release forms mentioned in that article.

I think this material will be quite valuable to us in our work with a local six-meter emergency net. — *John R. Miller, K9BIV, EC, McDonough County, Macomb, Illinois.*

¶ I enjoyed the editorial "Bread-And-Butter Publicity" very much. I am in charge of public relations for the newly formed Eastern Idaho Radio Society at Pocatello and would be very interested in securing all the publicity aids League headquarters would care to send me. — *David B. Blalock, KN7KVS, Pocatello, Idaho.*

¶ Having just been appointed to handle the publicity of the Portland Amateur Wireless Association, I was interested to note in the February *QST* that you can supply format for press releases, etc. We here in Portland have access to two daily newspapers. It's quite possible that in addition to occasional coverage of our club news, a statewide column could be developed in the interest of hamdom throughout the entire area. — *Ben Webber, K1LSJ, Portland, Maine.*

¶ I wish to thank the League for the source material on Amateur Radio that I received from you. Excerpts from this plus personal experience, a handful of *QST*s, a late callbook, and a shoebox full of DX QSLs from 122 countries produced a well-received talk last Tuesday night before the Cumberland Women's Club. — *Homer Larcen, W9MXP, Cumberland, Wisconsin.*

ADDITIONS TO HOME BREW

¶ I read the February *QST* article "The Axioms of Home Brew," and enjoyed it very much. I wonder if these three axioms might be added to the list:

18. The amateur engineer will solder and resolder an octal plug three or more times before remembering to insert the protective cap on the leads.
19. After the above procedure is completed, the lead will be exactly ½-inch too short.
20. If according to the engineer's table of tube characteristics a final amplifier tube is rated at 250 watts, the plates will become red as the loading approaches 90 watts.

I imagine you came across these generalizations through hard experience. I know I did. — *Phil Horwitz, K9GBJ, Chicago, Illinois.*

THIS TEENAGE JAZZ

¶ In the three years that I have been a radio amateur, I have read numerous complaints in *QST* about undesirable amateur activities on the part of teen-aged hams. Several amateurs have criticized such juvenile practices as using "cute" phonetics on the air and witty names in addressing QSLs. Others have protested our habit of discussing such subjects as school and YLs on the air. Another individual found the practice of giving ages on the air objectionable, while several others have found strenuous objection to our very existence on the ham-bands.

I believe that some of this criticism is unwarranted, and I would like to offer some defense for our on-the-air activities. First, it should be realized that most of us have sets of values somewhat different than those of the more mature amateurs. We *are generally* interested in different things. Appreciating cute phonetics and the like is a part of our personalities at present. Thus, for an older ham to object to our use of cute phonetics or names, or to protest the subject matter of our conversations, is entirely as unrealistic as a parent would be if he demanded that his four-year-old son play chess rather than cowboys-and-Indians. It is also because of the difference in our interests that I often give my age on the air: it tells the fellow on the other end more about my personality than any other thing I might mention.

Is my habit of calling other teen-aged hams "chief TVI generator" and calling myself "K6YNB, the Young Notorious Bootlegger" so distasteful as to endanger the safety of our hobby, and so obnoxious as to classify me in the same "rogue's gallery" as those who show wanton disregard for the laws of our country? As teen-agers, we have certain things we enjoy doing, and I hardly think that strenuous objections from older hams will inspire us to terminate these "undesirable" on-the-air practices any more than, returning to the analogy I used earlier, parental pressure would make an average four-year-old enjoy chess. Hence, if the answer to my rhetorical question is yes, it follows that the proper course would be for the FCC to make age a qualification for holding an amateur license. However, I feel that our idiosyncrasies are no more undesirable than those of other factions of the amateur fraternity, and I think that the primary motivation of those who object to the "Captain Video" set is pride. It is obviously no particular point of pride to simply possess a ticket, when nine- and ten-year-old children have been known to obtain the same class license. — *Wayne E. Overbeck, K6YNB, Secretary, Mira Costa High School Radio Club, Manhattan Beach, California.*

¶ I am sorry that my first letter to your fine magazine is a complaint, but I feel something surely is wrong when the holders of the more advanced licenses criticize everything that the Novices do, from the poor sending and chirp to the way in which they address their QSLs.

I thought that I'd put in a good word for these fellows, and, although I see nothing wrong with addressing the cards to Chief Operator Joe, etc., I have made a survey of *all* the QSLs that I have received in the last two years. Here are the results:

	General	Novice
Amateur Radio Station	59%	60%
Chief Operator	26%	10%
Chief YL-Chaser	6%	3%
Brass Pounder	1%	20%
R.F. Plant	2%	0%
Chief Switch Flipper	4%	0%
TVI Palace	2%	7%

As you can see, the percent of "cute" titles is much higher on the General cards!! The only thing that this proves is that Generals are just big Novices. — *Scotty Williams, WA6DNM, San Diego, California.*

(*Continued on page 156*)

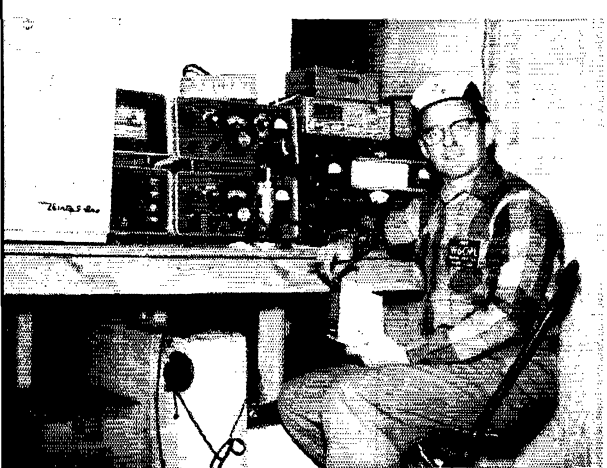
Operating News

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

FCC Suspends Amateur Licenses in Exam Fraud. The Federal Communications Commission in these actions again invokes the penalty of taking amateur licensing privileges away from any amateurs who would be party to a fraud in obtaining an amateur license.

FCC ordered (Dec. 23, 1959) that the Conditional Class Amateur Radio Operator License (K4YMS) of Sol Herzog, Savannah, Tennessee BE SUSPENDED for the remainder of the license term, that is until July 15, 1964, under authority contained in Sec. 303 (m) (1) (A) of the Communications Act and Sec. 0.292 (f) of FCC rules, his amateur license to be mailed the FCC at Washington, D. C.; *it appearing that the licensee* was issued a Conditional Class license on July 15, pursuant to a written examination and code test purportedly taken by the said Sol Herzog before volunteer examiners: *it further appearing* that he fraudulently indicated that he did not reside within seventy-five (75) miles of an FCC examining point by claiming residence on Lot 38, Catfish Drive, Crump, Tenn., whereas he actually was residing in Memphis Tenn., and that he falsely and knowingly so described the location of his station, violating Sec. 12.14 (a), 12.64, and 12.162 of the FCC rules. This suspension was effective from Jan. 15.

FCC ordered (Dec. 31, 1959) that the General Class Amateur Radio Operator License (K4QNJ) of Herbert D. Herzog, Memphis, Tenn., BE SUSPENDED for the remainder of the license term, that is, until Feb. 10, 1963, under authority contained in Sec. 303 (m) (1) (A) of the Communications Act and Sec. 0.292 (f) of FCC rules, his amateur license to be mailed to the office of FCC, Washington, D. C.; *it appearing that the licensee* certified to the Commission that on March 24, 1959, he gave the Morse Code Examination to Sol Herzog, stating that he passed the examination at the rate of 13 w.p.m. and as a result of said certification a Conditional Class license was issued . . . *it further appearing* that the said Herbert D. Herzog had knowledge of the deception in the false representation of the residence of this applicant, and that notwithstanding, he willfully and knowingly assisted in obtaining this Conditional Class License in violation of Sec. 12.162 of FCC rules. This suspension was effective from Jan. 24.



This column last month expounded on the operations planned for K6USA at the Olympic Games held at Squaw Valley, California. This photo shows W6OPL in action at K6USA during their very successful stay.

Citizens Band Not to Permit Prerogatives of our Amateur Service. FCC amended its rules for the Citizens Radio Service, effective March 15, 1960, to define more closely the permissible communications and to make sure part of its allocation will *not* become an examination-free amateur band. FCC's report states that it had no intentions to create a service paralleling the Amateur Radio Service, nor was it intended that Citizens Radio licensees use their stations as a hobby in itself, for technical radio experiments or general contacts of a random nature . . . provision for such already being made in the Amateur Radio Service for those who have the knowledge and skills to qualify. The Amateur Service (Sec. 12.102) of course prohibits amateurs from any use of amateur radio stations for gain or remuneration or conduct of personal business: note that the Citizens Radio Service as specified below *is* for "substantive messages related to the business or personal activities. . . ," but may not, even so, involve compensation or remuneration from *others*. The following excerpts from the FCC report clarify this matter of service rules and differences between the Citizens Service and Amateur Service and so are of some interest to amateurs.

"(11) . . . the Citizens Radio Service (except for Class C stations) is contemplated basically as a service for intercommunication between units of a single station. This does not mean that authorization for single units will not be granted, but requires that inter-communication between units of different stations be restricted to useful and substantive messages related to the business or personal activities of the individuals concerned . . . (13) . . . rules changes as adopted provide that except under certain clearly defined conditions, a station licensed in the CRS

QST for

may be used *only* for transmissions which relate to the business or personal affairs of the licensee.

"(17) Par. (e) of Sec. 19.61 merely states that which is good operating procedure; that is, that all communications, regardless of their nature, shall be restricted to the minimum practicable transmission time . . . (18) . . . par. (f) of Sec. 19.61 limits the transmission of any Class D station or any exchange of communications between two or more Class D stations to *not more* than five consecutive minutes, followed by a two-minute silent period during which the licensee shall monitor the frequencies used and other stations will be provided the opportunity to use the frequencies.

"(19) . . . The practice of using a 'test' call for the *purpose of inviting DX contacts with unknown stations* will be considered a subterfuge in lieu of the general call CQ, and in violation of the rules . . . Except for brief test transmissions and emergency or civil defense communications, all transmissions from a Class D station must be addressed to specific persons or stations *within the direct groundwave coverage range*, and any communication designed to elicit a response from a random or unknown station, such as by calling CQ *is prohibited.*"

All Operators Can Help Improve Conditions in Our Bands. Quite a few letters are coming in these days (from hams about hams) complaining about key clicks, phone splatter, deplorable signal deficiencies and what not. The idea generally expressed is that we should run a list of signal offenders in *QST* or step up the sending of helpful advisory notices by Official Observers. As we have told one writer, the several weeks of time required to get a monthly magazine into print makes it impractical to advise of signal deficiencies in *QST*. A given set of spurious radiations may well have been remedied before *QST* arrives. There's also the chance of misidentified call signs.

In any event most operators, we believe, feel thoroughly ashamed of having a poorly filtered signal, splatter, disgraceful click and/or chirp, or undue broadness.

Unfortunately many fellows on the air never get to hear themselves as others hear them. But it's for sure that defective or shabby signals make an operator's on-the-air presence as shabby as Bowery and slum-area characters look to the man about town.

Our purpose here is to stress to you as an operator and *QST* reader, your own potential in getting signal conditions on the bands improved. Your *honest* report, adding the C or K (for chirp or click), giving a true T-scale evaluation (please consult our RST definitions; the list, Op. Aid 3 will be sent free on request), your voice description of signal troubles conveyed in honest and friendly fashion on the phone bands, can do *more* than all the Observer warnings and FCC notices put together to help improve the signals from stations noted below par!

Members of the ARRL Observer Corps do a generally commendable job, as a large file of appreciative correspondence will attest; FCC actions calling amateurs directly to account likewise! But it is our notion that the *public opinion* inherent in amateur radio itself is a greater force than even either or both of these together. "Pride in signal" has *not* disappeared or perished from the earth. But the evoking of that pride in correcting bad band conditions has been perilously diminished when too many are guilty of passing habitually-stereotyped reports, or engaging in downright flattery.

We want here to suggest that all operators be frank in telling operators over-the-air as they are worked, when their signals seem to you in any way faulty. Remember that when you do this, you are doing the other fellow a favor to help him remedy his poor signal. You and I certainly value a true report over a meaningless one, and every amateur is grateful for a tip-off that makes corrective measures possible before sterner FCC action. Then how about giving forth with fewer "formula reports" and giving more significant and honest useful reports!

Logging Forms for the June Field Day Ready. Do you have your plans made for the coming ARRL Field Day? The convenient forms to use for FD operation are now available. We suggest that you ask for yours by radio or mail well in advance. *Early* requests provide ample mailing time for third class mail to bring our FD log sheets to you and avoid taking the chance that your forms will not arrive until after the June 25–26 week-end of operating.

A basic purpose of our Field Day is to provide a *practical communications test* for emergency-powered amateur radio equipment, both for receiving and transmitting. You can take part with your individual equipment, or go portable with another amateur, each of you providing some equipment and sharing the operating experience. Club activity is extremely popular, and FD is a challenge to every club's organizational abilities to show how effective a communications pattern can be proved for a specified period. FD is, as well, a training exercise for the individual operators. To get the most from FD in enjoyment and results takes some advance preparation and planning.

Preparing for FD. Club plans are usually worked out by club committees. A club may establish as many as found helpful. Different committees on location, commissary details, equipment setups, antennas, and operating plans, all under a general chairman may start functioning months in advance. Indeed some clubs start working on the new FD within one or two months after the last successful exercise! Clubs, depending on size, must themselves decide which transmitter-class they will enter. Will all operators in turn man an idealized emergency station, switched from one band to another? Will there be an operator team for each band, competing on its own? Shall there be separate Novice or Technician setups with special limitations, and will such run for just certain hours, or all through the FD?

If there are a number of amateurs in the group who have *never been on a Field Day*, or who are but recently licensed, we want to suggest not only adequate club briefings on the equipment to be used, but some blackboard and on-the-air sessions ahead of time. Net operation, message form, logging practice, the length and timing

of calls and answers, and the effectiveness of one's c.w. and phone procedures need evaluation to win out, either in personal home operation or FD activity. Each year about FD time we read in club bulletins of *advance* field exercises arranged by some clubs. Also we note that many club members who hold SCM appointment try out their new gadgetry and emergency equipment especially completed for FD by giving it a workout in the April CD Party. We want to stress that FD is a top interest activity for everyone, whether you work h.f. or v.h.f. As for Field Day in clubs, the *operating* should not in our opinion be limited to just your *top* operators; it should be a pleasurable workout in which every club member and operator can feel he was on the air and had a part in the net result, and in so doing learned some new and valuable pointers.

June *QST* will carry the full text of the Field Day Rules. These, in the usual pattern (see last June *QST*) have already been distributed to all affiliated clubs through the early 1960 Club Bulletin. As the FD Rules will explain, there are five possible classes for your entries to provide for clubs, individuals, groups and home stations.

Mobiles have an important place in our emergency work today too; about one amateur in every three has a mobile. ARRL urges that every amateur with mobile or hand-carried equipment is, by FD time, registered as to availability with the Amateur Radio Emergency Corps and/or signed up in the Radio Amateur Civil Emergency Service and thus made a part of community planning. Also we strongly suggest that clubs should report and lump together their individual-operator *mobile scores in FD* for listing in the Club Aggregate Mobile Scores, this besides turning in a Class A score of their field operations under one club chosen call.

About Individual Setups. Clubs usually compare their showing with "last year" or with the results as reported by groups of similar size and transmitter-class. Individuals operate and are compared in *QST* listings only with other individuals. If you have gear, home-built or manufactured, equipment capable of battery operation but never tested out, why not make it a point to give it a workout in the FD under a *simulated emergency condition*? There's a sense of gain and accomplishment in making simple, light-weight equipment do a passable or superior job from some spot where no community power source is available! To take part creditably in FD, it's *not* required that you put in full time, though many do. We recall our personal part in FD some years ago for just one afternoon of the exercise. Only a small rig was on hand, but getting that station going in a remote spot was a richly rewarding experience. ARRL has developed its FD pattern in the hope that you too will find valuable technical operating and fraternal experiences in the Field Day. This is a reminder to start your FD plans now!

—*F.E.H.*

MEET THE SCMs

Meet the new SCM for the MD-DEL-DC section Thomas B. Hedges, W3BKE . . . and quite a background he carries with him too. Tom is presently with the FCC as an engineer in the Technical Research Division. He once was with the Library of Congress as Ass't. Chief, Division for the Blind, in which capacity he promoted publication of excerpts from the ARRL *License Manual* and *How to Become* . . . in recorded form for use of the blind. This *Talking Book* is now in wide circulation.

Dating initial amateur radio interests back to 1924 and holding various calls over the years, Tom is well known for various contest activity, presently crediting his scores to the aggregate totals compiled by the Potomac Valley Radio Club. Sweepstakes, DX Contest, Field Day, and CD Parties are among the contests in which Tom has been active since 1933.

Motorcycle racing is his favorite sport with gardening as a hobby. The XYL is also a ham, W3TSC. The MD-DEL-DC section is most fortunate to have W3BKE as their SCM.

ELECTION NOTICE

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

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

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

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

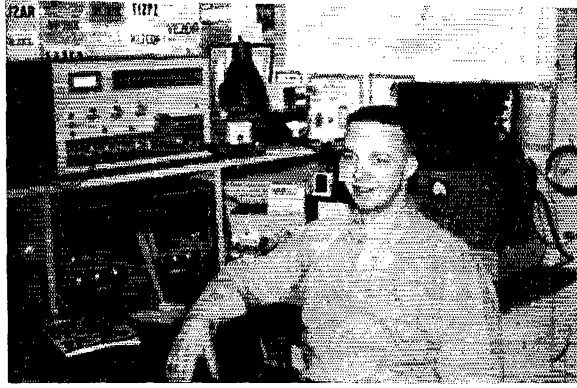
Petitions must be in West Hartford, Conn., on or before noon on the closing dates specified. In cases where no valid nominating petitions were received in response to previous notices, the closing dates are set ahead to the dates given herewith. The complete name, address, and station call of the candidate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

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

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

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

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



Sparks really flew in the January CD Parties, as K2EIU floored the gang on both c.w. and phone to become the first dual winner. Shelving the Lettine 240 and NC240C for an Apache TX-1 and SX-101A induced Ken to dredge the bands to 217,470 points on c.w. and 41,495 on phone. This photo finds K2EIU in restful repose after his twin triumph.

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

— *F. E. Handy, Communications Manager*

Section	*Closing Date*	*SCM*	*Term Ends*
Yukon *	Apr. 11, 1960	W. R. Williamson	Mar. 17, 1949
West Indies	Apr. 11, 1960	William Werner	Aug. 10, 1958
Quebec *	Apr. 11, 1960	C. W. Skarstedt	Dec. 15, 1959
North Carolina	Apr. 11, 1960	B. Riley Fowler	Mar. 6, 1960
Alberta *	Apr. 11, 1960	Gordon W. Hollingshead	May 1, 1960
Eastern Massachusetts	Apr. 11, 1960	Frank L. Baker, jr.	June 15, 1960
Western Pennsylvania	June 10, 1960	Anthony J. Mroczka	Aug. 7, 1960
Northern Texas	June 10, 1960	L. L. Harbin	Aug. 10, 1960
Western New York	June 10, 1960	Charles T. Hansen	Aug. 10, 1960
North Dakota	June 10, 1960	Harold A. Wengel	Aug. 11, 1960
Kentucky	June 10, 1960	Robert A. Thomason	Aug. 16, 1960
Wyoming	June 10, 1960	L. D. Branson	Aug. 22, 1960
Montana	June 10, 1960	Vernon L. Phillips	Sept. 1, 1960

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

ELECTION RESULTS

Valid petitions nominating a single candidate as Section Manager were filed by members in the following Sections, completing their election in accordance with regular League policy, each term of office starting on the date given.

Mississippi	Floyd C. Teetsen, W5MUG	Dec. 10, 1959
Saskatchewan	H. R. Horn, VE5HR	Dec. 10, 1959
Eastern New York	George W. Tracy, W2EFU	Feb. 10, 1960
South Carolina	Dr. J. O. Dunlap, W4GQV	Mar. 4, 1960
Georgia	William F. Kennedy, W4CFJ	Mar. 18, 1960
Tennessee	R. W. Ingraham, W4UIO	Apr. 15, 1960
Arizona	Kenneth P. Cole, W7QZH	Apr. 15, 1960

In the New Mexico Section of the Rocky Mountain Division, Mr. Newell F. Greene, K5IQL, Mr. Carl W. Franz, W5ZHN, and Mr. Brian S. Ward, K5GOJ, were nominated. Mr. Greene received 95 votes, Mr. Franz received 90 votes and Mr. Ward received 76 votes. Mr. Greene's term of office began Feb. 10, 1960.

RESULTS, JANUARY CD PARTIES

Ye olde contest editor stood back rather aghast when the results of the January CD Parties showed a rather phenomenal performance. Claimed scores show that K2EIU was not only the winner in the phone Party, but the c.w. Party as well. Isn't this the first time this has ever been done? Near as I can recollect, the closest to rival it in recent years is that feat of W3TMZ in the July 1958 Party, when Jack was the winner on phone, and placed fifth on c.w. being outdistanced by four W6's under the old scoring system. I'm sure the gang will be out in full force in April to rack up scores of their own to ensure that Ken, K2EIU, does not come through with a repeat performance. Another top scorer on c.w. was W1RAN with 209,790 points via 660 QSO's in 63 sections, this score falling short of K2EIU's 653 contacts in 66 sections good for 217,470 points. W3KLA was disappointed at missing the 200K mark, but his score was good enough for a place finish, with W4DQS and K5ZBS rounding out the top five. Who is K5ZBS you ask? Well, that's ole familiar W6WNI all outfitted with a new call in Oklahoma. Yeah, I was puzzled at his knack of savvy too; so now you know!

Well, who were the also-rans to K2EIU's phone score of 41,495 points by 187 contacts in 43 sections? W1ECH's gallant assault netted him 199 contacts, a new phone QSO record, in finishing second with 40,170 points. W3NF supposedly had it "in the bag" early in the Party, but old age set in and Ed finished up in front of the TV set come Sunday evening. His 23,840 points were good for fourth, though bowing EPA section honors to K3ANS with 30,090. Finishing off the sizzling six were W4BGP and W3KLA, the latter proving that he can occasionally shed his bug for a week end, and polish 'em off with the mike.

This Party was marked by the many new calls heard. Newcomers were everywhere handing out contacts left and right. This may prove an opportunity to better your previous high score in the coming April fracas. So men, forward . . . march!

The following are the high claimed scores. Figures show score claimed, number of QSOs, and number of different sections worked. Final and complete standings will appear in the April *CD Bulletin*.

— *W1DGL*

C.W.

K2EIU	217,470-653-66
W1RAN	209,790-660-63
W3KLA	193,800-646-60
W4DQS	192,150-605-63
K5ZBS	185,535-582-63
WØNYU	182,695-592-61
K9ELT	182,385-575-63
W9LNQ	179,725-548-65
W6BES	177,280-547-64
W9MAK	172,290-532-64
W8SCW[1]	168,970-548-61
W9PNE	163,800-497-65
W4PNK	163,500-545-60
K4CFD/4	161,880-500-64
W1AW[2]	152,100-500-60
W2REH	150,900-501-60
K8HGT	149,270-502-59
W8AEB	147,840-462-64
W9NLJ	146,705-475-61
K4CAX	142,450-511-55
K5BSZ	136,090-434-62
K1JDN	134,405-459-59
KØOBF	135,300-448-60
W2DRV	135,110-451-59
W3GYP	134,680-476-56
K4PUZ	133,800-446-60
WØPHR	133,690-454-58
K4SSB	133,245-418-63
K4OYR	128,710-415-61
K4BAI	126,850-423-59
W1JTD	125,685-399-63
K2AFQ	124,800-410-60
K2KNV	124,195-415-59
W9QQG	119,075-433-55
K6QHC	118,800-360-66
K8KVV	116,325-416-55
W3KUN	114,675-410-55
K5ABV	107,665-353-61
K1CAU	107,520-380-56
WA2COO	104,805-404-51
W4KFC	101,080-354-56
W2OPB	100,240-351-56
K4BVD	100,100-359-55

PHONE

K2EIU	41,495-187-13
W1ECH	40,170-199-30
K3ANS	30,090-173-34
W3NF	23,840-142-32
W4BGP	21,250-125-31
W3KLA	16,820-116-29
W1GKJ	15,960-109-28
W1DXS	15,080-116-26
WØALW	13,050- 84-30
W4LK	12,825- 95-27
W2SZ[3]	12,420- 89-27
K1CAU	12,320- 84-28
W3MFW	10,580- 86-23
K2VTX/VE2	10,270- 75-26
K2QDT	12,240-102-24
KØKYK	11,620- 80-28
W2CWD	11,440-104-22
W9PNE	11,060- 72-28
W2REH	11,040- 90-24
W4ZM	10,150- 65-29
W9YT[4]	10,150- 64-29
W2COB	9600- 80-24
K4BAI	8970- 62-26
W8NYH	8710- 69-26
K2JTU	8640- 70-24
W2AYJ	8395- 66-23
KØEPT	8125- 65-25
K9SGJ	7040- 64-22
W1FNI	5670- 54-21
K2PHF/1	5250- 43-21
WA2EKE	5130- 54-18
W1AW[5]	5040- 41-21
W1DGL	5015- 54-17

[1] K2SIL, opr.; [2] W1WPR, opr.; [3] W1OQC, opr.; [4] W9SZR, opr.; [5] Multiple operator.

DXCC NOTES

Basic guiding criteria for determining our Countries List, established as the DXCC standard, were given on page 84, April 1959 *QST*. Some amateurs have asked that we tell them the specific distance that would serve as a guide when applying points two and three of that discussion. This is possible, since the several applications of the policy made over a number of years make for well-established precedents. Here then are those provisions to answer possible questions such as may arise from time to time:

2. The geographical separation. With regard to geographical separation by water where the place in question has no political/administrative sovereignty, it must be at least 225 miles from the nearest land to which it is administratively or politically attached to be considered for separate country status in the ARRL Countries List. This point shall not apply to the islands in a natural island grouping.

3. Where foreign territory divides a country, there will be a minimum distance of 75 miles of foreign land separating the two areas or places in question. In the case of island groups this distance requirement does not apply.

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DXCC credit, for some years, has been given for the Palestine listing on those stations operating in the city of Jerusalem and those stations operating in the UN Truce Supervisory Sector bordering the city of Jerusalem. Effective April 1, 1960, no further crediting toward the Palestine listing will be made for confirmations from those stations operating in the Israeli section of the city of Jerusalem. Confirmations for contacts with stations operating from the UN Truce Supervisory Sector bordering the city of Jerusalem will continue to be credited toward the Palestine listing, as will confirmations for contacts made prior to April 1, 1960 with stations operating in the Israeli section of the city of Jerusalem.

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In view of undeniable evidence presented by the Radio Society of Bulgaria regarding the operation by Dimiter Sibirsky, also known as Sibi, LZ1DX, LZ1DX/ZA, TA1SS, ZA1KAD, 9B3AA/ZA etc., we are obliged to announce that previous credits given on LZ1DZ/ZA have been deleted from DXCC records and that no confirmations made out by or associated with Sibirsky will be accepted for DXCC credit.

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Announcement is hereby made of the addition to the ARRL Countries List of Auckland & Campbell Islands. Both of these islands are located in the Pacific Ocean south of New Zealand. Campbell Island is approximately 500 miles south of New Zealand, Auckland Island is about 150 miles closer. Confirmations from either of these places will count the same for DXCC credit.

DXCC credit will be given starting June 1, 1960, for creditable confirmations dated on or after November 15, 1945. This is to permit foreign amateurs to start receiving credits at the same time as those in the U. S. A. Confirmations received prior to June 1, 1960 for either of these will be returned without credit.

DX CENTURY CLUB AWARDS

From January 1, to February 1, 1960 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.

HONOR ROLL

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ZL2GX.....297
W3GHD.....297
W1FH.....295
W8HGW.....295
PY2CK.....293
W2HUQ.....293
W6ENV.....293
W6SYG.....293
W4BPD.....293
W2AGW.....293
KV4AA.....292
W9JIN.....292
WN8RA.....292
G3AAM.....292
W6DZZ.....292
W9NDA.....291
W6CUQ.....291
ZL1HY.....291
W1ME.....291
W3JNN.....291
G2PL.....291
W7AMX.....291
W3KT.....291
W6EBG.....291
W5ASG.....290
W9YFV.....290
W6ADP.....290
W7GUV.....290
W6TT.....290
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W8UAS.....290
W7GBW.....290
W9RB1.....290
W2HXA.....289
W8BKP.....288
W8DMD.....288
W4DQH.....288
CE3AG.....288
W4TM.....287
W1CLX.....287
W6NNV.....287
W8KIA.....287
W9KOK.....287
W1GKK.....287
W6MX.....286
W5ADZ.....286
G4CP.....286
W6TS.....286
ZS6BW.....286

Radiotelephone

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W8CZ.....287
ZS6BW.....286
W8BF.....285
W9RBI.....285
W1FH.....284
W8HGW.....284
W6YY.....284
W3JNN.....283
W8PQQ.....283
W6AM.....282
W8KML.....282
ZL1HY.....280
4X4DK.....277
CX2CO.....277

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W3DPS.....186
W0AIH/VE3 178
W9SD.....141
K2UVU.....139
K4QIE.....126
ZS4UP.....123
K9GZK.....115
OX3DL.....111
K2DNA.....110
W0QKC.....110
G6YL.....110
SP2LV.....109
W3BII.....106
F7EA.....106
G3JFF.....106
OK2QR.....106
OX3RH.....106
W5QIX.....105
G3LHJ.....104
W3TEC.....103
K9HOL.....103
EA8BK.....103
OZ9N.....103
K2BG.....102
UA3FG.....102
K2QIL.....101
W4LXX.....101
DL6VN.....101
G3KYF.....101
OK1IZ.....101
WA2DIG.....100
K2QAR.....100
K3ALU.....100
W6ERS.....100
W7NNF.....100
W9UTQ.....100
K9LEQ.....100
VE6HG.....100
FM7WP.....100
G3GGF.....100

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G5ZT.....114
VE3DMT.....113
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G3IZK.....111
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I1RIF.....109
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W9TLF.....107
OQ5EV.....106
W1MGP.....102
K5KYR.....101
W7BOV.....101
HB9LF.....101
W3QEF.....100
W3TEC.....100
K4EER.....100
K4TFI.....100
K6HZP.....100

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W2ZX.....260
LA7Y.....260
W5MMD.....256
I1AMU.....252
W7AH.....250
CO2SW.....250
KP4KD.....250
W9KXK.....245
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W5AWT.....241
W1EOB.....240
W1NLM.....240
W2MUM.....240
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W6HSY.....237
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G2BVN.....170
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W1OHA.....158
WA6EYP.....157
W8BWS.....157
W9YRO.....156
W8ESR.....155
W9PNE.....155
G3JZK.....155
W1DGT.....153
K2QQQ.....152
K7GIE.....152
W8VOW.....151
W2FLD.....150
W4JJL.....150
W7CMO.....150
W8OKB.....150
K9CUY.....150
G3JLB.....150
K9KDI.....147
W2LNB.....144
K8DYX.....144
W3YPI.....143
K8HFO.....142
G3CCN.....142
ZS6IW.....142
W6AOT.....141
SM6AMR.....141
K4ALL.....140
K6BX.....140
W7TMF.....140
W9QPC.....140
W4SNH.....137
ZL1NG.....135
W6WQT.....133
W9YZG.....132
W4KET.....131
K9PIE.....130
VE3BOR.....130
SP5HS.....130
DL9KP.....129
W8BIE.....128
SP9EU.....126
W7LIO.....122
K2HIY.....120
W9KTD.....120
VE1WL.....120
W8QHW.....116
K2GKJ.....115
W9IJR.....115
K9PYX.....115
W9YHE.....114
W4FUL.....112
W4YSY.....112
K8BBZ.....112
W9CBE.....112
VE3XK.....111
W1ECH.....110
K6JBP.....110
W7JWE.....110

Radiotelephone

W3GHD.....255
W8ZET.....221
LA7Y.....213
W9YSQ.....212
W9LMN.....210
YV5AB.....210
W2LV.....202
F3DJ.....201
W9JLH.....200
I1UA.....200
W1GKK.....190
K4BVQ.....190
W0CPM.....190
EA2CB.....190
LU8CW.....180
W3DPS.....178
W3FWD.....174
K2JGG.....172
ON4PI.....170
ZL4BO.....170
W3HCO.....163
W3ICQ.....163
W0MLY.....163
W6BSY.....156
VE7SB.....156
K2QQQ.....150
W4RVL.....150
W8UMR.....141
CX6BM.....141
K2JFV.....140
W9QNO.....140
W9YRO.....138
W2IQL.....136
W7TMF.....131
W4PJG.....130
T12PI.....124
VE1PQ.....122
W0AIH/VE3 122
W4ASW.....121
VE3RE.....121
W4SGD.....120
CR7LU.....118
W4LVV.....117
OY7ML.....112
W4YSY.....111
W9YHE.....110

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W0ELA.....283
KH6IJ.....259
KL7PI.....231
VE1PQ.....244
VE2WW.....268
VE3DIF.....250
VE4XO.....180
VE5JU.....190
VE6NX.....256
VE7ZM.....280
VE8AW.....195
VO1DX.....220
4X4DK.....284

Radiotelephone

W2BXA.....267
W4DQH.....264
W5BGP.....251
W7PHO.....275
KH6OR.....254
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VE3QA.....224
VE4RP.....102
VE5RU.....178
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VE6TF.....152
VE7ZM.....253
G2PL.....266

Throughout the past year or so this column has carried frequent accounts of the doings of the AREC group of Cuyahoga County (Cleveland), Ohio. So often has this name appeared, in fact, that ye editor has groaned audibly from time to time and we have been accused of being partial to the Cleveland group. But the material was on hand, it was well written, concise, complete, and the subject matter was apropos. We used it. The EC for this group is and has been Walt Ermer, W8AEU, winner of the 1959 Edison Award.

We in the AREC are very proud of the reflected glory in which we bask as a result of this award. Every man who tries to accomplish something has enemies, and no doubt Walt is no exception; but offhand, we can't think of a more deserving person. The Cuyahoga AREC is a well-balanced communications unit. Come an emergency, it is right on the job, doing in stride what it keeps in training to do during the rest of the time. Recently, when he resigned as EC in order to turn the job over to someone else, Walt submitted a complete and detailed report of AREC activities for 1959. Besides actual emergency operations, they included communications for parades, sporting events, fund drives and simulated emergency tests.

One of the accounts, signed by the "assistant EC for parades," got a big laugh from some of the readers. But *we* weren't laughing. Providing communications for parades has a lot of specialized angles that have to be coordinated by someone familiar with them. And the Cuyahoga AREC's services were much in demand for this and other purposes. The group was very much in public good odor, and they were doing what more AREC groups *should* do: keeping active and at a high state of efficiency.

We are sure that Walt Ermer will be the first to decry his selection as an individual for the Edison Award honor, and he'll be right. No individual in a leadership role can take full credit for his organization's accomplishments. At the same time, no organization can become outstanding without an outstanding leader, and that's what W8AEU has been. As inevitably as the sunrise, one reflects credit on the other.

This was the eighth Edison Award, bestowed each year on the amateur, picked by a committee of impartial judges, who is considered to have rendered the maximum service to the public interest. In seven out of the eight choices, the amateur has been chosen from among those rendering service in the emergency or traffic field. This is not even to mention those who were awarded special citations for work in those fields. We feel that all this is a well-deserved tribute to our emergency and traffic-handling capabilities and achievements through amateur radio and an indication that the greatest public service can be rendered in these fields of amateur endeavor.

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On Nov. 23, 1959, the Kings County (Wash.) RACES coordinator was notified that flood waters were rising to the danger point on the Green River, and RACES operators were alerted at 0130. By 0500 a portable base station and 8 mobiles were operating in the Auburn area. As no emergency condition developed immediately, more RACES units were activated to assist in the Snoqualmie River Valley, centering around Fall City. RACES mobiles were dispatched to coordinate work crews, floodlights, food supply shipments, to observe and report on flood conditions and to handle traffic to and from stranded families. Throughout the following day RACES members maintained communications with various points in the stricken area until all operations were secured at 2045. During the following week the Snoqualmie River was again on the rampage. At 1500, Dec. 1, W7TWU and W7YKA set up a portable station in the Snoqualmie Fire Station to coordinate RACES units with the King County sheriff and military units. RACES mobiles furnished vital information on roads, bridges and flood levels throughout the night. All officials were favorably impressed with the spirit and efficiency of the RACES net. K7GUII lists the following as having participated, with apologies to those omitted: *K7s* AVH DNF AST ABB GUII IIST ICB, *W7s* OYO QOP BRB FOK FAS FKL FNY BEJ WTG NPC VJE ZGM JGM QBD PRW VOG SEQ NLD PZP VJU EOP GNY TDV QPR FNA RYY PRV IIUT GVI TWU YKA LSI ETE JKB HKA JWS UNR JF VWF APB FOR NQM GZS SEM NWP PZO CJI TRA ARC FCB.

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Amateurs participated in communications activities in Crescent City Harbor, Calif., on Dec. 27, when a tug exploded and sank. The Tri County Emergency Net was quickly activated. K6NNA took over as net control and the net handled many anxious personal inquiries from relatives of people on board; there was only one fatality. The amateur net was also instrumental in squashing false and exaggerated rumors. We are indebted to W6ACT and the clipping he sent for the calls of some of the other amateurs who were active in this emergency: *W6s* HHP SIY YUH BJO ANR UQE, *K6s* OBL EKC EYL, WA6CYQ.

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On Dec. 29 a major sleet storm in Western New York created a disaster area in Rochester and surrounding towns in Monroe County and amateurs were called on for communications assistance. Mobilization commenced at 1400. By 1800 fixed stations were set up at the Red Cross chapter house and in the c.d. and sheriff's offices. The c.d. control center station was put on the air to work with many mobiles already on duty and with fixed units in Brockport and Webster. The 2-meter band was used for fixed stations, and 10 and 6 meters were used for the mobiles. Operations continued until midnight. The following day the entire operation was repeated, with the addition of circuits to several shelters in the county. Operations were concluded at 2330, only to be resumed again on Thursday, Dec. 31 without the tie-in to the sheriff but with a mobile dispatched to a new Red Cross shelter to relay requirements to the chapter house. This day's operation was buttoned up at 0140 Friday morning. In many cases, amateur radio was the only means of communication, since telephone lines and power lines suffered extensive damage throughout the area.

NATIONAL RTTY CALLING AND WORKING FREQUENCIES

3620 kc. 7140 kc.

AREC and RACES worked together as a single unit in this emergency. Thirty-two operators were in actual participation, with many more standing by and available in case needed. Those taking part: *K2s* AOQ RHS INO JJT THK DHR RAA BFF MPE ZFM SKG UXF ALZ OKS UCI LOL DZV. *W2s* QY CTA UFB TKY RUJ KIO WVX UTF QYT GDB WLZ ANE RNY SCZ YGW YBK UTH, *WA2s* EWA BBK ABL BMP. — *W2QY, EC and W2CTA, RO, Monroe County, N. Y.*

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On Feb. 7 an intensive search was begun in the Los Linguish Canyon area of Texas for three college students who had been missing since the previous Wednesday. K5VHE/mobile was on the spot reporting news from the scene and the following participated in relaying messages: *K5s* HMD BHC WER GDH YWJ, W5RSV. The three boys were found dead of exposure at 1145, and amateurs were first to flash the tragic message to friends and relatives.

— *K5VHE.*

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During the SET in Minnesota last October WØWDU advised the net that his five-year-old daughter was running a fever but that he was unable to go for a doctor because the roads were impassable. It soon developed that this was not a part of the SET but the real thing. WØZOB contacted the clinic at Deer River which in turn contacted WØEMM, a doctor, on their private radio system, and soon WØEMM was on the air. However, WØWDU was unable to copy, so WØZOB relayed. WØWDU described the symptoms and listed the medications he had on hand and WØEMM prescribed from this. By evening the fever had broken, and the nearest thing to an emergency remaining was a recipe for taffy, which was provided by WØVPO. — *WØTUS, SEC Minnesota.*

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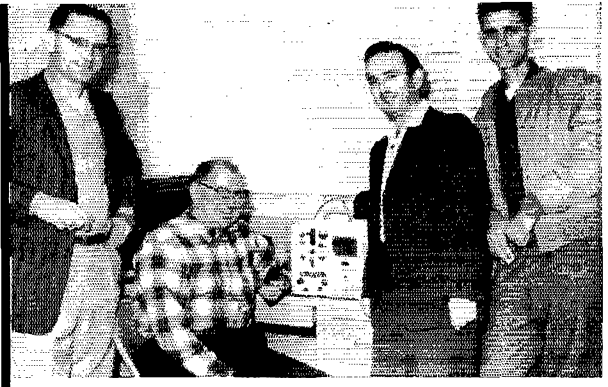
As an aftermath of the earthquake in Peru, W5ERY and W5JCY were contacted on Jan. 14 by two Peruvians who



The city of Pacifica, Calif., is gradually getting itself equipped for RACES. Shown at a new v.h.f. installation just completed are (l. to r.) K6QXU, K6JRZ (EC), K6HVF and WA6AME. *(Photo courtesy Pacifica Tribune.)*

were desperate to get news of their family. W5ERY contacted OA4HK, an American school teacher, who confirmed that the people concerned were not on the death lists. A schedule was made for the following day via W5JCY and contact with OA4HK was perfect.

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On Feb. 10 the Clarke County, Ga., AREC was alerted by EC K4BQP in connection with a storm warning. Within half an hour the net was functioning with K4PYM as net control; seven stations were in the net. As no communications emergency materialized, the net was secured at 1932, having learned much about emergency preparedness. — *K4BQP, EC Clarke County, Ga.*

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Cuyahoga County AREC reports on its Project #68, to provide communications for the Greater Muscular Dystrophy Fund Drive on Nov. 22. A total of 27 amateurs took part by manning 16 mobiles, 2 portables and 2 fixed stations in consolidating funds from 80 points throughout the county. The Ohio National Guard rode "shotgun" with each mobile. During a five hour period headquarters operators W8LHX and K8MSB were kept busy handling almost 300 messages to and from the mobile net control stations, K8AAG and K8MSB. — *W8NZI, Asst. EC Cuyahoga County, Ohio.*

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Fifty-four Oklahoma amateurs participated in "Operation Roentgen" on Dec. 7, a c.d. activity set up to gather information concerning materials sent out by them to various parts of the state. Communication was to be furnished by both amateur and commercial means. The amateur system fared very well in comparison to commercial circuits and c.d. officials were amazed at the speed and accuracy of the 54 amateurs who took part. — *W5DRZ, SCM Oklahoma.*

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On Feb. 1 the Kings County (N. Y.) AREC group cooperated with the Brooklyn Red Cross Disaster Services in conducting a message-handling drill. The situation involved a simulated fire. Messages originating with Red Cross station K2QDB were sent to the Brooklyn Borough control station and relayed to the appropriate stations at supply, shelter and transportation centers. All communications were handled with dispatch. Five amateurs participated, although other net members were available for help if needed. After the drill a round table discussion was held. — *K2OHH, Asst. EC 2 Meters, Kings County, N. Y.*

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December reports were received from 30 SECs representing 10,929 AREC members. So things continue to pick up in the AREC. First thing you know, as many as half of the SECs will be reporting each month. December reports received from: Ga., S. Texas, E. Fla., Colo., San Joaquin Valley, New Mexico, E. Bay, Minn., W. Va., Maritime, Wash., Ind., Mich., Nevada, Ala., Ont., Santa Clara Valley, Wisconsin, NYC-LI, Wyo., W. Mass., Ore., E. Pa., N. Texas, Md.-Del.-D. C., S. Dak., Okla., Maine, E. Mass. and, for the first time in three years, Illinois.

During 1959 we received 331 SEC reports from 44 different ARRL sections. The number of different sections is the same as in 1958, but a great many more reports were received. The following sections turned in 100% reporting records: Eastern Florida (*eighth* consecutive year!), NYC-LI (*sixth* consecutive year!), San Joaquin Valley (4), Santa Clara Valley (4), Colorado (3), Alabama (2), N. Mexico (2), Wisconsin (2), So. Texas, Minnesota, Michigan. Congratulations to these 11 sections and their SECs for a fine reporting record — and may we add that experience shows that those who have something to report *will report it.* Those who are doing little or nothing are the ones we don't hear from. In that connection, we note completely empty SEC report files (going 'way back to 1952) for the following sections: Western Pa., Miss., New Hampshire, Hawaii, San Francisco, West Indies, Canal Zone, Quebec, Alberta, Yukon, Manitoba.

In 1959, the following number of reports were received from the following sections: Eleven — E. Bay, W. Va., Maritime, Wash., Ind., Nevada; Ten — W. N. Y., Wyo., Ore.; Nine — W. Mass.; Eight — Ga., Ont., E. Pa.; Seven — N. Dak., Vt., Kans.; Six — Tenn., S. Dak.; Five — N. Texas; Four — Missouri, Utah, Okla.; Three — Md.-Del., D. C., Maine; Two — N. C., R. I., N. N. J., E. Mass., Sask.; One — Nebr., Mont., Santa Barbara, British Columbia, Illinois.

A.R.R.L. ACTIVITIES CALENDAR

Mar. 18–20: DX Competition (c.w.)
Apr. 6: CP Qualifying Run — W6OWP
Apr. 9–10: CD Party (c.w.)
Apr. 16–17: CD Party (phone)
Apr. 20: CP Qualifying Run — W1AW
May 5: CP Qualifying Run — W6OWP
May 19: CP Qualifying Run — W1AW
June 1: CP Qualifying Run — W6OWP
June 11–12: V.H.F. QSO Party
June 17: CP Qualifying Run — W1AW
June 25–26: Field Day
Nov. 12–13, 19–20: Sweepstakes Contest

OTHER ACTIVITIES

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

Mar. 26–27: State of Maine QSO Party, Portland Wireless Assn. (p. 138, last month).

Mar. 26–27: Minnesota QSO Party (phone), St. Paul RC (p. 124, last month).

April 2–3: Helvetia-22 Contest, USKA (p. 83, last month).

Apr. 8–18: Goose Bay QSO Party, Goose Bay ARC (p. 150, this issue).

Apr. 9–10: The French Contest (phone), REF (p. 76, Feb. issue).

Apr. 23–24: New Hampshire QSO Party, Concord Brasspounders (p. 128, this issue).

Apr. 30–May 1: PACC Contest (c.w.), VERON (p. 66, this month).

Apr. 30–May 1: Delaware QSO Party, Delaware ARC of Wilmington (p. 86, this issue).

May 2–4: Operation Alert, OCDM (p. 83, this issue).

May 6–8: West Virginia QSO Party, Mountaineer Amateur Radio Assn. (next month).

May 7–8: PACC Contest (phone), VERON (p. 66, this issue).

May 7–8: International Telegraphic Contest, USSR Central Radio Club (p. 66, this issue).

RACES News

The OCDM RACES Coordinator, W8DUA, advises us that Operation Alert for 1960 is scheduled to take place on May 2, 3 and 4. There will be only one phase of the exercise this year, with all action compacted into the three days. This probably means that activity will be more intense and almost simultaneous at all levels. We hasten to point out that Operation Alert is not just a communications exercise, that all c.d. activities will take part at all levels. Nevertheless, the communications phase is of the utmost importance, and we RACES operators will be expected to carry a large share of it. All AREC groups will be requested to offer their services and cooperate in this OCDM-sponsored operation to the maximum extent feasible.

Full details will be issued by ARRL to all ECs just as soon as they are available and released to states. This, then, is primarily advance notice of the dates chosen and a suggestion that you point your organizational activities to May 2, 3 and 4 for Operation Alert.

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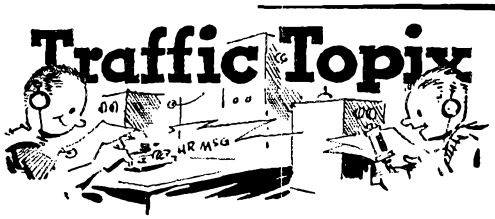
Sector 1C of Mass. RACES held an extensive drill on Dec. 14 which was given the code name "Operation TWIRP (Triggered With Interrupted Radio Pulse)." The problem was discovery of a thermal-actuated controlling device in Waltham the apparent purpose of which was to trigger an explosive charge within some object or objects of unknown location. The details of the simulated situation were laid out with almost frightening realism in a bulletin issued by the c.d. office. RACES units operated on 10, 6 and 2 meters, both mobile and fixed. Acting sector NCS was handled in a most efficient manner by W1WNP, Concord RO and EC, and the entire communications phase was supervised by W1SPL, Sector communications and radio officer. The exercise was quite successful, the drill lasting for two hours. W1SPL notes several minor discrepancies which will be corrected in future drills. — *W1AOG, SEC E. Mass.*

NATIONAL CALLING AND EMERGENCY FREQUENCIES (Kc.)

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

During periods of communications emergency these channels will be monitored for emergency traffic. At other times, these frequencies can be used as general calling frequencies to expedite general traffic movement between amateur stations. Emergency traffic has precedence. After contact has been made the frequency should be *vacated immediately* to accommodate other callers.

The following are the National Calling and Emergency Frequencies for Canada: *c.w.* — 3535, 7050, 14,060; *phone* — 3765, 14,160, 28,250 kc.



Not so long ago some SCM (think it was K4AOZ of Ala.) said in a letter that "every traffic man reads Traffic Topix." We considered this a great compliment, and we wish it were so, but frankly we doubt it; because if it *were* so, would we traffic men continue to louse up the traffic the way we do? In past issues we have covered nearly every subject that current correspondents say we should mention, yet daily experience on the traffic *lanes* indicates that a lot of this sage counsel continues to go unheeded. Let us take a few lines herewith to review some of the faults we run into in traffic handling.

First of all, about these MARS refiles. When you receive a message on a MARS circuit, you are not receiving it by amateur radio. When you refile it on an amateur circuit, you are not "relaying" it; you are originating it, exactly the same way you would originate a message received by telephone, telegraph or mail. Such designations in the place of origin as "Alaska via MARS" and "Texas via MARS" are entirely improper and inadequate. Amateur form requires a place of origin by city and town, and we don't care what it was received via. If you refile (originate) a message received via MARS, the place of origin is your town and state following the actual place of origin if known — like "Fort Hood via Dallas Texas." If the MARS form does not contain the place of origin (it should), then you can't include it, so the only thing to do is leave it out. The *only* time the "via MARS" designation appears after the place of origin is when the message originated in a country with which third party traffic by amateur radio is not permitted — this to show that the traffic was not transmitted illegally.

Let's keep the MARS procedure off amateur bands. It's fine on MARS frequencies. In amateur nets it's poor operating. We have our own procedures.

Most of the above was covered in "Traffic Topics" for January, 1959.

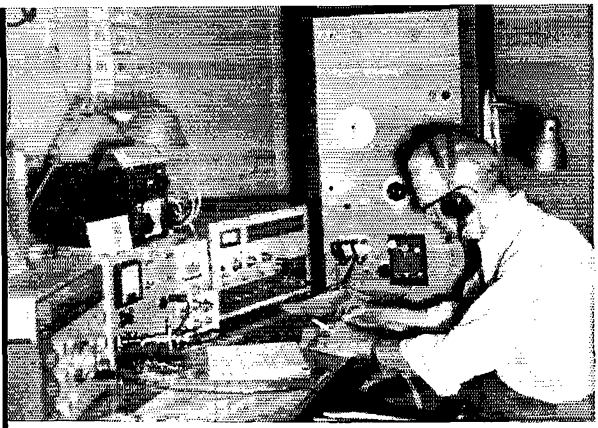
Some day a traffic station is going to hand us a book message in proper form and we're going to drop dead from shock. It hasn't happened yet. When sending a book message you never, *never* start with a message number. You never use the word "same" unless it appears in the message. You start out by saying how many messages are in the *book*, then *you* send all the *things* that are the same for all the messages, then you send the things that are different for each message. What could be simpler or more logical? Full details on how to send a book message were given in "Traffic Topics" for July, 1957.

A lot of us still leave out the separator signs in addresses. This applies to c.w. traffic only, but the separator sign (didahdidah) is most important and should become a matter of habit. Another thing a lot of us do is fail to indicate the end of the message (AR on c.w., *say* it on phone). Sometimes an operator will simply stop at the end of the signature. There is a long pause before the receiving operator tumbles to the fact that the message is over and acknowledges it; then he stands by for the next message, not knowing for sure if the transmitting operator has any more of not. More floundering around while the transmitting operator explains that he is QRU. Oh, brother! If the transmitting operator had followed the signature with AR N (or AR B if there was more to follow) or "end of message, no more" (or "end of message, more"), the situation would immediately have been clear.

On c.w. we still hear "to" before the addressee and "sig" before the signature. Unnecessary, and maybe confusing. On phone we hear "today's date." Get yourself a calendar so you know what the date is; don't depend on the other guy to make the correct interpretation.

We're not paying enough attention to the check of the message — that is, the number of words in the text. Again and again messages come through with "no check" or "CKXX" or (ugh!) "double X-ray." Any operator who transmits a message without a check goes on my lid list. It's a very small matter to count the words as you write them down (count five words at a time, twice on each line with a space between them) and there is *absolutely no excuse* for no check, even on service messages. If the guy who sends the traffic to you is a lid and doesn't include a check, don't let him make a lid out of you; count the words and put a check on the message. If you both agree that the check is wrong, *correct* it (e.g. 10/11 or "ten slant eleven" is an original check of ten corrected to eleven), don't ignore it or leave it out.

Ever hear of "break-in"? Evidently not, because very few traffic men seem to use it any more. Break-in is like keying itself; you can do it simply and cheaply, or you can spend a lot of money at it. If you *are* using break-in, a "QSK" at the beginning of your first message will tell the receiving operator he can break you. If you *aren't* using it, sending "NBK" before your first message will keep the other guy from having nervous frustration trying to break you while you send merrily along ignoring him.



Near the top of the BPL each month you will find the call WØLCX. Here's a snapshot of the OM himself, hard at work at his operating position. Red is active in NTS nets at all levels, from section through area, and is a regular performer in the Central Area TCC. The tape transmitter in the background and tape perforator (hidden by the operator) are useful adjuncts in handling traffic the way Red does it.

Some of you old timers are just as guilty of committing these little *faux pas* as the newer men — more so, because you're supposed to be setting an example. Instead, you're passing your bad habits along to them. Let's get with it, fellows, and improve our traffic handling procedure.

—•••—

Net reports. Getting to be so many of these, let's try a tabulation for the January reports:

Net	*Sessions*	*Check-ins*	*Traffic*
Eastern Area Slow	31	73	68
TCPN	31		1698
TCPN, Second Call Area	31	242	116
Interstate Single-Side-Band	31	1681	409
20 Meter SSB	20	649	1652
Eastern States	31	431	372
Hudson Traffic	37	345	207
Early Bird Transcon	30		765
Mike Farad Emerg. & Traffic	21	425	47

—•••—

National Traffic System. It's time, once again, for our annual NTS statistical analysis, and that's what we'll concentrate on this month. But first, we want to tell all NTSers that the above palaver about lousing up traffic *does include you.* So read it, get mad, write us irate and indignant letters — *but improve your traffic handling!*

In 1956, 1957 and 1958, you may remember that 9RN took the statistical crown three years in a row. In 1959, however, the tide turned, and our statistical champ became the SIXTH REGION NET under the guidance of K6HLR. RN6 placed first in total traffic and average traffic per session, third in rate and representation, and seventh in number of sessions, to edge out RN5, which placed second. Our former champ, 9RN, dropped to third place, principally through having placed ninth in number of sessions and seventh in representation. Here's the statistical lineup for 1959:

Net	*Sessions*	*Tfc*	*Rate*	*Average*	*Rep.*	*Final Standing*
RN6	7	1	3	1	3	1
RN5	2	3	5	4	2	2
9RN	9	2	1	2	7	3
TEN	1	4	2	6	9	4
1RN	10	7	4	3	5	5
2RN	4	10	7	10	1	6
3RN	3	8	9	9	4	7
4RN	5	5	8	7	10	8
TWN	11	9	6	5	8	9
RN7	6	6	10	8	12	10
8RN	8	11	11	11	6	11
ECN	12	12	12	12	11	12

As mentioned last year (this col., Apr. 1959 *QST*), we are not being so bold as to say that RN6 is our best region net and ECN is our poorest, and so on in between. Opinion and intangible factors can do much to color this. The above is simply the way the statistics work out, the final standing being arrived at by averaging the numerical standings in each category. After all, 4RN has poor representation from the West Indies and Canal Zone to contend with, and RN7 has Sask. and Alaska as non-contributors to its representation percentage. There are other reasons why one region may show up better or worse than another in the statistics. But statistics are hard and cruel and factual and they do not take reasons into account. We can, in a very general way, however, say that the above represents a pretty good analysis of the efficiency of our NTS region nets, *all* of which are getting more efficient each year.

January reports:

Net	*Sessions*	*Traffic*	*Rate*	*Average*	*Representation (%)*
EAN	29	1710	1.039	59.0	99.4
CAN	31	1121	.768	36.1	100.0
PAN	31	1443	.731	46.5	100.0
1RN	58	958	.428	16.5	79.1
2RN	62	620	.461	10.0	99.0
3RN	62	698	.411	11.3	95.7
4RN	62	996	.388	16.1	81.9
RN5	62	920	.415	14.8	90.6
RN6	62	1118	.398	18.0	97.9
RN7	59	570	.243	9.7	48.3
8RN	58	442	.240	7.6	90.2
9RN	42	1035	.684	24.7	79.1
TEN	62	811	.555	13.5	75.8
ECN	17	52	.188	3.1	76.5[1]
TWN	50	497	.293	9.9	65.2
Sections[2]	1164	10585		9.1	
TCC Eastern	74[3]	242			
TCC Central	57[3]	1038			
TCC Pacific	104[3]	1126			
Summary	1911	25982	EAN	12.3	CAN/PAN
Record	1784	24409	.882	12.5	100.0

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

[2] Section nets reporting: GSN (Ga.); QFN, FMTN, FPTN, TPTN, GSSN (Fla.); Iowa 75 Phone; VN & VFN (Va.); QIN (Ind.); AEN-O, AENT, AENB, AENP Morning, AENP (Ala.); Tenn. CW, East. Tenn., Tenn. Phone; KYN, KPN (Ky.); SCN (S. C.); CN & CPN (Conn.); S. Dak. 75 Phone, S. Dak. CW & S. Dak. 40 Phone; RIN (R. I.); CEPN (Colo.); BCEN (B. C.); TLCN (Iowa); NJN (N. J.); NEB (Nebr.); SCN (Calif.); WIN & WSSN (Wis.); N. Texas Traffic; BUN (Utah); EMN (Mass.); MDDS (Md.-Del.-D. C.).

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

In the above listing of section nets reporting: if you reported your net but it does not appear above, it may mean either that your report arrived too late (15th of month is nominal deadline) or it was not usable because it did not give the three necessary items of information: number of sessions reported, traffic total, and NTS connections. At the present time the other information on the CD-125 card (NTS Section Net Report) is not being used, but we appreciate your continuing to fill it out. We have a good use in mind for it if we ever get a chance to do something about it.

W8SCW has issued an EAN Bulletin which contains a summary of 1959 operations. This area net handled over 15,000 messages in 1959, averaging 43.7 per session. Certificates have been issued to *W1s* EMG EOB KYQ NJM OAK OBR SMU, *K1s* CIF GRP, *W2s* CQB EZB RXL VDT ZRC, WA2APY, *K2s* MBU RYH SSX UTV UZJ ZHK,

W3s KUN MCG NF UE WG, K3ANA, *W4s* DDY DYT ZKU, *K4s* KNP QES SGQ, *W8s* OCC QLJ SCW, *K8s* JLF, W9DO, VE2DR, *VE3s* AOE AUU BUR BZB. Quite a list, and none of them got his certificate without working hard for it.

W9DO is getting some newspaper publicity for CAN and NTS. W6PLG says his work is keeping him off the air, but PAN runs along pretty well by itself. Operators in 2RN seem to be prone to Cupid's arrow; the latest casualty is K2JBX, who just got married. W4SIJ reports the best month yet for 4RN: all sessions held and reported, four sections QNI 100%. W5GY makes his first report as RN5, showing that the net is running just as before. RN6 certificates have been issued to K6YLS, WA6ATB, KØCLS/6 and K6QJB; in 1959, W6GYH reported into RN6 321 days out of the year, which ought to be some kind of a record. RN7 has changed frequency to 3565 kc. as of Feb. 10 in an attempt to avoid ITV. In TWN, all sections except Arizona have 50% or better representations — not bad for such sparsely populated country.

Transcontinental Corps. We want to introduce a new TCC-Eastern Director: W1SMU. Frank has been active on TCC for quite some time and is eager to have a crack at making TCC-Eastern really tick. Boyd, W3WG, just didn't have the time to run TCC-Eastern the way he wanted to, but he has promised to stay with us as a TCC station. Hope all you TCCers will give Frank your utmost in cooperation. January reports:

Area	*Functions*	*% Successful*	*Traffic*	*Out-of-Net Traffic*
Eastern...	74	97.3	1592	242
Central...	57	91.1	2070	1038
Pacific....	104	94.2	2257	1126
Summary.	235	94.5	5919	2406

The TCC Roster: Eastern Area (W3WG/Dir. then, W1SMU Dir. now) — *W1s* SMU OBR AW NJM, WA2CIG, K2SSX, W2FEB, W3WG, W8PGW, W9DYG, W9DO; Pacific Area (W6EOT, Dir.) — *W6s* EOT ELQ HC QMO GID, WA6ATB, *K6s* LVR YBV HLR QJB, *W7s* GMC ZB BDU, K7CWV, *KØs* DTK EDH EDK CLS/6, *WØs* ANA KQD

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 Apr. 20 at 2130 Eastern Standard Time. Identical texts will be sent simultaneously by automatic transmitters on 3555, 7080, 14,100, 21,075, 28,080, 50,900 and 145,800 kc. The next qualifying run from W6OWP only will be transmitted Apr. 6 at 2100 PST on 3590 and 7129 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. Reference to texts used on several of the transmissions are given below. These make it possible to check your copy. For practice purposes, the order of words in each line of *QST* text sometimes is reversed. To improve your fist, hook up your own key and audio oscillator and attempt to send in step with W1AW.

Date	Subject of Practice Text from February *QST*
Apr. 1:	*Radio Propagation*, p. 23
Apr. 5:	*Quieting Mobile Transistor Circuits*, p. 27
Apr. 8:	*A Universal Control System*, p. 36
Apr. 14:	*Some Notes on the "Side-Band Package"*, p. 43
Apr. 18:	*Choosing a Transmission Line*, p. 40
Apr. 21:	*Working DX*, p. 56
Apr. 26:	*A Plea for Dignity*, p. 59.

W1AW OPERATING NOTE

The operating schedule for W1AW appears on page 99 March *QST*. W1AW will follow this schedule through April 23, after which W1AW will begin operating on Eastern Daylight Saving Time. The next schedule in EDST will appear in May *QST*.

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for January traffic:

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W3CUL	318	1965	1491	430	4204
K2UTV	162	992	882	110	2146
WØLGG	425	760	734	31	1950
K6MCA	159	760	717	23	1659
WØBDR	42	771	686	6	1505
WØSCA	21	618	610	0	1249
W4PL	11	641	499	6	1157
W9NZZ	264	437	17	418	1136
W8UPH	21	537	477	58	1093
W6GYH	77	500	460	27	1064
WA2CIG	28	517	498	19	1062
W7BA	22	509	482	25	1038
K4SJH	92	462	401	34	989
WØLCX	44	471	416	56	987
W9TT	25	471	240	221	957
W6GQY	365	419	116	49	949
W9DYG	25	448	402	37	912
W3VR	70	390	374	10	844
W9MM	8	410	390	14	822
K1BCS	255	297	199	70	821
K1MMQ	113	393	297	13	816
W3IVS	20	388	366	22	796
W6RSY	49	407	221	92	769
K4GFR	600	78	51	33	762
K6YBV	42	386	298	36	762
K4BY	215	177	310	48	750
W1SMU	25	363	307	23	718
K2SSX	40	338	310	26	714
K2YZI	74	323	305	7	709
W7DZX	9	351	306	22	688
W9DO	17	324	62	279	682
K6PXQ	101	286	249	36	672
K1FDP	91	252	288	40	671
W9ZYK	13	340	284	28	665
K4FMA	37	322	227	75	661
WØGGP	55	530	55	16	656
K1WCM	78	285	259	26	648
W5ZHN	62	293	206	87	648
K6HLR	22	337	281	5	645
W6EOT	7	309	293	23	632
W9GJS	152	221	98	154	625
K4QLG	312	137	60	111	620
K4KNP	4	326	285	0	615
WA6BLM	16	304	276	0	596
K4KDN	21	285	268	7	581
K6BPI	62	255	207	48	572
W4ZKU	23	268	232	41	564
W1YBH	16	294	59	193	562
K1I8M	11	275	258	17	561
W9IDA	17	282	257	3	559
W9IMN	267	151	48	92	558
W1PEX	18	260	254	5	537
K4EHY	32	233	226	34	525
W1OBR	25	249	238	8	520
W3KUN	34	242	146	90	512
W7BDU	2	256	252	0	510
W1EMG	15	249	218	26	508
Call	*Orig*	*Recd.*	*Rel.*	*Del.*	*Total*
Late Reports:					
WØSCT (Dec.)	23	414	407	12	856
K4AHA (Dec.)	71	314	280	37	702
K6HLR (Nov.)	60	327	281	22	690
KØHGI (Dec.)	42	232	136	96	506

More-Than-One-Operator Stations

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W6IAB	41	348	308	40	737
WØTUS	29	255	195	31	510
Late Report:					
K6MCA (Dec.)	333	1175	1098	60	2666

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

W9DGA 343	WA2CNS/VE8 121	K9TYM 105	
KØLTJ 182	K4CNY 121	W3TN 102	
W4SHJ 176	K6EA 119	KØDCW 101	
VE2AZI/1 172	K4GBS 118	Late Reports:	
W4QDY 156	K3GMV 117	K0SGJ (Dec.)	205
K4RNS 142	WA6CDD 115	K2KAR (Dec.)	164
	W4NLX 112	K4GBS (Dec.)	118
K3CXX 134	W1EFW 110		
		K9KNC (Dec.)	112
K2DEI 129	K4MIH 110	K4PUZ (Dec.)	108
K7BKH 127	K5JGZ 110	K5IPK (Dec.)	108
K9AUB 127	W7VIU 110	WØDVB (Dec.)	107
K4ODS 126	K1HMQ 109	K5IPG (Dec.)	105
KØSGJ 126	WA6EEO 108	K4GBS (Dec.)	102
W8DAE 123	VE2WT 107		
W2VDT 122	K2VVL 105		

More-Than-One-Operator Stations

K5LZW/5 206	W1AW 125	Late Report:	
KH6AJF 154	W1YU 110	W5AC (Dec.)	204

BPL medallions (see Aug. 1954 *QST*, p 64) have been awarded to the following amateurs since last month's listing: W5BKH, K5IPS, K5LGH, WA6BLM, W7APS, K7BYC, K7CLL, K9BSU, W9TZN, W9USR, W9VAY, KØBLJ.

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.

Station Activities

• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.

ATLANTIC DIVISION

EASTERN PENNSYLVANIA—SCM, Allen R. Breiner, W3ZRQ—SEC: DUI. PAM: TEJ. RM: AXA. K3CNN added a Gotham vertical for the DX Test, EAN erected a 60-ft. tower, K3IPA has a new Apache transmitter, K3HPP has a new Viking Ranger and an HQ-100. K3HEC has a new General Class ticket. HJ and CFL have a new QTH. ADM has an s.s.b. rig and NOK a 10-meter rig. LN has a new hobby—flying. HNK has an electronic keyer and K3GYP a new DX-40 with v.f.o. KMD has a new granddaughter. K3ALD and DFK are getting their share of 40-meter DX QSOs. KJJ added UR3Z to make No. 190. MFW snagged ZM6AP and VU2ANI to add to his list. New club officers: Lehigh Valley ARC—NCX, pres.; K3AJH, vice-pres.; K3HCA, secy.; GYD, treas.; Cumberland Valley ARC—RIH, pres.; FMK, vice-pres.; ACH, secy.; ZUX, act. mgr., Keystone V.H.F. Club—SST, pres.; K3BKH, vice-pres.; K3DGB, secy.; EDO, treas. The club now has 65 voting members. The Bucks County ARC will hold its Second Annual Banquet Apr. 9. For details and registration write K3GSV, Box 311, Bristol. New appointments: K3EHP as OES, JPB as OO and FAF as ORS. TEC made DXCC and also holds WAS and WAC. CUL increased West Coast skeds to eight to handle the extra traffic from a couple of southern fairs. NF lost his 80-meter dipole in an ice storm but was back in business the next day. WHK found time during the mid-term school vacation to handle a bit of traffic. INW is now operating with an antenna presented him by the Bell Telephone American Legion Post 69. The new officers of the Delaware Valley Council of ARCs are: JFI, chairman; AYG, vice-chairman; CDY, secy-treas. The council will participate in the Boy Scout Jamboree to be held July 22 to 24 at Belmont Plateau. The Mt. Airy V.H.F. RC was featured in a story with photos by the *Germantown Courier*. The Bucks County ARC has formed Novice code and theory classes and the club president, K3DVB, has been transferred to Greenland. K3BJS is the new editor of the West Philadelphia Radio Assn. bulletin called *Scoop*. K3ITD made WAS while he held his Novice Class license. The United Trunk Lines "UTL" is recruiting for net members. Further information can be had from NNL. Traffic: W3CUL 4204, VR 844, IVS 796, HNK 255, MFW 172, K3DZB 168, W3KMD 163, AXA 86, FAF 67, ZRQ 53, K3IPA 44, W3NF 31, ANS 22, K3ALD 22, W3WHK 22, K3BHU 21, W3BPZ 20, AMC 18, BFF 18, K3GYP 17, DFK 16, W3OY 16, ELI 14, JSX 11, ZLP 8, EEN 6, BNR 4, NQB 4, PDJ 4, KJJ 2, YLL 2.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA—SCM, Thomas B. Hedges, W3BKE—Asst. SCM Delaware: P. R. DeCourcelle, 3DQZ. SEC: PKC. MDD Net, 3650 kc. Mon. through Sat. 1915 EST. MEPN, 3820 kc. Mon., Wed., Fri. at 1800, Sat. and Sun. at 1300 EST. MDDS and MSN (slow-speed) nets, 3650 kc at 1845 and 2030 EST. New appointments: BUD as EC for St. Marys County, Md. EFZ, FRZ, HCE and K3JYZ as OOs. K3BYJ, EFZ and EKO as ORSs. K3HPG as OBS. OO reports were received from AHQ, K3CPA, EIS, EQK, K3GEK, MSR and ZAQ. K3CXX, K3GMV and TN rate BPL this month. The Free State ARC meets the 2nd and 4th Mon. at Fort Meade, Md. K3ANA is now on s.s.b. with an SB-10. AHQ is recovering and resuming OO and OBS activity. Section Net certificates go to BUD and ZNW. K3BYB likes his new v.f.o. CDG has a new Tri-band beam. CDQ is active on 20 meters with her Apache. CN returns to morning traffic nets. K3CXX divides time between school and NTS nets. K3DCP was active in arranging the combined Jan. 20 meeting of the Baltimore clubs. It is a sad duty to report the passing of PRL, who suffered a heart attack on Jan. 22. John was one of the most enthusiastic and hard-working members of the amateur fraternity. YYF is now attending medical school. ECP finds time to run up a good traffic count. EQK and PKC are revamping the Baltimore ARC station, FT. Chesapeake ARC's new officers are LMC, pres.; K3EVC, vice-pres.; KN3KPZ, secy. Dir. Crossley, YA, spoke at the Jan. 15 meeting of the Washington RC. EIS and FYS made good showings in the Jan. CD Party. K3GBV is active on 6 meters. K3GJD sends in a good traffic count by radiogram. K3GMV makes BPL on s.s.b.! K3GZK announces MSN QSY to 3650 kc, so all Maryland c.w. nets will be on the same frequency. IWJ keeps up A-2 activity on 2 meters. JME is pushing AREC activity in Baltimore County. OYX reports the Antietam RA meets the 1st and 3rd Tue. at the Hagerstown YMCA. JWN is helping as NCS for MDD and 3RN. K3JYZ moved in from San Diego and is getting started again as OO. K3HTE operates the Bethesda-Chevy Chase H.S. station, K3KFM. KHA is busy with radio and school. NFS reports that K5OEA/3 and XYL K5SPD/3 handled holiday traffic from a nearby VA Hospital. JWI is on the air from a new home in Aberdeen. MCG finds time between shooting rockets to manage MDD. TN spoke before the Rock Creek ARA on traffic-handling at its Jan. 22 meeting. PQ remains active on MDD. Iron man UE keeps 3RN operating smoothly. K3WBJ reports from Walter Reed Hospital. WSE is settled in a new QTH. ZAQ checks in from Baltimore. *Delaware Report:* K3BYJ advises he is leaving MDD and moving to Mass. EKO handles plenty of traffic as a new ORS. K3GEK divides

(*Continued on page 104*)

FIFTH DELAWARE QSO PARTY

April 30 and May 1

The Delaware Amateur Radio Club of Wilmington announces its 5th Delaware QSO Party and invites all amateurs to participate. Delaware hams are urged to work as many out-of-state stations as possible, so that those interested can earn credit toward WAS and the W-DEL certificate. Here are the details:

(1) Time: 30-hour period from 1800 EST Saturday April 30 to 2400 EST Sunday, May 1.

(2) No time limit and no power restrictions.

(3) Scoring: *Delaware stations*: 1 point per contact and multiply total by the number of states, U. S. Possessions, Canadian provinces and foreign countries worked during the contest period. *Outside stations*: 5 points for each Delaware station worked and multiply total by the number of counties in Delaware worked during the contest period.

(4) Credit for contacts with the same station on another band will be given.

(5) A certificate will be awarded to the highest-scoring station in each state, U. S. Possession, Canadian Province and foreign country (with 3 or more contacts) and to the highest-scoring station in each Delaware county. In addition, a W-DEL certificate will be sent to any station working all 3 Delaware counties. Party logs showing required data will be accepted in lieu of QSLs.

(6) Watch 3530, 3710, 3905, 7030, 7175, 7275, 14,100, 14,250, 21,100, 21,400, 28,100 and 29,000 Kc., and 50 and 144 Mc. for contest stations.

(7) General Call: "CQ DEL." Delaware c.w. stations should identify themselves by signing *de DEL (call) K*. Phones say, "Delaware calling."

(8) Contact information required: Delaware stations send number of QSO, RST or RS and county (New Castle, Kent or Sussex). All others send number of QSO, RST or RS report, and state, possession, province, or country.

(9) Logs and scores must be postmarked not later than May 15, 1960 and should be sent to the Delaware Amateur Radio Club, c/o John Barber, K3GEK, 5 Phelps Lane, Newark, Delaware.

NEW PRODUCTS
MUST MEET THE TEST OF TIME

OUR FEBRUARY advertisement was devoted entirely to the subject of quality control in the production of amateur gear.

WE RECOGNIZED that we could not tell the complete story on this subject, and that many hams have not had the opportunity to visit in person a manufacturing facility such as ours. So we decided to highlight at least some of the unusual steps that we feel must be taken to prove the performance of our equipment before it reaches you.

TO AN even greater extent, the development of a *totally new product concept* is an exacting, time-consuming and costly process. A current, outstanding example at Hallicrafters is our FPM-200 transistorized transmitter/receiver which, until recently, was classified as a research and development program in our laboratories.

LAST FALL, we told you in this column that we would build fifty FPM-200's, using production people, parts and tools. Today, sub-assemblies for all fifty units have been completed and tested, and we are now in final assembly. When they are finished they will be subjected to the same rigorous tests as were the engineering prototypes.

WE WOULD like the opportunity to tell and show you the full story of the FPM-200 development . . . if you are in Chicago this spring, stop by our plant and see for yourself the almost unbelievable care, talent, manpower and dollars being put into the development of this ham station of the future.

PLANT HOURS — 8:30 A.M. TO 5:00 P.M. MONDAY THROUGH FRIDAY

TRAV MARSHALL, K9EBE

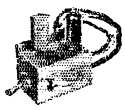
Bud Hallgren Jr. W. J. Hallgren W9AC for **hallicrafters**

Popular CW and AM transmitter...RF/audio exciter!

VIKING "RANGER" TRANSMITTER/EXCITER—An outstanding power bargain—this compact, completely self-contained unit is a superbly engineered transmitter . . . and also serves as an RF/audio exciter for high power equipment. Delivers 75 watts CW input, or 65 watts phone input. Instant band-switching 160 through 10—built-in VFO or crystal control. 6146 final amplifier. Wide range pi-network coupling system will match antenna loads from 50 to 500 ohms—tunes out large amounts of reactance. Timed sequence keying. TVI suppressed. With tubes, less crystals.

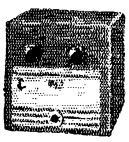
Cat. No. 240-161-1 . . Kit . . . . . Amateur Net $229.50
Cat. No. 240-161-2 . . Wired and tested . . . . . Amateur Net $329.50

Popular Johnson station accessories...



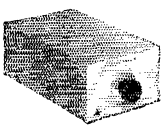
CRYSTAL CALIBRATOR — Provides accurate 100 kc. check points to 55 mc. Requires 6.3 volts at .15 amps, and 150-300 volts at 2 ma. With tube, military-type crystal, power cable and extension leads.

Cat. No. 250-28 . . Wired . . . . . Amateur Net $17.95



"SIGNAL SENTRY" — Monitors CW or phone signals on all frequencies to 50 mc. without tuning. Energized by transmitter RF. Mutes receiver audio for break-in. May be used as code practice oscillator with simple circuit modification. With tubes.

Cat. No. 250-25 . . Wired . . . . . Amateur Net $22.00

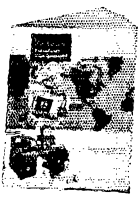


ATTENUATORS — Provide 6db of attenuation with required power dissipation to enable various units to serve as exciters for the Viking "Thunderbolt" linear amplifier. Dial instantly cuts attenuator in or out of circuit.

For use with Viking "Ranger" or similar unit. Provision for 75 watt bulb so unit may be used with Viking II or similar transmitter/exciter.

Cat. No. 250-42-1 . . . . . Amateur Net $21.50
Cat. No. 250-42-3 . . For HT-32 or similar unit . . . Amateur Net $21.50

New Catalog



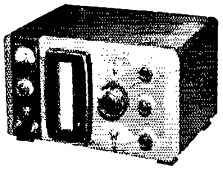
Your complete guide to amateur radio's most exciting equipment. Write today for your free copy, and you'll soon see why your best transmitter buy is a Viking!

FIRST CHOICE AMONG THE NATION'S AMATEURS

Viking

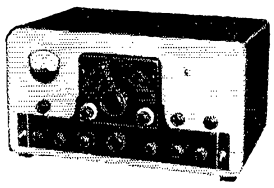
E. F. JOHNSON COMPANY • WASECA, MINNESOTA

No matter what you expect from a transmitter...
You'll get more with a VIKING!



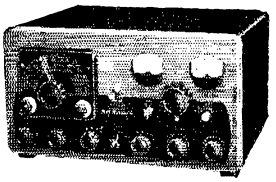
"COURIER" AMPLIFIER – Class B linear rated 500 watts P.E.P. input with auxiliary SSB exciter; 500 watts CW; 200 watts AM. Continuous coverage 3.5 to 30 mcs. With tubes.

Cat. No.	Amateur Net
240-352-1..Kit	$244.50
240-352-2..Wired	$289.50



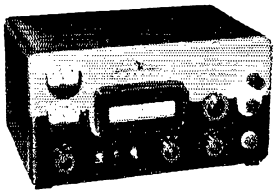
"VALIANT"—Instant bandswitching 160 through 10. 275 watts input CW and SSB (P.E.P. with aux. exciter) 200 watts phone. With tubes.

Cat. No.	Amateur Net
240-104-1..Kit	$349.50
240-104-2..Wired	$439.50



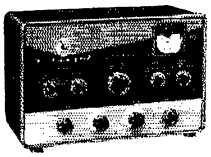
"FIVE HUNDRED" – 600 watts CW input; 500 watts phone and SSB (P.E.P. with aux. SSB exciter). Bandswitching 80 through 10. With tubes.

Cat. No.	Amateur Net
240-500-1..Kit	$749.50
240-500-2..Wired	$949.50



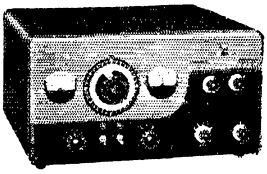
"THUNDERBOLT" AMPLIFIER—2000 watts P.E.P.* input SSB; 1000 watts CW; 800 watts AM linear. Continuous coverage 3.5 to 30 mcs. With tubes.

Cat. No.	Amateur Net
240-353-1..Kit	$524.50
240-353-2..Wired	$589.50



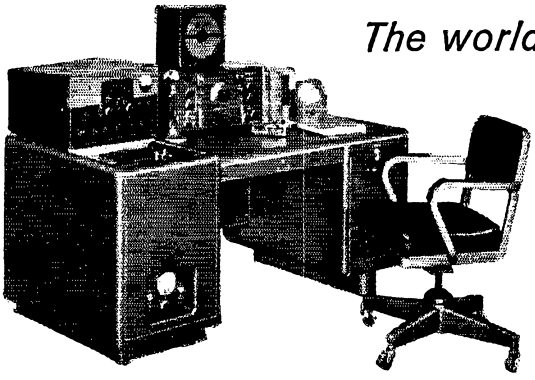
"6N2"—Instant bandswitching coverage of both 6 and 2 meters. Power input rated at 150 watts CW, and 100 watts AM phone. With tubes.

Cat. No.	Amateur Net
240-201-1..Kit	$129.50
240-201-2..Wired	$169.50



"6N2" THUNDERBOLT AMPLIFIER—Input rated 1200 watts P.E.P.* SSB and DSB. Class AB_1; 1000 watts CW, Class C; 700 watts AM linear, Class AB_1. Continuous coverage 6 and 2. With tubes.

Cat. No.	Amateur Net
240-362-1..Kit	$524.50
240-362-2..Wired	$589.50



The world at your finger tips!

VIKING "KILOWATT" AMPLIFIER—This exciting unit is the only power amplifier available which will deliver full 2000 watts SSB* input, and 1000 watts CW and plate modulated AM! Class C final amplifier operation provides plate circuit efficiencies in excess of 70%. Continuous coverage 3.5 to 30 mcs. Excitation requirements: 30 watts RF and 10 watts audio for AM; 10 watts peak for SSB.

Cat. No.	Amateur Net
240-1000..Wired and Tested	$1595.00
251-101-1..Matching desk top, back and 3 drawer pedestal, FOB Corry, Pa.	$132.00

*The FCC permits a maximum of one kilowatt average power input for the amateur service. In SSB operation under normal conditions, this results in peak envelope power inputs of 2000 watts or more, depending upon individual voice characteristics.

1960 EDITION

The RADIO AMATEUR'S HANDBOOK

AN INVALUABLE reference work and text for everyone—hams, engineers, lab men, technicians, experimenters, students, purchasing agents.

Distributors throughout the Nation have the 1960 Edition in stock. Better get your copy of this complete Handbook now. The demand is terrific!

In the pages of this latest edition will be found, in addition to accumulated knowledge since the first Handbook was issued in 1926, up-to-date information invaluable to ham and engineer alike. Every field of ham radio is covered: transmitting, both c.w. and 'phone; single-sideband and a.m.; receiving; propagation; antennas; construction; theory; charts; diagrams; circuits; transistors; miscellaneous data; procedures; station operation, etc.

For instance, the 1960 Edition carries

- **Sections on Theory; Electrical Laws and Circuits, Vacuum Tube Principles, Semiconductor Devices, High Frequency Communication, Antennas, Transmission Lines, Modulation V.H.F. and U.H.F.**
- **Sections which include How-to-make-it articles dealing with Receivers, Transmitters, Power Supplies, Radiotelephony, V.H.F., U.H.F., Antennas, Mobile Equipment, radioteletype, transistorized equipment, etc.**
- **A separate section on test and measuring equipment**
- **32 pages of data on vacuum tubes and semiconductors, a great time-saver to both engineer and ham**
- **Many pages of valuable catalog/advertising sheets, containing manufacturers' and distributors' products and services . . . a useful supplement to the editorial section**
- **Plus thorough treatment of such subjects as assembling and operating a station, BCI and TVI, construction practices, etc. — *and fully indexed and completely illustrated throughout. You can locate in a jiffy what you want.***

$3.50 U.S.A. Proper **$4.00** U.S. Possessions and Canada. Elsewhere, **$4.50.** Buckram bound Edition, **$6.00** everywhere. All prices postpaid.

The AMERICAN RADIO RELAY LEAGUE, INC.

West Hartford 7, Conn. • U.S.A.

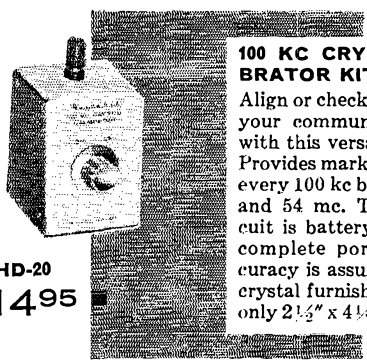
FROM HEATH ...9 NEW RADIO AMATEUR KITS

GC-1
$99.95
$10.00 dn.,
$9.00 mo.

TEN-TRANSISTOR "MOHICAN" GENERAL COVERAGE RECEIVER KIT (GC-1)

An excellent portable or fixed station receiver! Many firsts in receiver design for outstanding performance . . . ten transistor circuit . . . flashlight battery power supply . . . ceramic IF transfilters. The amazing, miniature transfilters used in the GC-1 replace transformer, inductive and capacitive elements used in conventional circuits; offer superior time and temperature stability, never need alignment and provide excellent selectivity. Other features include telescoping 54" whip antenna, flywheel tuning, tuning meter, large slide-rule dial and attractive, rugged steel case in gray and gray-green. Covers 550 kc to 30 mc in five bands. Electrical bandspread on five additional bands cover amateur frequencies from 80 through 10 meters. Operates up to 400 hours on 8 standard size "C" batteries. Sensitivity: is 10 uv, broadcast band; 2 uv, amateur bands for 10 db signal to noise ratio. Selectivity: 3 kc wide at 6 db down. Measures only 6½" x 12" x 10". 20 lbs.

Heathkit XP-2: plug-in power supply for 110 VAC operation of GC-1. (optional extra). 2 lbs. **$9.95**



HD-20
$14.95

100 KC CRYSTAL CALIBRATOR KIT (HD-20)

Align or check calibration of your communications gear with this versatile ham aid. Provides marker frequencies every 100 kc between 100 kc and 54 mc. Transistor circuit is battery powered for complete portability. Accuracy is assured by .005% crystal furnished. Measures only 2½" x 4½" x 2⅝". 1 lb.

7 more kits on following pages

HEATHKIT®. . . WORLD'S FINEST HAM GEAR

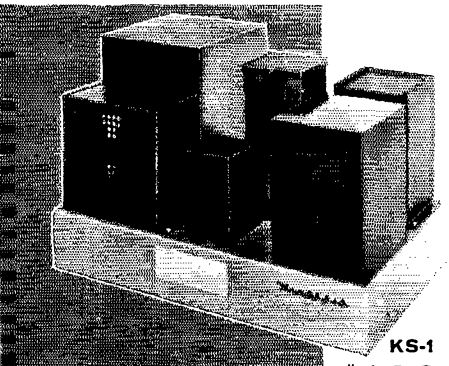
KL-1
$399.95
$40.00 dn.
(Write for time payment details)

"CHIPPEWA" KILOWATT LINEAR AMPLIFIER KIT (KL-1)

Here is a top-quality kilowatt rig with all the features you've been looking for. Operates at maximum legal power input on all bands between 80 and 10 meters, in SSB, CW or AM linear operation. Premium tubes (4-400A's), forced air cooled with centrifugal blower. Grid neutralized, continuous plate current monitoring, extensive TVI shielding. Features both tuned and swamped grid circuits to accommodate all popular exciters. Operates class ABI for SSB and AM linear service and high efficiency class C for CW service. Convenient panel controls include power switch, tune-operate switch, HV on/off switch, final bandswitch, meter switch, grid bandswitch, grid tuning, mode switch, plate tuning, plate loading and bias adjust. Accessory connectors are provided on the rear apron of the chassis for complete compatability with all control circuitry in the Heathkit "Apache" Transmitter. Two meters provided; one monitors final plate current; the other indicates switch selected readings of final grid current, screen current, and plate voltages. Send for complete specifications now. 70 lbs.

A PERFECT COMPANION FOR THE "CHIPPEWA" KILOWATT POWER SUPPLY KIT (KS-1)

Ruggedly constructed for heavy-duty use in medium to high power installations, the KS-1 fills the requirements of a top-notch power supply with economy and safety. Features an oil-filled hermetically sealed plate transformer, "potted" swinging choke input filter and 60-second time delay relay. Line filters minimize RF radiation. Maximum DC power output is 1500 watts. Nominal voltage output, 3000 or 1500 volts. DC current output, average 500 ma, maximum 1000 ma. Control circuitry is arranged to allow remote installation. The KS-1 employs two 866A half-wave mercury vapor rectifiers in a full-wave, single-phase configuration. Power requirements: 115 V, 50/60 cycles, 20 amperes; 230 V, 50/60 cycles, 10 amperes. 105 lbs.



KS-1
$169.95
$17.00 dn.,
$15.00 mo.

XC-6
$26.95

XC-2
$36.95

6-METER CONVERTER KIT (XC-6)

Extends frequency coverage of the Heathkit "Mohawk" and most other general coverage receivers into the 6 meter band. Converts 50-54 mc signals to 22-26 mc. 3-tube circuit provides two RF stages and low-noise triode mixer. Calibration accuracy assured by .005% overtone crystal supplied. Provision for external RF gain control. 6 lbs.

2-METER CONVERTER KIT (XC-2)

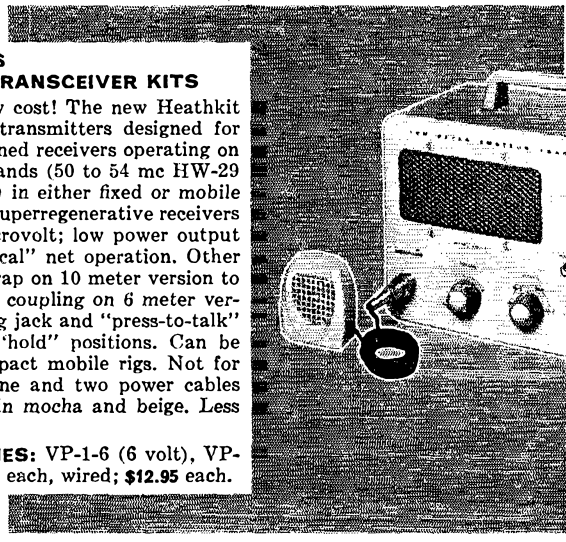
This top-quality 2-meter converter may be used with receivers tuning any 4 mc segment between the frequencies of 22 and 35 mc when appropriate crystal is used. Converts 144-148 mc signals to 22-26 mc with .005% overtone crystal supplied. High quality parts used throughout. Silver plated chassis and shields. 7 lbs.

IN KIT FORM TOPS IN TRANSMITTING POWER

TWO BRAND NEW MODELS
HEATHKIT 10 & 6 METER TRANSCEIVER KITS

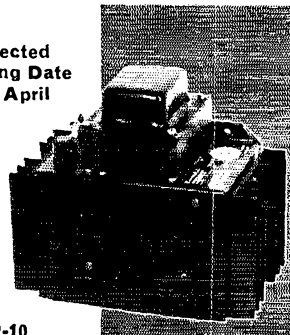
Complete ham facilities at low cost! The new Heathkit transceivers are combination transmitters designed for crystal control and variable tuned receivers operating on the 6 and 10 meter amateur bands (50 to 54 mc HW-29 and 28 to 29.7 mc for HW-19) in either fixed or mobile installations. Highly sensitive superregenerative receivers pull in signals as low as 1 microvolt; low power output is more than adequate for "local" net operation. Other features include: built-in RF trap on 10 meter version to minimize TVI; adjustable link coupling on 6 meter version; built-in amplifier metering jack and "press-to-talk" switch with "transmit" and "hold" positions. Can be used in ham shack or as compact mobile rigs. Not for Citizen's Band use. Microphone and two power cables included. Handsomely styled in mocha and beige. Less crystal. 10 lbs.

VIBRATOR POWER SUPPLIES: VP-1-6 (6 volt), VP-1-12 (12 volt). 4 lbs. Kit; **$8.95** each, wired; **$12.95** each.



HW-19 (10 meter)
HW-29 (6 meter)
$39.95 each

Expected Shipping Date late April



HP-10
$44.95

NEW! IMPROVED DESIGN
TRANSISTOR MOBILE POWER SUPPLY (HP-10)

Brand new power supply for mobile gear; features all-transistor circuit, instant starting, high efficiency, rugged construction. Operates from 11 to 15 VDC input; at 12 VDC, provides 600 VDC @ 200 ma, or 600 VDC @ 150 ma & 300 VDC @ 100 ma simultaneously, at 120 watts. Negative 150 volts @ 30 ma also provided. Max. ambient temp., 150 @ 120 watts ICAS. Input current requirements: 2 amps, idling; 13 amps, full output. Includes heavy filtering of input and output leads, remote relay control of primary power, silicon rectifiers, and extruded aluminum heat sinks for efficient cooling of power transistors. Measures 8" x 7½" x 6⅛". 10 lbs.

ORDER DIRECT BY MAIL OR SEE YOUR HEATHKIT DEALER*
*The convenience of Local Heathkit Sales and Service costs but a few dollars more.

HEATH COMPANY
a subsidiary of DAYSTROM, INCORPORATED
Benton Harbor 8, Michigan

All prices and specifications subject to change without notice. Please include postage on orders to be shipped parcel post. 20% deposit is required on all C.O.D. orders. All prices are NET F.O.B. Benton Harbor, Mich., and apply to Continental U.S. and Possessions only. Dealer and export prices slightly higher.

HEATHKIT®

FREE CATALOG!

Describes over 150 easy-to-build electronic kits in HI-FI, Test, Marine, and Ham radio fields. To get yours, fill in this coupon and mail today!

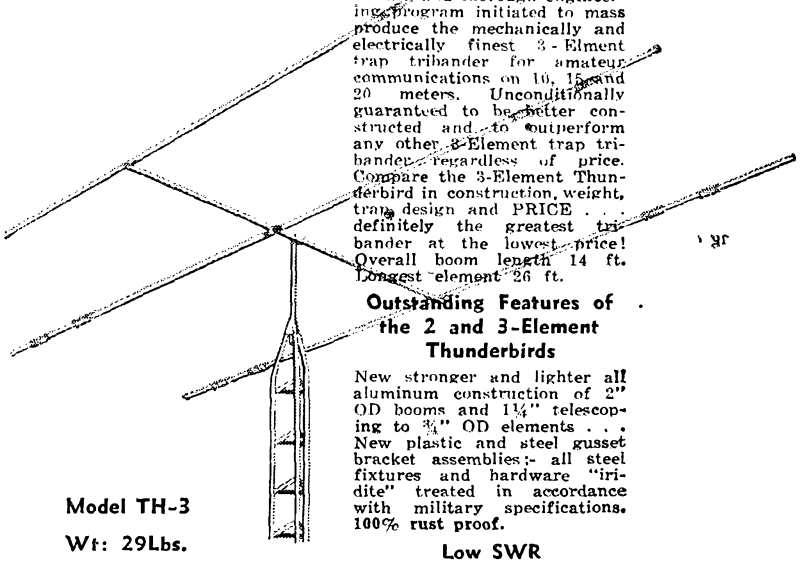
ITEM	MODEL	PRICE

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

THE ALL NEW hy-gain 2 AND 3 ELEMENT THUNDERBIRD tribanders



Model TH-3

Wt: 29Lbs.

$89.95

The 3-Element Thunderbird

Hy-Gain's new Standard Tribander is the end result of an intense and thorough engineering program initiated to mass produce the mechanically and electrically finest 3-Elment trap tribander for amateur communications on 10, 15 and 20 meters. Unconditionally guaranteed to be better constructed and to outperform any other 3-Element trap tribander regardless of price. Compare the 3-Element Thunderbird in construction, weight, trap design and PRICE . . . definitely the greatest tribander at the lowest price! Overall boom length 14 ft. Longest element 26 ft.

Outstanding Features of the 2 and 3-Element Thunderbirds

New stronger and lighter all aluminum construction of 2" OD booms and 1¾" telescoping to ⅞" OD elements . . . New plastic and steel gusset bracket assemblies;- all steel fixtures and hardware "iridite" treated in accordance with military specifications. **100% rust proof.**

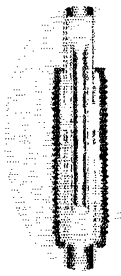
Low SWR

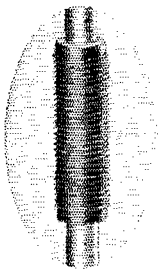
Guaranteed less than 2 to 1 SWR on all bands with no tuning or adjusting necessary. Excellent broad band characteristics. Designed for 52 ohm coaxial line.

Quick and easy assembly and installation from clearly written instruction manuals complete with drawings and photos.

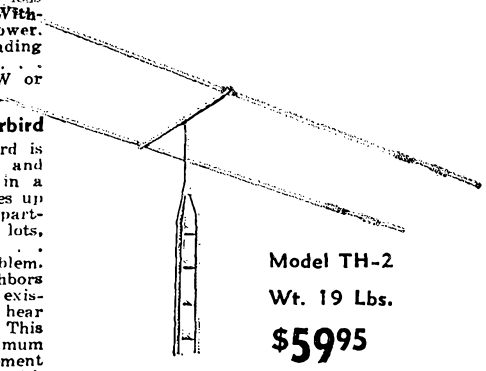
Slim Traps

Unconditionally guaranteed to be completely impervious to all weather conditions. The new "solid state" slim traps are the world's smallest, lightest weight trap assemblies (1½" in dia.) The highly efficient coil and capacitor are wound on and completey imbedded in the new low loss polypropylene plastic. **Withstands Maximum Legal Power.** Thoroughly tested with leading commercial transmitters . . . Withstand 1000 watts CW or AM and 2000 watts SSB.





NOW WITH THE NEW hy-gain SLIM-TRAPS



Model TH-2

Wt. 19 Lbs.

$59.95

The 2-Element Thunderbird

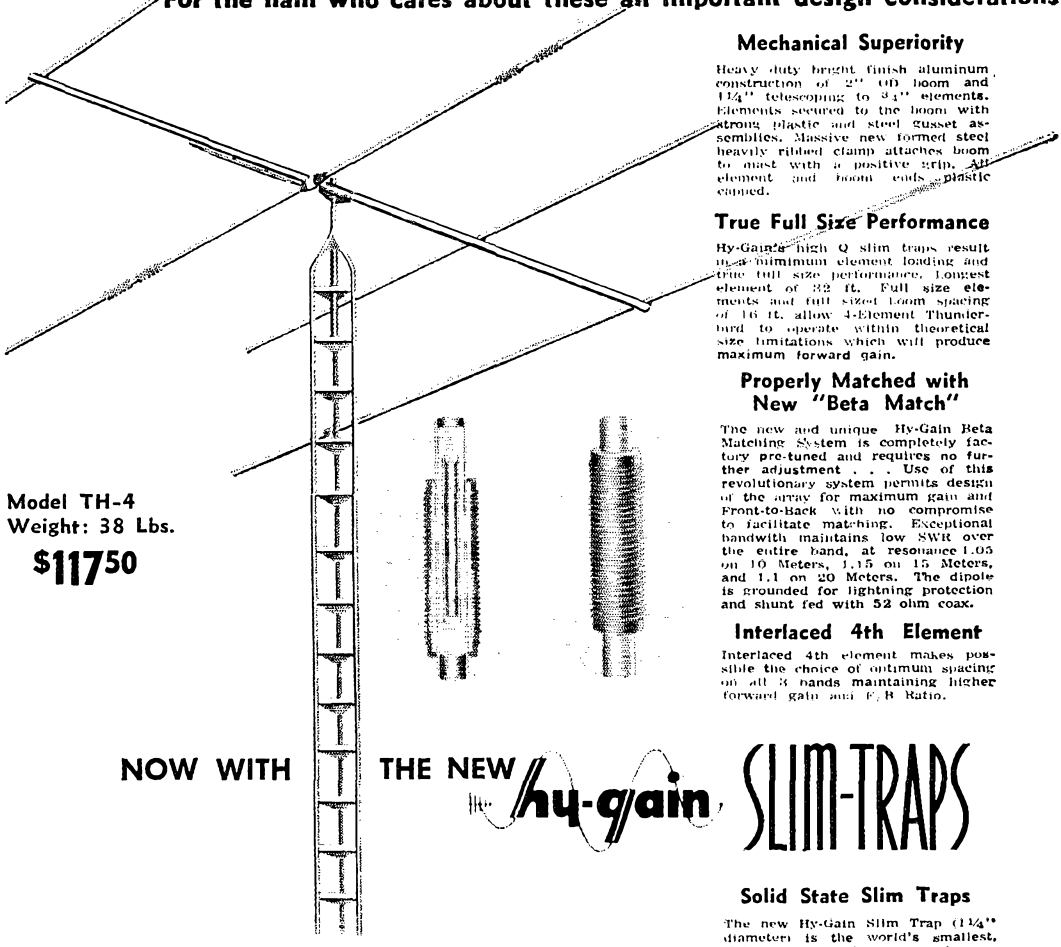
The 2-Element Thunderbird is extremely light weight and easy to handle; installs in a matter of minutes. It goes up almost anywhere . . . apartment roofs, crowded city lots, small suburban homes . . . wherever space is a problem. It is so small your neighbors will hardly know it is in existence, but the hams who hear you on the band will! This little beam develops maximum gain possible in a 2-Element tribander. Rotates easily with a TV-Rotator — pack it up and take it with you when you move. Boom length only 6 ft. Longest element 26 ft.

hy-gain antenna products

1135 NO. 22nd ST. • LINCOLN, NEBRASKA

ALL NEW hy-gain 4-Element Thunderbird tribander

For the ham who cares about these all important design considerations



Model TH-4
Weight: 38 Lbs.
$117.50

Mechanical Superiority

Heavy duty bright finish aluminum construction of 2" OD boom and 1¼" telescoping to ¾" elements. Elements secured to the boom with strong plastic and steel gusset assemblies. Massive new formed steel heavily ribbed clamp attaches boom to mast with a positive grip. All element and boom ends plastic capped.

True Full Size Performance

Hy-Gain's high Q slim traps result in a minimum element loading and true full size performance. Longest element of 32 ft. Full size elements and full sized boom spacing of 16 ft. allow 4-Element Thunderbird to operate within theoretical size limitations which will produce maximum forward gain.

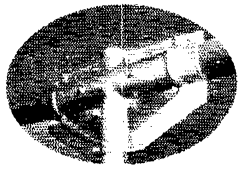
Properly Matched with New "Beta Match"

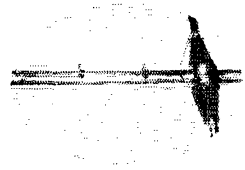
The new and unique Hy-Gain Beta Matching System is completely factory pre-tuned and requires no further adjustment . . . Use of this revolutionary system permits design of the array for maximum gain and Front-to-Back with no compromise to facilitate matching. Exceptional bandwith maintains low SWR over the entire band, at resonance 1.05 on 10 Meters, 1.15 on 15 Meters, and 1.1 on 20 Meters. The dipole is grounded for lightning protection and shunt fed with 52 ohm coax.

Interlaced 4th Element

Interlaced 4th element makes possible the choice of optimum spacing on all 3 bands maintaining higher forward gain and F/B Ratio.

NOW WITH THE NEW hy-gain SLIM-TRAPS





Solid State Slim Traps

The new Hy-Gain Slim Trap (1¼" diameter) is the world's smallest, lightest weight trap assembly, assures minimum wind loading as well as a trim and clean line silhouette against the sky. Its high efficiency coil and capacitor circuit is wound on and completely imbedded in the new low loss polypropylene plastic.

It is unconditionally guaranteed to *be completely impervious to all* weather conditions and to withstand 1000 watts AM or 2 KW (PEP). It is a completely solid state integrated assembly which is stronger than the element tubing itself.

Guaranteed for One Year

hy-gain antenna products

1135 NO. 22nd ST. • LINCOLN, NEBRASKA

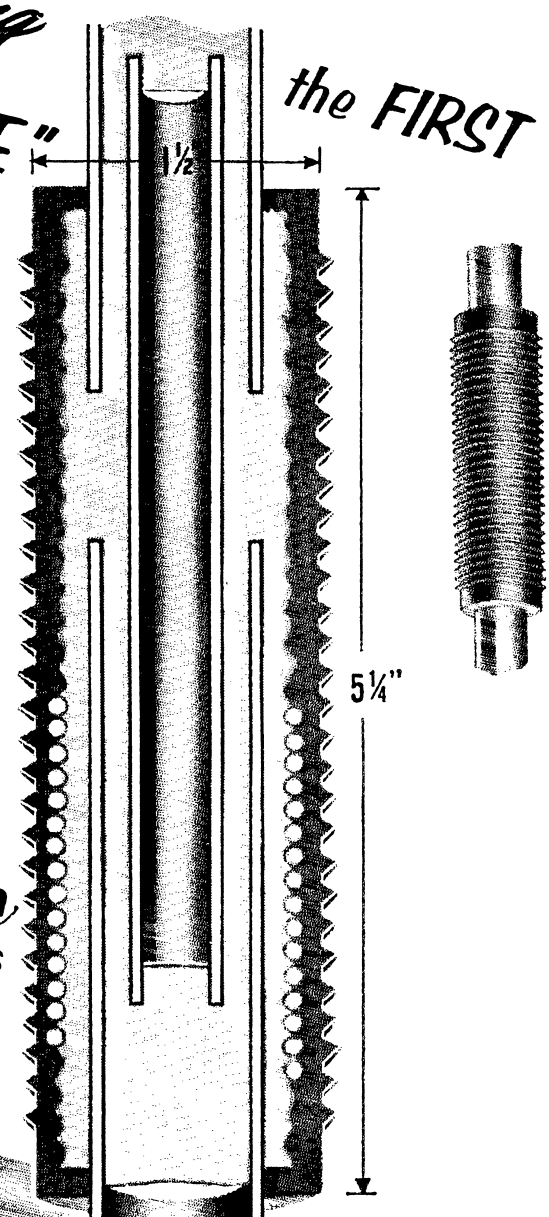
Instructions furnished for four maximum performance settings to favor most commonly used CW, AM or SSB frequencies

"The World's Largest Manufacturer of Amateur Communication Antennas"

Introducing and ONLY "SOLID STATE" trap system!

the FIRST

Take a close look at this new Hy-Gain Slim Trap! It's the world's smallest (only 1¼" in diameter), lightest weight trap assembly. A high efficiency coil and capacitor circuit is wound and completely imbedded in the new low loss polypropylene plastic. This revolutionary design offers a thoroughly integrated, "solid state" tuned circuit assembly which is 100% devoid of air cavities. The Slim Trap therefore requires no sealing and no breathe holes. Polypropylene, a newly discovered plastic has a high efficiency, low power factor dielectric, maintaining these excellent characteristics over wide temperature variation of from -60° to plus 250°. It is unconditionally guaranteed to be completely impervious to all weather conditions. Power rating: 1000 watts CW or 2000 watts peak envelope power single side band.



Actual Size Cutaway

THE hy-gain SLIM-TRAP

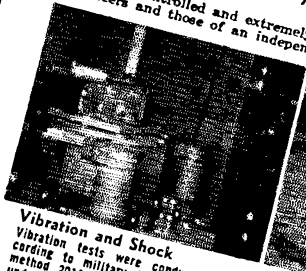
is individually resonated in a highly accurate temperature compensated oscillator crystal controlled circuit which is then rechecked against crystal controlled frequency standards. It is then injection molded, sealed forever, on an exact design frequency. No other antenna trap is manufactured to such close tolerances.

Almost indestructable, the new "solid state" Slim Line Trap is mechanically stronger than the aluminum tubing used in the antenna elements.

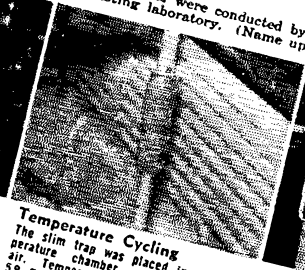
hy-gain antenna products
1135 NO. 22nd ST.
LINCOLN, NEBRASKA

NOW AN INTEGRAL FEATURE OF THE hy-gain THUNDERBIRD tribanders and hy-gain trap verticals

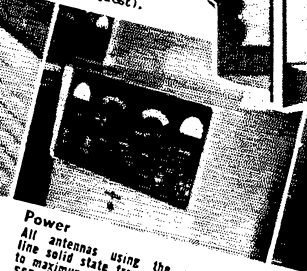
Carefully controlled and extremely thorough tests were conducted by Hy-Gain engineers and those of an independent testing laboratory. (Name upon request).



Vibration and Shock
Vibration tests were conducted according to military Standard #202A, method 201A, consisting of vibration under three different mounting conditions and axis of vibration. Trap specimens were subjected to simple harmonic motion having an amplitude of 0.30" with maximum excursion of 0.06" with maximum excursion of 0.06". Frequency of vibration was varied uniformly between approx. 10 and 55 cps. Vibration cycling was conducted for an extended period of time in each mounting condition.



Temperature Cycling
The slim trap was placed in a temperature chamber with circulating air. Temperature varied at rate of 5° F. from -60° F. to 250° F. The new polypropylene plastic was completely undamaged — no cracks appeared at the lower temperatures; no discontinuities at higher temperatures.



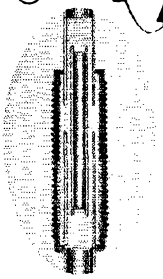
Power
All antennas using the new slim line solid state traps were subjected to maximum legal power, AM CW and SSB — as generated by commercially manufactured amateur Xmttrs.:- Collins S Line Series including the 30S1 linear amplifier. Hallicrafters HT32, HT33 combination, Gonset Model GSB100 linear amplifier, Johnson Viking kw and Thunderbolt linear, Collins KWS1 and KW-1, and several other high powered Xmttrs.

Moisture Resistance
Moisture resistance tests were conducted according to military standard 202A, method 106A. Test consisted of 40 days and nights of consisted cycling under conditions of humidity 55% relative humidity while the temperature varied in 5° steps between —24° F. to 160° F. These tests were more severe than any possible weather conditions.

No electrical or mechanical change or damage of any kind occurred. Traps were completely intact mechanically with no deterioration whatsoever and frequency and Q remained exactly the same after completion of tests.

The World's Most Popular Antennas . . .

The hy-gain MULTI-BAND VERTICALS



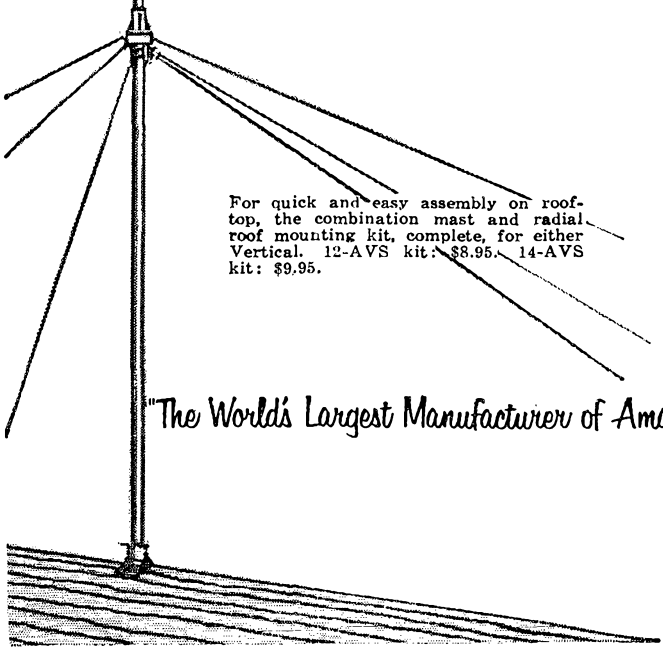
The exciting new hy-gain Slim-Trap (only 1¼" in diameter) is the world's smallest, lightest weight trap assembly. Its high efficiency coil and capacitor circuit is wound on and completely imbedded in the new, low-loss, polypropylene plastic. It is unconditionally guaranteed to be completely impervious to all weather conditions. Power rating: 1000w AM, 2 KW (PEP).

NOW WITH THE NEW hy-gain SLIM-TRAPS

The Self-Supporting Hy-Gain Multiband Trap Verticals are completely factory pre-tuned with no further adjustment necessary, maintaining an SWR of 2:1 or less across the entirety of each band. 52 ohm coax feed line. True ¼-wave marconi resonance on each band makes possible low angle DX radiation pattern. All top grade construction throughout. May be mounted on rooftops or directly on the ground.

Ribbed cycolac base insulator makes these hy-gain verticals completely self-supporting. Heavy ten-gauge formed steel mounting bracket is adjustable for various sizes of masts. Weatherproof internal coaxial fittings supplied.

Model LC-80 Loading Coil ($7.95) adds 80M operation to the 14-AVS Vertical. Decoupling Stub ($4.95) adds 6M operation to both models 12 and 14 AVS.



For quick and easy assembly on rooftop, the combination mast and radial roof mounting kit, complete, for either Vertical. 12-AVS kit: $8.95. 14-AVS kit: $9.95.

12 AVS VERTICAL
For 10, 15 and 20 Meters; 13.5 ft. high, 9 lbs. **$21.95**

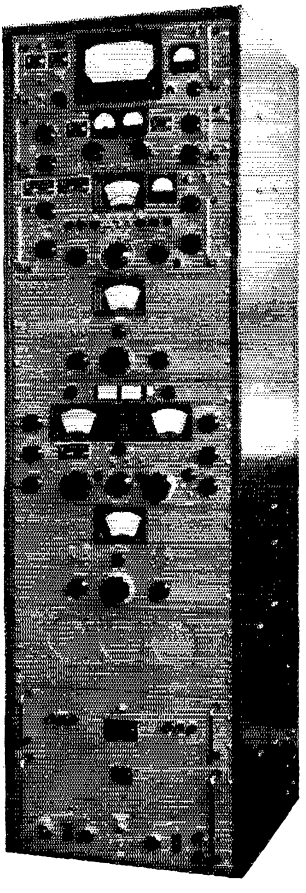
14 AVS VERTICAL
For 10-40 meters; 21 ft. high, 11 lbs. Includes Capacity Hat. **$27.95**

"The World's Largest Manufacturer of Amateur Communication Antennas"

hy-gain antenna products

1135 NO. 22nd ST. • LINCOLN, NEBRASKA

WHERE RELIABLE



COMMUNICATION *is a* MUST

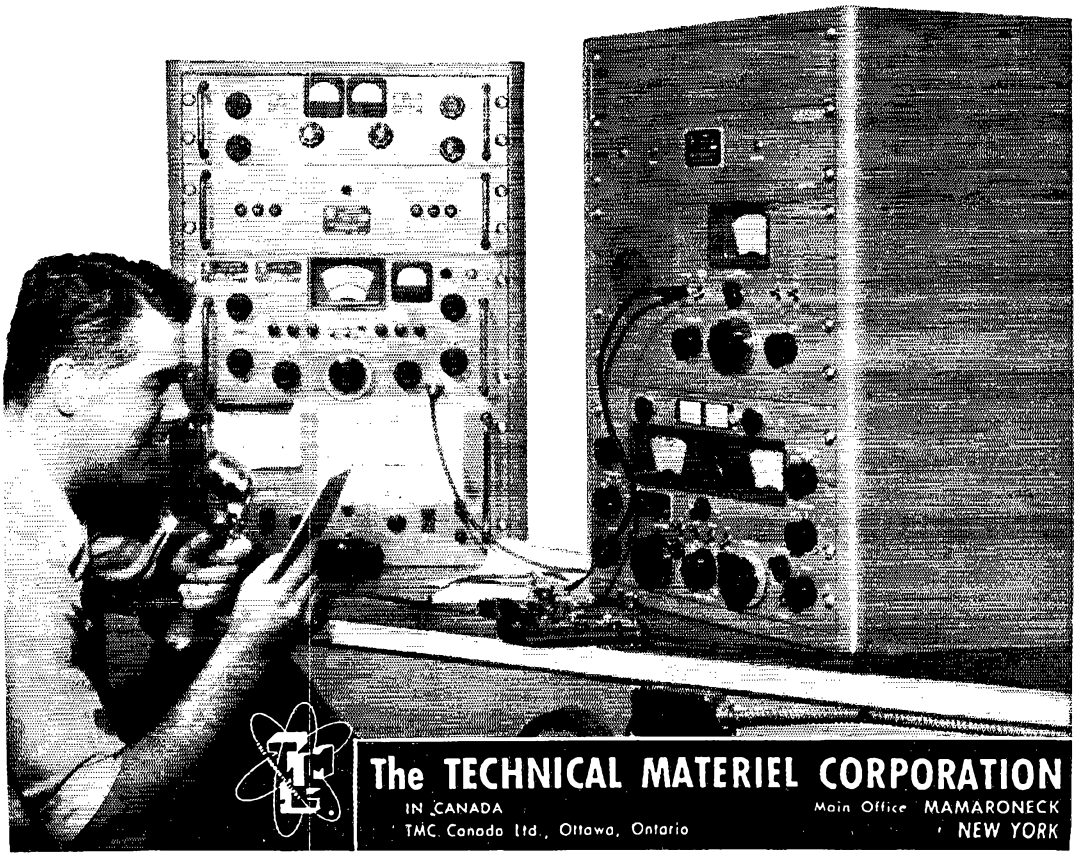
Spartan Air Services

uses TMC SSB

for its ARCTIC NETWORK

THE SYSTEM USED BY SPARTAN INCLUDES TMC's

GPR-90RX	**(R-840/URR) FIXED FREQUENCY RADIO RECEIVER**	**Request BULLETIN 205**
GSB-2	**SIDEBAND ADAPTER**	**Request BULLETIN 194**
SBE-2	**(AN/URA 23A) SIDEBAND EXCITER**	**Request BULLETIN 195**
PAL-350	**LINEAR POWER AMPLIFIER**	**Request BULLETIN 215**



The TECHNICAL MATERIEL CORPORATION

IN CANADA
TMC Canada Ltd., Ottawa, Ontario

Main Office MAMARONECK
NEW YORK

IS K6INI THE WORLD'S CHAMPION DX OPERATOR?

Judge for yourself! Read his letter and count the DX he has worked—with only 65 watts and a $16.95 Gotham V-80 Vertical Antenna.

2405 Bowditch, Berkeley 4, California
January 31, 1959

GOTHAM
1805 Purdy Avenue
Miami Beach 39, Florida

Gentlemen:

I just thought I would drop you a line and let you know how pleased I am with your V-80 vertical antenna. I have been using it for almost two years now, and am positively amazed at its performance with my QRP 65 watts input! Let me show you what I mean:

I have worked over 100 countries and have received very fine reports from many DX stations, including 599 reports from every continent except Europe (589)! I have also worked enough stations for my WAC, WAS, WAJAD and ADXC awards, and I am in the process of working for several other awards. And all this with your GOTHAM V-80 vertical antenna!

Frankly, I fail to see how anyone could ask for better performance with such low power, limited space and a limited budget. In my opinion, the V-80 beats them all in its class.

I am enclosing a list of DX countries I have worked to give you an idea of what I have been talking about.

Wishing you the best for 1959, I am

Sincerely yours,
Thomas G. Gabbert, K6INI (Ex-TI2TG)

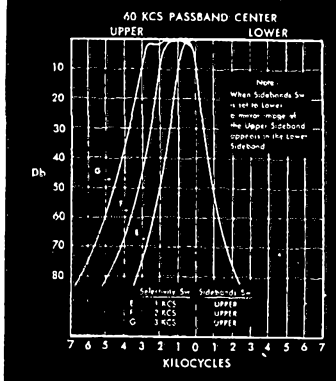
List of 105 countries/stations worked with 65 watts and a V-80 vertical

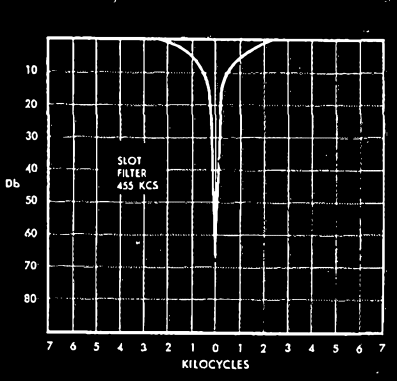
BV1US	KG4AI	VK3YL
CE3DZ	KG6FAE	VK9XK
ZL5AA	KH6IJ	VK9AT
CO2WD	KL7BUZ	VKØCJ
CN2BK	KM6AX	VP2KFA
CN8FB	KP4ACF	VP2AY
CR9AH	KP6AL	VP2DW
CT1CB	KR6BF	VP2MX
CX2FD	KS4AZ	VP2LU
DL1FF	KV4AA	VP2SW
DU7SV	KW6CA	VP5CP
EA1FD	KX6AF	VP5BH
EI4N	KZ5CS	VP6TR
F8VQ	LA3SG	VP7NM
FB8ZZ	LU2DFC	LU1ZS
FG7XE	LZ1KSP	VP9BK
FK8AL	OA4AU	VR2DA
FM7WT	OE9EJ	VR3B
FO8AD	OH2TM	VS1HC
G3DOG	OK1FF	VS2DW
GC8DO	ON4AY	VS6LN
GI3WUI	KG1AX	XE1PJ
GM3GJB	OZ2KK	XW8AI
GW3LJN	PAØFAB	YN1JW
HA5KBP	PJ5AA	YU3FS
HC4IM	PJ2ME	YV5HL
HC8LUX	PY2EW	ZC5AL
HE9LAC	PYØNE	ZE1JV
HP1LO	SM5AQB	ZK1BS
I1MV	SP6BY	KH6MG/ZK1
JA1ANG	TI2LA	ZK2AD
JZØHA	UA1AU	ZL1ABZ
W1AW	UAØKKB	ZL3JA
KB6BJ	UQ2AB	ZM6AS
KC4AF	VE8OJ	ZS1OU

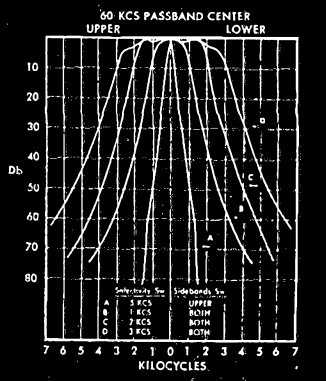
FACTS
ON THE GOTHAM V-80 VERTICAL

- If K6INI can do it, so can you.
- Absolutely no guying needed.
- Radials not required.
- Only a few square inches of space needed.
- Four metal mounting straps furnished.
- Special B & W loading coil furnished.
- Every vertical is complete, ready for use.
- Mount it at any convenient height.
- No relays, traps, or gadgets used.
- Accepted design—in use for many years.
- Many thousands in use the world over.
- Simple assembly, quick installation.
- Withstands 75 mph windstorms.
- Non-corrosive aluminum used exclusively.
- Omnidirectional radiation.
- Multi-band, V80 works 80, 40, 20, 15, 10, 6.
- Ideal for novices, but will handle a Kw.
- Will work with any receiver and xmitter.
- Overall height 23 feet.
- Uses one 52 ohm coax line.
- An effective modern antenna, with amazing performance. Your best bet for a lifetime antenna at an economical price. ONLY $16.95.

73,
GOTHAM







performance you can hear

SSB at its best

Complete tuning versatility to meet any SSB reception problem—that's performance you can hear—and that's what you get in a Hammarlund HQ-180.

The general-coverage SSB HQ-180 offers true professional performance at an amateur price. It offers more features, more real quality and far more listening pleasure per dollar than any receiver in its class. Prove it to yourself—see and try the HQ-180 at your Hammarlund dealer.

HAMMARLUND HQ-180

- Triple conversion, 18-tube superheterodyne.
- Full dial coverage from 540 KCS to 30.0 MCS.
- Bandspread calibration for 80, 40, 20, 15 and 10 meter amateur bands.
- High frequency crystal filter for improved selectivity and shape factor of 1st IF amplifier.
- Razor-sharp, adjustable slot filter for up to 60 db attenuation.
- Separate linear detector for CW and SSB reception.
- Adjustable IF amplifier for maximum selectivity.
- Selectable sideband, upper, lower or both.
- Built-in crystal calibrator.
- Selectable AVC obtained from 60 KCS IF.

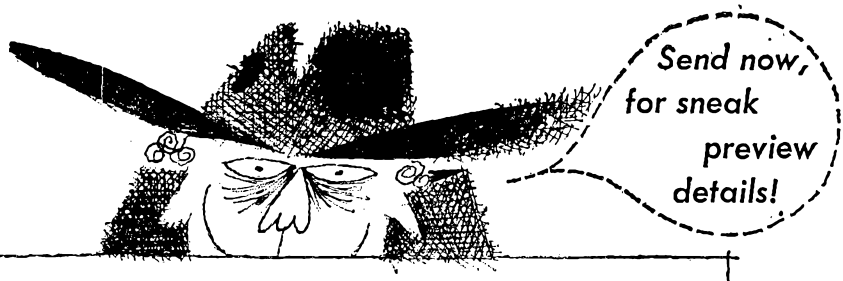
$429.00

(Optional Telechron Clock-Timer $10 extra)

HAMMARLUND MANUFACTURING COMPANY, INC.
460 West 34th Street, New York 1, New York

Export: Rocke International, 13 E. 40th St., New York 16, N. Y.
Canada: White Radio, Ltd., 41 West Avenue, North., Hamilton, Canada.

A HALF CENTURY OF QUALITY PRODUCTS 50th Anniversary



DON'T BUY ANY TRANSMITTER TILL YOU SEE THE FABULOUS HAMMARLUND HX-500...

the first SSB transmitter with the best of all at the right price!

READY IN MAY!

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460 West 34th Street, New York 1, N.Y.

In Canada:
White Radio, Ltd.,
41 West Ave.,
N. Hamilton, Ont.

Station Activities

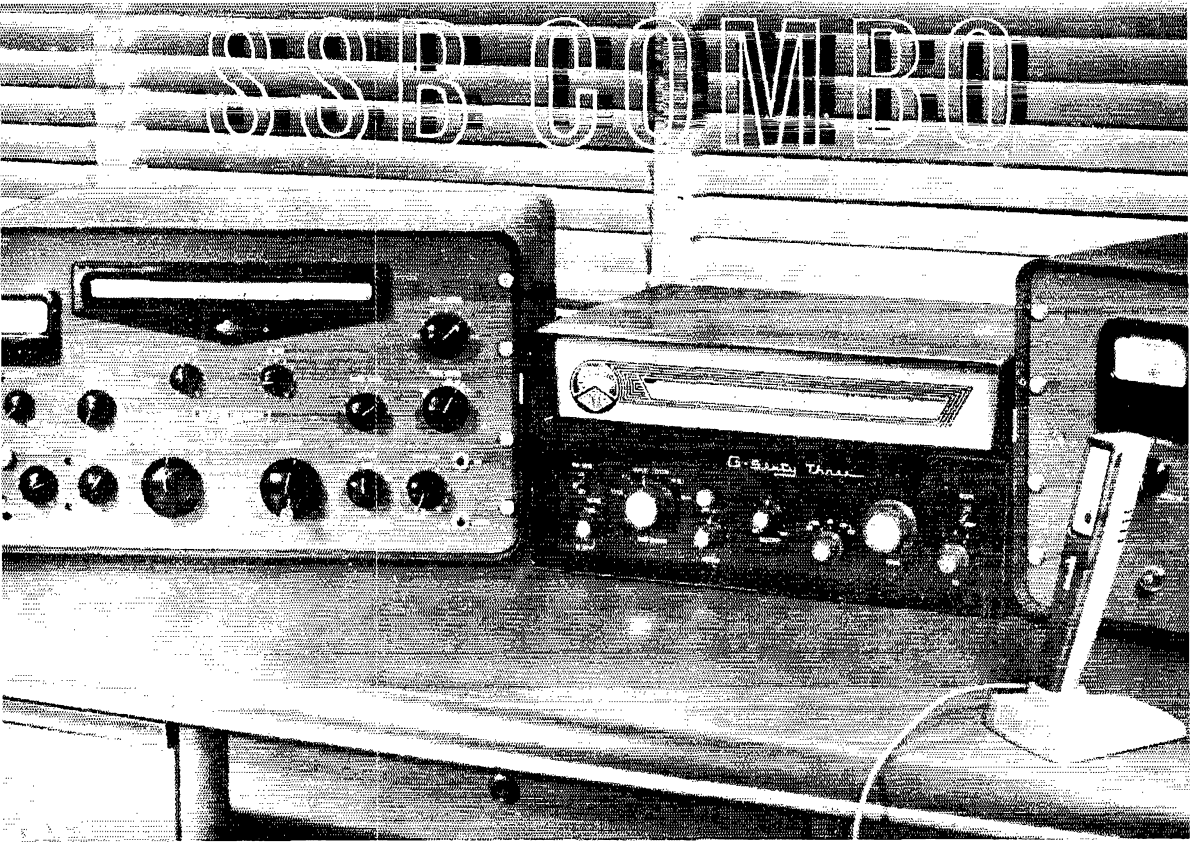
(Continued from page 86)

time between OO duties and YLs. K3GKF wants N.Dak. for WAS. HKS keeps Delaware available in CD Parties. TXY announces the Delaware ARC's 5th Delaware QSO Party. See details in box. Here is a chance to get your Worked Del. certificate. Traffic: W3UE 317, K3CXX 259, TN 182, K3GMV 123, GJD 120, W3JWN 76, K3WBJ 76, BYB 73, W3EKO 65, K3KFM 63, GBV 40, GZK 36, W3BUD 33, AHQ 32, ECP 32, ZNW 32, IWJ 25, BKE 23, K3DCP 14, W3CDG 6, CN 5, K3JYZ 4, ANA 3, W3CDQ 3, JME 2, K3BYJ 1.

SOUTHERN NEW JERSEY—SCM, Herbert C. Brooks, K2BG—SEC: W2YRW. RMs: W2BZJ, W2HDW and W2ZI. Appointments: WA2BLV, Somerdale, as OO; K2SNK, Trenton as OPS; W2TLO, Glassboro, as ORS. With regret we report the passing of K2HF, Camden. The NJP&T Net reports 31 sessions, 726 attendance and 129 traffic for January. K2DEI, Maple Shade, made BPL again. George's traffic reports indicate 1174 handled with Baffin Island since August. WV2HJI, Mt. Holly, is now a regular on EASN. W2BEI, Audubon, has daily skeds with KG1AA and KG1FR. The Levittown (N. J.) Club continues to grow in number with a marked increase in CD activities. The SJRA plans a QSO Party for May 7 and 8, hoping to offer an opportunity to many stations to receive their Achievement Award. K2YIB is chairman of this activity. W2UA, Moorestown, is vacationing in Europe. W2FXN is back after a siege of illness. W2BLV was top SJRA scorer in the recent V.H.F. Contest. Many outstanding scores were reported in this section. W2YRW, SEC, held a meeting of ECs recently. Plans were made for the year's AREC activities. It is reported that the motor vehicle license plate bill has passed. K2DEI is SJRA's delegate to the Delaware Valley Council of Radio Clubs. K2MBT is alternate. Contact W2AFZ, Westville, for Gloucester County meeting and activity dates. W2WKI, Burlington County Radio Coordinator, has prepared and distributed a fine report and plans for the county's spring and early summer RACES activities. No reports were received from Atlantic, Gloucester, Mercer and Salem Counties. Make Field Day plans early this year. Traffic: K2DEI 217, W2RG 141, W2ZI 52, W2SXV 43, W2TLO 40, WV2HJI 26, W2BEI 23, K2JJC 21, K2SOX 16.

WESTERN NEW YORK—SCM, Charles T. Hansen, K2HUK—RMs: W2RUF and W2ZRC. PAMs: W2PVI and W2LXE (v.h.f.). NYS C.W. meets on 3615 kc. at 1900, ESS on 3590 kc. at 1800, NYSPTEN on 3925 kc. at 1800, NYS C.D. on 3509.5 and 3993 kc. at 0900 Sun., TCPN 2nd call area on 3970 kc. at 1900, 1PM on 3980 kc. at 1600. WA2CIG and K2SSX made BPL in January. Congratulations! Appointments: WA2BEU and WA2CIG as ORSs; WA2FML as OBS; WA2FML as OPS; K2JXF as OES; W2ZDL as OO. Endorsements: K2UZJ as ORS, K2UZJ received WBE and CP-35 awards. WA2DNK and K2ADX have new s.s.b. rigs. The RAGS is having a spring party at Three Rivers Inn Apr. 23. Contact T. Pearson, 103 Malden Rd., Syracuse 11, for details. The RARA Hamfest will be held May 14 at Doud Post, Rochester. Contact K2EQK or W2ICE. The Niagara Frontier DX Assn. and Rochester DX Club have challenged each other on club scores in the DX Test. Are any other clubs interested? Maybe we could get a WNY Cup for DX in circulation. We already have a V.H.F. Cup making the rounds, courtesy the Syracuse V.H.F. Club. K2OQO reports that W2RJH, K2LVR and WA2ARB handled emergency traffic on 2 meters via mobile and fixed operation for a recent train wreck in Chautauqua Co. Ex-CHOP K2USA, who is now W4KCE, operates DL4PS daily and would like to hear from his old friends on NYSPTEN. The Elmira ARA has a new meeting place, Strathmont Museum at Carriage House. K2PKT is pres.; K2TXM, vice-pres.; and K2JJK, secy. The IBM ARA elected K2TNY, pres.; W2APE, vice-pres.; and WA2FOD, treas. K2CVX reports the arrival of a new baby girl. K2RFC reports fine AREC activity in his area. The Tioga ARA is now publishing a fine bulletin edited by K2ZWG. The CARA elected WA2ADZ, pres.; K2TXW, vice-pres.; WA2AEA, treas.; K2UYU, secy.; and K2LTD, act. chmn. K2GUG plans to get married. The ARATS and RAWNY held their annual auctions. Now is not too late to make your club Field Day plans. K2EYR has his ten-element 2-meter beam rotating, thanks to K2ZFV. W2UTH finally made the grade and was awarded WAZ No. 1241. K2GMZ is now on s.s.b. Your SCM would like to be on your club mailing list. It would facilitate handling inquiries from prospective club members, etc. Traffic: (Jan.) WA2CIG 1062, K2SSX 714, K2RTN 337, K2IYP 150, WA2BEU 107, W2OE 103, W2MTA 89, K2IMK 85, K2RYH 78, K2UZJ 58, WA2CRH 54, W2ATA 51, K2BBJ 47, K2JXF 43, W2BKC 38, W2-

(Continued on page 106)



Gonset continues to offer you big SSB values!

First, GSB-100, SSB transmitter/exciter . . . then GSB-101, the powerful 1000 watt P.E.P. linear amplifier. Now . . . to complete the SSB combo . . . *G-63 a communications receiver of exceptional value!*

G-63, modern in every respect, has many operating features usually found only in receivers priced substantially higher. Example: Sensitivity less than 1 microvolt for 6 db signal-plus-noise/noise ratio. And . . . *a 6 meter band that is really "live."*

For SSB reception . . . compare G-63 with other receivers in the same price Bracket. G-63 is stable, has low-drift HF and BF oscillators. *There are two second detectors: Product* type for better SSB/CW reception and *diode* type for AM. *Full vision drum dial* spreads each amateur band fully for easy tuning—vernier tuning knob has flywheel for smooth operation. This modern receiver covers six amateur bands—80, 40, 20, 15, 10 and 6 meters.

Other features: Double conversion—peaking-type "Q" multiplier gives adjustable band widths down to 100 cycles for CW. Bandpass I-F circuitry provides desirable steep-shoulder selectivity for AM and SSB reception. Also . . . "S" meter . . . AVC . . . Automatic noise limiter . . . plug-in crystal calibrator is available as an accessory.

G-63 communications receiver **239.50**

GSB-100, 100 WATT P.E.P. SSB TRANSMITTER/EXCITER.. 499.50

GSB-101, 1000 WATT P.E.P. SSB LINEAR AMPLIFIER..... 459.50

GONSET *Division of Young Spring & Wire Corporation*
801 SOUTH MAIN ST., BURBANK, CALIFORNIA

EXPORT SALES: WESTREX CORP., 111 EIGHTH AVE., NEW YORK 11, N.Y.

RQF 37, K2DPA 34, W2TPV 33, K2RWV 31, K2OFV 28, K2QDT 27, W2QQK 24, WA2IZK 22, W2ZRC 19, WA2-FML 18, W2EZB 17, WA2BTH 16, W2PGA 16, K2YMH 14, K2TDG 12, K2HUK 11, K2EE 10, W2EMW 4, W2BLO 2. (Dec.) K2QDT 81, K2MPE 80, W2ZRC 48, W2BKC 21, WA2IZK 21, K2YMH 19, K2JXF 13, W2ZDL 12, WA2-FML 11.

WESTERN PENNSYLVANIA—SCM, Anthony J. Mroczka, W3UHN—SEC: OMA. RMs: GEG, KUN and NUG. The WPA Traffic Net meets Mon. through Fri. at 1900 EST on 3585 kc. The PFN meets Mon. through Fri. at 1800 EST on 3850 kc. The Horseshoe Radio Club of Altoona will hold a QSO Party Apr. 1 to 3 and Apr. 8 to 10 from 1900 EST Fri. to 1900 EST Sun. on both weekends. Anyone working ten Altoona stations will receive a beautiful certificate. No QSLs will be required. Just send the calls, time and dates to KQD, 2117 Third Ave., Altoona, Pa. All Altoona stations will announce they are operating the QSO Party. The club net frequency is 29,510 kc. However, all bands and all modes of operation will be used. New officers of the Coke Center RC (Connellsville, Pa.) are K3JDZ, pres.; K3HTG, vice-pres.; K3BTF, secy.; NCE, treas. K3GHH received his CP-25. Congrats to KUN on making BPL for the third successive time. K3COU was guest speaker at the Feb. ATA meeting. The Etna RC reports via *Oscillator:* GJY has a new home-brew rig on the air; JT is well on the road to recovery; the Breeze Shooters Hamfest will be held Sun., May 22, at the Lodge in North Park. K3EML has moved to a new QTH. The Steel City ARC reports via *Kilowatt Harmonics:* Wedding bells soon will ring for K3GRW; ANX is on 220 Mc.; the year 1959 was a prosperous one for KWH. Up Erie way: The RAE has adopted a hands-off policy on TVI from citizen-band rigs; a new Novice is KN3KOJ; AQY makes a fine auctioneer. New officers of the Latrobe ARC are RUQ, pres.; R. Himler, vice-pres.; KN3JDT, secy.; ZDJ, act. mgr.; C. Slezak, treas. UZB has been busy putting new frequency measuring equipment together. LMM is busy figuring out a method to win the DX Contests. LGD is on s.s.b. A new ham in the Mon. Valley is K3GED. OMA is retiring from his job. UL is vacationing in KH6-Land. Traffic: (Jan.) W3KUN 512, K3GHH 207, W3UHN 68, LSS 20, NUG 18, WRE 9, KNQ 6, SIJ 6, K3COT 4, W3LOD 2. (Dec.) W3YUL 140.

CENTRAL DIVISION

ILLINOIS—SCM, Edmond A. Metzger, W9PRN—Asst. SCM: Grace V. Ryden, 9GME. SEC: PSP. RM: PCQ. PAM: RYU. EC for Cook County: HPG. Section net: ILN, 3515 kc., Mon. through Sat. at 1900 CST. K9IVG reports that the No Name Phone Net is a traffic net and not an XYL net and that it meets daily. The newly-elected officers and directors of the Hamfesters (Chicago) are VTV, ESC, STR, K9EEC, K9RTJ, K9MDO, WKE, STQ and PBM. K9MDK is bringing in the DX with his new antenna system. PVD's QTH for the next six months will be "Project Mercury" in New York City. The Starved Rock Radio Club's Annual Hamfest will be held June 5 at the same location as in previous years. LGH received his WAS certificate. MAK is scoring higher in his traffic with a new SX-101. K9BQW has a new GPR-90. K9MLI reports that ZKQ is net control of the new RACES 6-meter net being formed on 50.4 Mc. SXL is the new NCS for the CIN and also advises that the McLean County CD now has 6 Communicator IIIs. ERU received his WAZ, and K9JMA made WAC. UWW, who passed away recently, will be sadly missed by the members of the St. Clair County gang. RQR and JMY are putting together an important storm warning net for the East St. Louis Area. CAG, who has just spent a considerable time in the hospital, was on the road to recovery when his wife was taken to the same hospital for a serious operation. RYU and the Rock Island County RACES were kept busy with the Rock River Flood and made good use of their DUCK. The Sangamon Valley Radio Club held its regular semi-monthly meeting at the U. S. Bureau of Standards transmitter station at Kilbourne, Ill. According to K9OCU, the Mississippi Valley Radio Club Net meets every Sun. at 8 A.M. CDT on 3840 kc. The newly-elected officers of the Collinsville Amateur Radio Society are K9KQB, K9IBP, K9SOY and K9OLD. The Quincy MARS boys graduated 18 new hams from their code class. The North Central Phone Net handled 141 pieces of traffic during the month. BZP, IER and K9LLD will guide the National Trail Amateur Radio Club during the next year. GDI is recovering from a broken hip. Now is the time to plan for Field Day activities as June is getting very close. Traffic this month has taken a considerable jump and reports are being received from stations that haven't been heard from in a long time. BPL awards for this month go to DO, IDA, IMN and K9AUB. Traffic (Jan.) W9DO 682, IDA 559, IMN 558,

(*Continued on page 108*)

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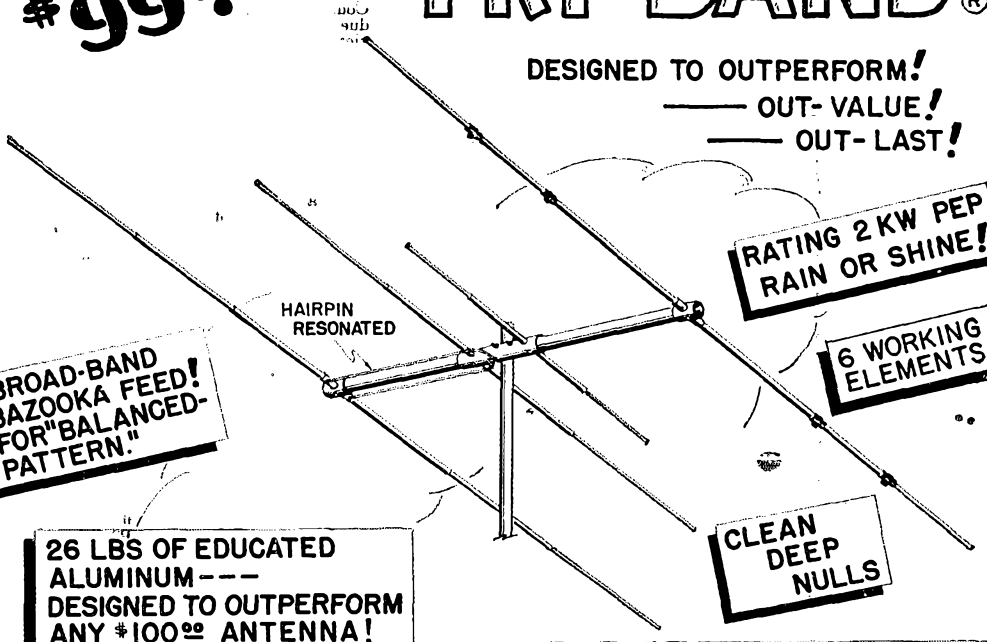

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K9AIR 264, JSV 251, W9MAK 219, K9AUB 144, IVG 140, W9USR 134, SXL 125, FAW 48, K9RAS 42, W9JXV 32, K9CWF 28, GDQ 25, BIV 17, MDK 17, W9QQG 17, TZN 16 PRN 15, K9IXK 12, LXG 12, W9JJN 8, HPG 7, K9TAW 7, CRT 6, ISP 5, JBK 4, KYP 4, W9SKR 4, K9BTE 3, W9LGH 3, K9LRS 2, LLA 1, OCU 1. (Dec.) W9IMN 123, N1U 2.

INDIANA—SCM, Clifford M. Singer, W9SWD—Asst. SCM: Arthur G. Evans, 9TQC, SEC: SNQ, PAMs: BDG, BKJ, MEK and UKX. RAMs: DGA JOZ, TT and VAY. Net sked: IFN, 0800 daily and 1730 M-F on 3910 kc.; ISN, 1730 daily on 3920 kc.; QIN, 1900 daily and RFN 0700 Sun. on 3656 kc.; QIN (training) 1800 M-W-F on 3745 kc. New appointments: K9OJY as EC for Allen County and IMU for Tippecanoe County. OO appointments: K9GEL, Class III and IV; GSV, Class II (also retaining Class IV); OXA, Class I, III and IV. RVM is OPS, K9SSI and GEL are OESs. The Indiana Radio Club Council officials and other interested parties met at Purdue U. on Jan. 3 to discuss an ARRL Central Division Convention to be held in Indiana in September. K9EUQ was elected executive chairman to head the affair. IHO, JJC, and MVZ were appointed to the executive advisory board. TQC is treas. K9KPC is new on 6 meters. New officers of the Hoosier Hills Ham Club are UQO, pres.; K9KPO, vice-pres.; RUS, secy.; and MWW treas. Ex-K9PWU is now 4MDY in Louisville. K9PGA is building a 20-watt rig for 160 meters. KN9UBK is running a Challenger on 80, 40 and 15 meters. VQP has a base station on 147.3-Mc. f.m. Hamilton County has a new net on 50.40 Mc. each Thurs. P.M. under the management of EC JIP. GUX has been chasing DX with a Benton Harbor KW (DX-100). St. Meinard, K9AVA, is all set to go with a kw s.s.b. station. KVE is now police chief at Evansville. TT is building a transistor transmitter. JFJ has a new GPR-90 receiver. UQP made BPL in one week during the holiday season. LXW is after DX via phone. BKJ has built an electronic key. BDG is now s.s.b. *Amateur radio exists as a hobby because of the service it renders.* January net reports: BDG reports 515 for IFN; ISN, reported by MEK, 275; VAY reports QIN totaled 772; TT submits a total of 297 for RFN; QIN Training Net was not reported this month because of the illness of JOZ. Stations making BPL: NZZ, TT, MM, ZYK, DGA, GJS and K9TYM. Traffic: (Jan.) W9NZZ 1136, TT 957, MM 822, ZYK 665, GJS 625, DGA 408, VAY 346, K9AYI 186, W9SWD 147, K9TYM 134, MAN 130, W9WID 108, ETM 94, BDG 91, K9ORZ 91, IXD 89, W9MEK 77, BKJ 73, K9PHP 59, W9EHZ 50, RTH 49, MJJ 48, K9GBB 47, JKK 43, W9SNQ 40, QYQ 38, NTI 35, K9BSU 30, W9IMU 28, K9RMQ 28, PTS 27, GSV 26, LZJ 26, LBD 25, W9CC 24, DZC 23, FWH 23, K9UJZ 22, W9YYX 21, RVM 20, DOK 19, K9ILK 19, W9OOC 19, K9AUE 17, AUN 17, W9EJW 17, K9MAF 17, KN9UBK 16, TCG 16, W9BDP 15, K9KCQ 14, W9EGV 12, BVR 10, K9LZN 10, AEK 8, GEL 8, W9HUF 7, TQC 7, WTY 6, DWK 4, HRW 4, FJI 4, K9RVV 4, W9JWJ 2, YVS 2, NTR 1. (Dec.) K9PUI 38, AUE 19, MWC 12, AAR 8, W9YAA 7, SFU 3, VQP 2, WTY 1.

WISCONSIN—SCM, George Woida, W9KQB—SEC: YQH. PAMs:NRP, GFL and K9IQO. RAMs:SAA and K9ELT. BEN certificate went to K9GWG. K9AYK is attending West Point and is secretary of the club, whose call is 2KGY. The following attended the first meeting of Wis. Assoc. of Nets at Hartford: NRP, SAA, QJW, KQB, SZR, DKH, NGT, ECC, K9MGY and K9ELT. CCO received WAC and is taking traffic for students at Whitewater College. New officers of the Door County Club include UNE, pres.; ODC, vice-pres.; OVO, secy-treas. The Jefferson County Club elected SCM, pres.; NRP, vice-pres.; and K9MJM, secy.-treas. UNJ now is a DXCC member. The new "Bratwurst Net" of Sheboygan meets Sun. at 1230 on 3960 kc. New officers of the Racine Megacycle Club are OVZ, pres.; KZZ, vice-pres.; K9PZP, secy.-treas. K9ESN, now with full break-in, is fighting a keyer for better traffic pushing. QGR is the second W9 to receive the WASM certificate. K9s GPO and GYG are sporting a new Ranger. K9GDF received a 3rd-class AI commercial license. IBF is getting caught up with sending QSLs overdue since 1950. *Remember the Wausau Hamfest May 21.* K9JJR says the TVI problem at Rhinelander was solved with the rebroadcasting system converting all TV to u.h.f. Old-Timers Nite held by the MRAC, with VD in charge, was a big evening in Milwaukee. The Wis. Council of Radio Club's reactivation is progressing rapidly under the supervision of the Fond du Lac Club and its secretary, K9GBK. K9LMX has a new home, job and receiver. KQB passed the half-century mark as an earthling. RKP is the new publisher of MRAC's bulletin *Hamateur Chatter*. Kindly get your monthly activity reports to the SCM no later than the 5th of each month. Traffic: W9DYG 912, CXY 166, K9DTK 124, ELT 107, W9SAA 84, NRP 50, K9GYQ 42, W9KQB

(*Continued on page 110*)

THE NEW RME 6900

HAM BAND RECEIVER
Model 6900
Amateur Net
$349.00

The design and production of communications receivers today is considerably different than in past years for two principal reasons. Costs have risen precipitously; to manufacture a receiver in the face of this and keep the price reasonable requires good tooling, long runs, and little allowance for error. Secondly, there are greater demands placed on receiver operation than ever before, versatility . . . handling ease . . . yes, amateurs have come to ask for parameters of performance almost unheard of in past years.

RME in announcing the new 6900 states without equivocation that this receiver performance is unmatched by anything near its price class. The 6900 is engineered to give optimum service for all modes of amateur communications — not merely one. Engineered under the supervision of Russ Planck, W9RGH, the 6900 has as many advanced pioneering features as its extraordinary namesake, the world famous RME69, which was the first band-switching communications receiver ever produced — over 20 years ago and still widely used today.

What makes the 6900 so Hot? First, meticulous attention to details so that every circuit is performing in an optimum manner. Second, an ingenious function selector, the Modemaster. Every circuit in the 6900 is designed to provide high selectivity; frequency stability, sensitivity and low internal noise. Finally, inclusion of *all* function controls necessary for a modern communications receiver . . . vernier control knob with overide clutch for fast tuning; RF gain; AF gain; antenna trimmer; band selector, stand-by/receive/calibrate/transmit; ANL; T-notch filter; calibrate adjustment; band selector.

Whether you operate CW; SSB; or AM, you will have the almost uncanny feeling the 6900 was designed solely for you — this is the test of a modern communications receiver that we believe only ours can meet on the operating desk.

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- **Improved Fast Attack AVC Circuit.**
- **Selectable Sideband.**
- **Panel of Attractive Grey "Clad-Rex" Vinyl Bonded to Aluminum with Charcoal Trim.**
- **Front Panel Controls Re-Grouped for Ultimate Operating Ease and Convenience.**
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41, VHP 39, CBE 26, K9JIG 26, DOL 21, W9CCO 20, LFK 20, K9ORR 19, W9SIZ 11, K9JQA 9, W9KKM 9, VIK 6, WJH 6, K9IQO 5, LMX 4, ESN 2, NLJ 2, OVO 2. (Dec.) K9KNC 112 OPF 17.

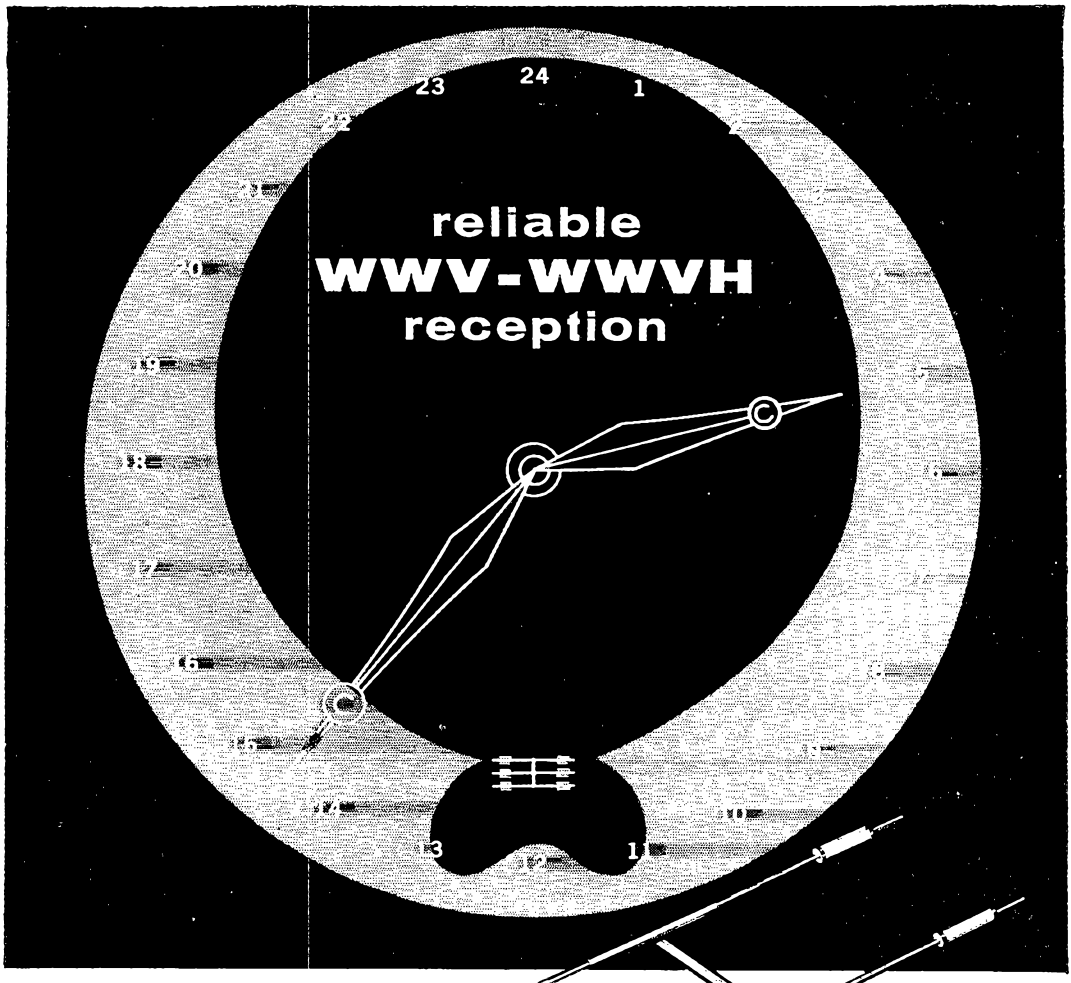
DAKOTA DIVISION

NORTH DAKOTA—SCM, Harold A. Wengel, WØHVA—PAM: KØKJR. RM: TZ. KØKJR stopped in Bismarck the last week in January and conferred with your SCM on several appointments. KØJLW has been transferred to Des Moines, Iowa, and will be moving his family there when school is out. SDN reported an AREC net in Pembina County, which meets every Wed. at 2100 on 1990 kc. PHC has set up a station at the fire hall. The N.D. Weather Net has been operating on 3845 kc. at 0730 for several months and could have more participation for good coverage. The regular check-ins include BHT, KØGGI, TVM, TYY, ITP, GRM and PKO. There also have been check-ins from Nebraska and Montana. The Jamestown Amateur Radio Club elected EOZ, pres.; VIZ, vice-pres.; AIU, secy-treas. The TRACC has set up training sessions in code and theory at the Dickinson College every Fri. at 1930. Traffic: KØTYY 113, ITP 68, GRM 37, WØSDN 30, BHT 22, KØTVM 19, GGI 15, MPH 5, RRW 5, WØBHF 4, PHC 4, KØPVH 4, GGH 3, WØWIQ 3, KØJLU 2, QNY 1, RRZ 1.

SOUTH DAKOTA—SCM, J. W. Sikorski, WØRRN—SEC: SCT. Newly-elected officers of the Signal Hill ARC are NWK, pres.; KNØVTO, vice-pres.; KØACJ, secy.; and DVB, treas. DYR reports his neighborhood has reached saturation with three hams in three adjacent houses. PRL, formerly of Gregory and Pierre, now is located in Sioux Falls. KØLJQ has moved from Armour to Washington, D. C., for several months. New calls: KNØYJD, KNØYBZ and KØHHZ, of Huron, and KNØYNR, of Sioux Falls. NGM has installed a new vertical on 40 meters. TKN, Huron, has a new Globe Scout Deluxe, and has received his WAS award. DPD has a newly-built quad for 10 and 15 meters. Eight activity reports were received from Huron ARC—a new record from any club. Add to newly-licensed: KNØWXD, Huron. KNØWEM and KNØWEN were interviewed by tape recording on NBC Monitor from New York on Jan. 31. SCT reports there are 86 registered AREC members in South Dakota. Traffic: (Jan.) WØZWL 394, SCT 382, BMQ 204, DVB 110, KØAIE 52, HSW 48, WØNEO 33, KØTKO 33, WØOFP 27, CTZ 26, KØVYY 26, KLR 23, WØRWX 21, KØACJ 18, SEJ 18, LKH 15, DHA 12, WØDIY 12, KØLXH 9, DYR 5, WØYVF 5, KØCWJ 3, WØNNX 3, KØQPK 3, AOR 1. (Feb.) WØSCT 856.

MINNESOTA—SCM, Mrs. Lydia S. Johnson, WØKJZ—Asst. SCM: Rolin O. Hall, ØLST. SEC: TUS. PAMs: OPX, TUS and KØEPT. RMs: RIQ and KØIZD. In the rural area near Minnesota a school bus loaded with youngsters went into a ditch during a heavy blizzard. Telephone and power lines were down, so mobiles TWO and HPN, with assistance from MSPN members, notified all of the parents that their children were safe. EC TWG, Bemidji, with PHD, DPT, GII, UBL/M, KØSXP, SYE, OAQ and MPK, conducted a simulated severe blizzard drill recently. Congratulations to OOs LST, WMA, RA and KØIDV on making the 1959 FMT Honor Roll! New officers of the Suburban Radio Club are UYR, pres.; UFE, vice-pres.; SZU, treas.; UOA, secy. The New Ulm Radio Club's 1960 officers are MDA, pres.; KNØUMY, vice-pres.; KNØWNV, secy.-treas. Director BUO attended the Mankato Club meeting. SEC TUS and VPO made BPL. EC KØGKI stripped an ancient TV set to have an elementary 'scope. After twenty-five years of "going," EC KØMEQ finally attended a dental convention in Chicago. KNØWWQ uses a Globe Chief 90A and a home-brew HVR-14 receiver he built. The home station of TWO consists of a Globe King 500B, an NC-300 and a three-element 20-meter beam. KØULX's shack has an OK-20 with a Globe UM-1 modulator, a Heath VF-1 and an AR-3 with QF-1 with home-brew r.f. stage. Congrats to KFN and HEN on the 1000 Traffikers Award. TOF purchased a 75A-3 receiver. Appointments issued: KØCRB, LWJ and VCC as ECs. Endorsed ECs: GGQ, GII, OJG, THY, VRY, KØGKI and MAH. Endorsed OPSs: OET, TWG, KØIDV and EPT. OES for KØDUO. OPX and RIQ's oldest daughter is attending St. Cloud Teachers College. KØRGO has a Valiant, an SX-96 and a Tri-band Mosley beam on a 50-ft. tower. Traffic: (Jan.) WØTUS/VPO 510, KJZ 249, KØSNC 173, RCF 172, WØKFN 134, KØSNG 117, QLM 114, WØHEN 112, RIQ 87, ISJ 82, UMX 82, KLG 78, KØQVF 78, WØTWG 77, BUO 62, KØIDV 61, EPT 60, LWK 60, WØOJK 55, OMC 52, KØIZD 51, WØOPX 51, KØORK 50, MAH 47, WØCQY 45, PET 41, RQJ 41, KØUXT 37, WØNYM 35, KYG 34, NNG 34, KØQBI 34, ICG 27, WØOJG 27, ALW 26, LST 26, KØMGT 25, GIW 23, WØDQL 22, KØJCF/Ø 21, JYJ

(Continued on page 112)



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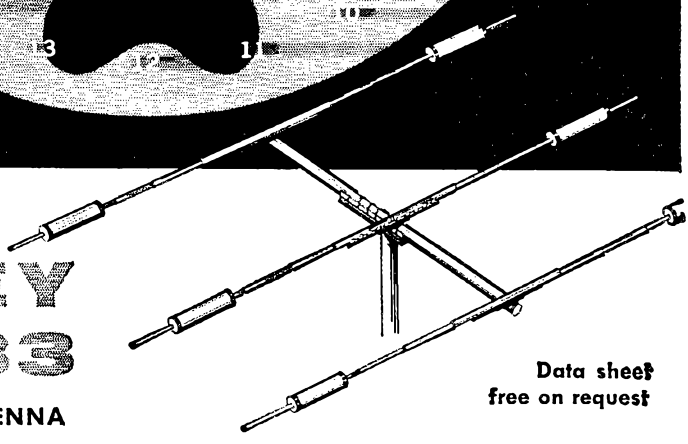

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21, QYY 19, WØIRD 17, YHR 17, DYC 16, KØKYK 16, WØWMA 15, THY 13, FGP 10, TCK 10, UYR 10, KØRHN 8, WØWVT 8, BGY 6, KØIKU 6, WØOET 6, KØTHM 6, WØLIG/Ø 5, KØULX 4, WØECR 2, KØOBP 1, KNØWWQ 1.

DELTA DIVISION

LOUISIANA—SCM, Thomas J. Morgavi, W5FMO—The Arcadia ARC at Crowley has made necessary preparations to affiliate with ARRL. K5RUX received his Conditional Class ticket and, with the help of club members, is getting his v.f.o. calibrated and a few bugs out of his home-brewed 6146 rig. K5SBF, a recently-appointed OO, and K5LKC have moved from Shreveport to Oil City, La. FYZ has a new 417-A converter; ML has a new c.w. rig, on 829B with 1000 volts on plates. FHF is building a new final with a pair of 4-65s. IYT is in Monroe converting an SCR-522. He recently worked FYZ and some crossband 2 to 75 meters and is copying all other members of the Confederate Signal Corps. The commanding officer of the Confederate Signal Corps incidentally is none other than SUM. FYZ worked Pennsylvania on 2 meters for a new state and would like skeds with other states. JSW has been appointed OES. Other appointments: ULI as OO, SUM as OPS. New officers of the Baton Rouge ARC are K5DAC, pres.; PKY, vice-pres.; DPM, treas.; and Alice Hames, secy. K5ESW received his DXCC certificate and a new Mohawk receiver about the same time. EA still is working on that new house. K5DGI is happy with his new HT-37. His DXCC count is 187/175. MXQ, SEC for Louisiana, says that we could use as many ECs as volunteer. The LAN Net on 3615 kc. operates as a slow-speed net and liaisons with RN-5. Code drills are held at various speeds. WYN, OPS and net control for the Delta 75 Net on 3905 kc., is doing a real fine job. In spite of the fact he took time to visit on the West Coast, CEZ still was able to handle 422 messages in January. We lost a good traffic man to Texas—K5LZA. Traffic: W5CEZ 422, MXQ 156, K5AGJ 79, ESW 28, W5WYN 19, EA 7.

MISSISSIPPI—SCM, Floyd C. Teetson, W5MUG—Greetings from Jackson and your new SCM. DLA and TAK are home after visits to the hospital. Announced hamfests in the State are Biloxi June 4 and 5; Jackson July 30 and 31. Let me know if you are planning one for your club. The Jackson Club is negotiating for the call PFC. Listen for it on Field Day. New club officers are as follows: Biloxi—SPX, pres., QYX, vice-pres.; UOO, treas.; RZP, secy. Jackson—K5OTV, pres.; YCT, vice-pres.; TAK, secy.-treas. Meridian—K5MOH, pres.; K5TBK, vice-pres.; K5PYS, secy.-treas. Vicksburg—K5PVB, pres.; QYZ, vice-pres.; K5EXB, secy.-treas. The Gulf Coast S.S.B. Net is looking for formal traffic. It meets daily on 3925 kc. at 1730 with JHS as NCS. DLA is sporting a new KWM-2. CJR has QSYed to s.s.b. with a 20A and a 600L. K5JKH and BSA are moving to new QTHs. I will be looking for news from the Magnolia Net and the Hurricane Net, as well as RN5. Also I would like to hear from you on an individual basis. All news will be appreciated. Traffic: W5FPI 325, K5QNF 151, IIN 61, W5RIM 7.

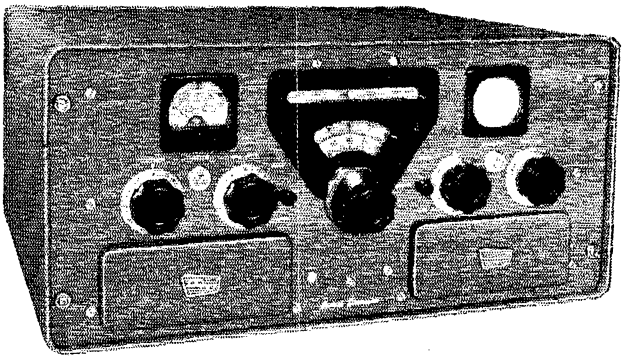
TENNESSEE—SCM, R. W. Ingraham, W4UIO—SEC: K4EJN. RM: FX. PAMs: UOT and PAH. Director RRV reports on an FB trip to Chattanooga and announces VQE, SGI and LPW as Asst. Directors. K4CNY makes a final report and wishes all well from his new QTH: Lynn Haven, Fla. UVP reports that ZZ will be operating portable this summer from atop Mt. LeConte in the Smokies. K4LPW operated 3DGM while vacationing and reports he has a new SX-101A and that LTA has a new HT-37. K4RIN says he had a good time in the CD Party. Hamfest plans are being made in Memphis for June 12 and in Kingsport for Aug. 14. WBK reports that K4CPM is the new manager of mobile activity in Memphis. New appointments: FX as ORS. Renewed appointments: HIH as EC and HHK as OES. Thanks for OES reports to HHK and K4KYL; for OO, TDZ; for net reports, UOT, PAH and FX. Traffic: (Jan.) W4PL 1157, CXY 382, FX 296, K4CNY 294, W4VJ 140, OGG 114, K4AMC 113, W4EIN 100, NHT 64, PQP 55, UIO 52, UVP 28, PAH 24, DFR 18, UVL 17, K4FNR 14, W4FCU 12, K4LPW 12, ZQZ 8, GOW 6, W4JVM 3, SGI 3, K4KYL 2. (Dec.) K4PUZ 123, W4TDZ 10, DFR 4.

GREAT LAKES DIVISION

KENTUCKY—SCM, Robert A. Thomason, W4SUD—Asst. SCM: W. C. Alcock, 4CDA. SEC: BAZ. RM: K4CHS. PAMs: K4HCK and SZB. V.H.F. PAM: K4LOA S.S.B. PAM: MMY. 8UPB, Great Lakes Division Director and Col. Reed, Director of Kentucky Civil Defense, were the featured speakers at the Combined

(*Continued on page 114*)

THOSE "DISTINCTIVELY NEW" SIGNALS...



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Kentucky Nets Dinner Meeting held in Louisville Jan. 16. Other speakers were K4LOA, HCK, W4BAZ, 1WD and SUD. It was a very enjoyable and profitable afternoon and evening and a better understanding of our goals and responsibilities was obtained. Kentucky Novice Net Manager K4EMQ reports that KNN cleared 36 messages during January. KN4GOV and KN4FXN helped with NCS. KKG is experimenting with h.f. beams. K4PGH has a new SX-101A. Dick is supporting KYN TO 9RN and UTL liaison. K4DFO has a new Ranger and 92 countries. K4BPY has moved to Versailles. CDA's new exciter works FB. V.H.F. PAM K4LOA reports that a new 50.1-Mc. c.w net has been started. SZB reports good activity on MKPN with KJP and SZB having perfect attendance for the third consecutive month. K4DFZ has a new 150-watt rig. OES ADH is very active on 50-Mc. ground wave and would like to hear from someone interested in 6-meter s.s.b. K4SPJ has a new Challenger. K4KWQ is now General Class and active on KYN. OO reports were received from CMP and K4BUB. Traffic: K4CSH 199, W4BAZ 175, SUD 71, K4PGH 50, HCK 49, W4JBC 47, SZB 44, W4CDA 40, JSH 38, K4QCQ 37, W4KKG 32, K4DFO 27, HOE 24, EMQ 24, WBG 24, KN4GOV 22, FXN 21, K4DFZ 20, LHQ 19, LMS 18, QHZ 17, VDO 17, KIS 16, W4KJP 12, K4QCN 9, W4SYE 9, K4KWQ 7, W4ADH 6, ELG 6, SZL 6, K4LOA 5, W4UVH 5, K4SPJ 4, MPV 1.

MICHIGAN—SCM, Ralph P. Thetreau, W8FX—SEC: YAN. RMs: SCW, OCC, QQO, FWQ. PAMs: AQA, NOH (v.h.f.). EC appointments went to K8AYJ, DTZ, IUC, NXC and UOQ; OBS to SWF; OO (III) to SWF and K8DMP; OPS to JTQ, SWF, K8EFY and K8JUG; ORS to FDO, JKK QQO, TBP, K8EXE and K8LPV. OO EMD turned in 193 violations, 128 Novices and 173 harmonics. The Wolverine Sideband Net which started Jan. 7 meets daily on 3930 kc., 7 to 8 P.M. Manager is K8CWI, secy. QBA. New officers of the Detroit ARA are MOB, pres.; K8AMH, vice-pres.; K8IBJ, rec. secy.; LEU, corr. secy.; YJY treas.; JKD, asst. treas. DPJ is moving to Dallas, Tex. UOQ had a sick family and blew the 20A. The Holland ARC is starting to work on the Tulip Time Festival. K8GFS, on 50 Mc., gets into the church p.a. system. The St. Clair Valley ARC had its annual dinner Jan. 19. The Genesee Co. RC has started its yearly fund-raising. CAM runs code practice Mon. through Fri. and 13-w.p.m. Sat. The Saginaw Valley ARA has been tied up in pre-convention work. KL7CJN was heard on 50 Mc. at 11 P.M. S4 Jan. 4 by BFF. K8AEM now edits the Calhoun Co. ARC club paper. K2SIL works PGW into QMN—the only active c.w. operator in Ann Arbor. K8OTJ has started to handle traffic. FDO is having good luck with simple break-in from *QST*, June '59. K8IXA now is active on c.w. K8EWI completed the 28-tube Analog Computer for the Science Fair. K8LOS reports on the Fender Bender's Net, on 29.610 Mc. at 1700. Sounds like a mobile net. K8BGZ reports Lansing mobiles transported '60 March of Dimes collections to a downtown bank. NUL reports a Novice school in Bellaire run by the Chain O'Lakes ARC. PT worked KØITE in Kansas on 220 Mc. Jan. 31. EMD says the Oshtemo ARC has 16 mobiles and 4 base stations on 52,525 kc. RHD reports new officials of the Straits Area RC are RHD, pres.; PIC, vice-pres.; FDO secy.-treas. W8YAN (SEC) expects a monthly Form 5 report from every county EC. Those not reporting without a reason, will be cancelled. Traffic (Jan.) W8OOC 377, PGW 306, FWQ 221, NOH 98, FX 93, YAN 84, K8GJD 55, KMQ 46, EXE 44, RKK 41, W8RTN 40, SCW 37, K8NAW 30, W8ATB 29, K8LPV 28, W8SWG 28, TBP 26, ELW 25, K8OTJ 22, W8AUD 21, 1LP 21, FDO 17, QIX 17, QQO 15, UOQ 15, AHV 12, K8IXA 12, W8ALG 11, EU 10, K8ABW 9, AEM 9, EWI 9, W8SWF 9, K8KCO 7, W8FSZ 6, K8HJI 5, LOS 2, W8TIC 2, NUL 1. (Dec.) K8REM 50, JED 22, CWI 20, CKD 19, W8EU 15, K8KVM 12, W8SCW 10, RAE 4, SWN 3, K8HFO 2, W8IUC 2.

OHIO—SCM, Wilson E. Weckel, W8AL—Asst. SCM: J. C. Erickson, 8DAE. SEC: HNP. RMs: DAE and VTP. PAMs: HZJ, WYS and K8HGD. The Dayton Hamvention will be held May 7. Amateurs in Ohio, West Virginia, Kentucky, Indiana and Michigan are asked to nominate an outstanding amateur in these states, with the award to be presented at the Hamvention. Send your nominations to D. L. Marquette, DHJ, 4209 N. Hyland Drive, Dayon 24, Ohio. Coshocton County ARA's 1960 officers are K8NSE, pres.; K8BEN, vice-pres.; K8NYN, secy.-treas. CUT has a new 75A-3. Appointments made in January: OUZ and K8DTO as ECs; AEB as ORS; WNJ as OBS; ERR, K8IKM and K8NIW as OOs. K8NCV received his General Class license and K8MXW his Conditional Class ticket. K8LSI moved in a new house with a 50-ft. tower and a TA33 Jr. Mosley beam. K8BXT spent two weeks in Florida. *Notice to all who hold appointments.* Look at

(*Continued on page 116*)

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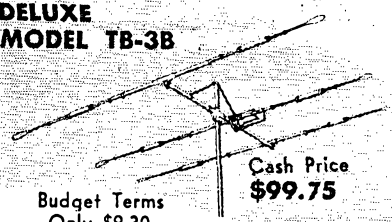

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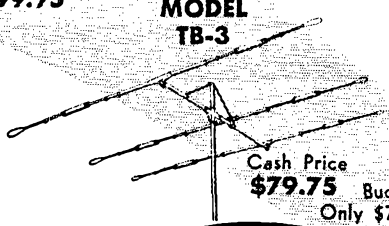

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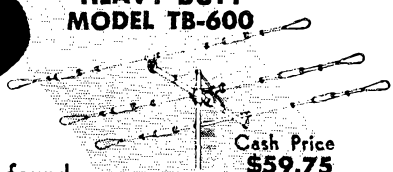

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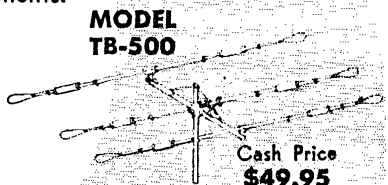

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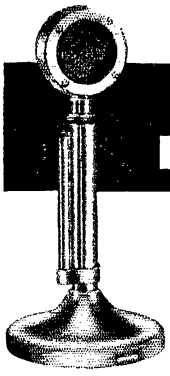
your certificate and if it has not been endorsed within the past year, send it to your SCM for his endorsement or on June 1st your appointment will be cancelled. We still need ECs in Allen, Ashland, Auglaize, Belmont, Brown, Carroll, Champaign, Clinton, Crawford, Darke, Defiance, Delaware, Fayette, Gallia, Greene, Hancock, Harrison, Holmes, Huron, Licking, Mahoning, Marion, Morgan, Morrow, Ottawa, Perry, Portage, Preble, Ross, Sandusky, Scioto, Shelby, Summit, Tuscarawas, Union, Vinton, Warren, Williams and Wood Counties. Clubs in counties where an EC is needed should select one of their members to be their representative. Anyone interested should get in touch with A. A. Garn, 1244 Edison Bldg.; Toledo, Ohio, or your SCM. The Seneca RC heard and saw a slide talk on Honduras by HR2HA and saw a CD film "Texas City". Toledo's *Ham Shack Gossip* names ex-ASP/CKK as its Ham of the Month and informed us KIX, POO and PXK returned to 160 meters, K8RVK and KN8RSZ are new hams. Toledo Mobile RA's 1960 officers are OFG, pres.; WIT, vice-pres.; K8OFW, secy.; and K8GIJ, prog. dir. This *Ham Shack Gossip* is celebrating its eleventh year, with HWX and HUX starting it. Then the girls turned it over to IAA (now 7UHA and MBI, with the latter and VJO now editing this swell bulletin. I want to take this opportunity to thank all these girls for supplying a lot of news for my column. Columbus ARA's *Carascope* tells us the 1959 club directory compiled by APE is completed and printed; FRQ, MOY, RRJ, TYY and K8AGA held a Christmas Party with 141 in attendance. MEE has two sons, K8s AJJ and PJJ, on 6 meters. Tusco RC's *The Beam* announce its 1960 officers are K8IST, pres.; BIM, vice-pres.; GAC, secy.; KN8RDU, treas.; MEI, act. mgr.; SDM on the board of directors; KN8s RDU and RNM are new hams. MVX has a new Gonset transceiver. Springfield ARC's *Q-5* tells us that OKB discussed and demonstrated "Double Conversion with a Crystal Convertor," RWZ received a DXCC certificate, K8NVS received his General Class ticket, Santa brought SSF a new Valiant and K8KLG and KN8PMF each an s.w.r. meter. The Ohio Phone Net has outlets in Columbus, Athens, Glouster, Ironton, Portsmouth, Toledo, Paulding, Napoleon, Jackson, Kenton, Lima, Wapakoneta, Quincy, Chippewa Lake, Adia, Cincinnati, Canton and New Philadelphia. An average of 30 stations check in daily. Let us all pitch in and make Ohio an outstanding traffic-handling state, so that when either one of the two nets, Buckeye and Ohio Phone, get messages for parts of Ohio it doesn't cover, it gives it to the other net that does have coverage. We should all cooperate in having traffic coming into Ohio delivered in a short a time as possible. Let us hear from the Doghouse and Ohio Emergency Net on what coverage they have so that we can tie in with them. Traffic: (Jan.) W8UPH 1093, DAE 471, ZYU 229, BZX 154, QLJ 97, K8JZZ 53, DHJ 51, W8CXM 39, WE 36, OUU 35, AL 34, K8ONQ 32, HKU 25, MMO 24, MHO 20, W8VWX 20, LT 17, YGR 15, WYS 12, LMB 11, ILC 8, PZS 7, W3DPV/8 6, W8FFK 6, BLS 2, K8BXT 2, W8EEQ 2, GPI 2, HEJ 2, HSU 2, KN8QMK 1, W8SYD 1. (Dec.) W8LZE 44, W3DPV/8 26, K8BXT 2. (Nov.) K8ONQ 38. (Oct.) K8ONQ 22.

HUDSON DIVISION

EASTERN NEW YORK—SCM, George W. Tracy, W2EFU—SEC: W2KGC. RM: W2PHX. PAMs: W2IJG and W2NOC. Section nets: NYS on 3615 kc. at 1900; NYSPTEN on 3925 kc. at 1800; 1PN on 3980 kc. at 1530; ESS on 3590 kc. at 1800; ENY (emerg.) on 29.490 (Thurs.) and 145.35 Mc. (Fri.) at 2100; MHT (Novice) on 3716 kc. Sat. at 1300. Endorsements: K2EIU as ORS and OPS. W2PHX as RM and K2CVG as OES. K2UPD received a W-Conn award from the Jaycees. With 48, WA2EKE needs KH6 and S.C. for WAS. K2YTD is a student at Hudson Valley Community College. WA2AUC has raised the power to 275 watts. A new ham in Catskill is WV2JLZ. W2BM and K2QVZ are sporting new BC-191s. K2MBU reports a radio telephone 1st-class ticket. Congrats. With a five-page bulletin, W2RUF summarized NYS activity for 1959. They handled 7286 messages with 365 sessions. W2ATA won the highest attendance award for the third time. The Ulster Co. Mike and Key held an auction in Jan.; K2YIF was auctioneer. Operation Alert '60 (RACES) will be held May 2-5. The Communications Club of New Rochelle graduated 6 Novices from its classes and reports 20 stations on the 2-meter net, courtesy K2ZDJ. Classes for General Class also are planned. K2BIG and K2BFU are renovating the shacks. W2UF has a Johnson Courier, according to *Vare-Mitter* published by the Yonkers Club. Novices are urged to call into MHT, listed above, to get the feel of net operations and traffic handling. Get as close to the frequency as possible. We extend congrats to K2UTV and K2YZI, who made BPL in January. Traffic: (Jan.) K2UTV 2146, K2YZI

(*Continued on page 118*)



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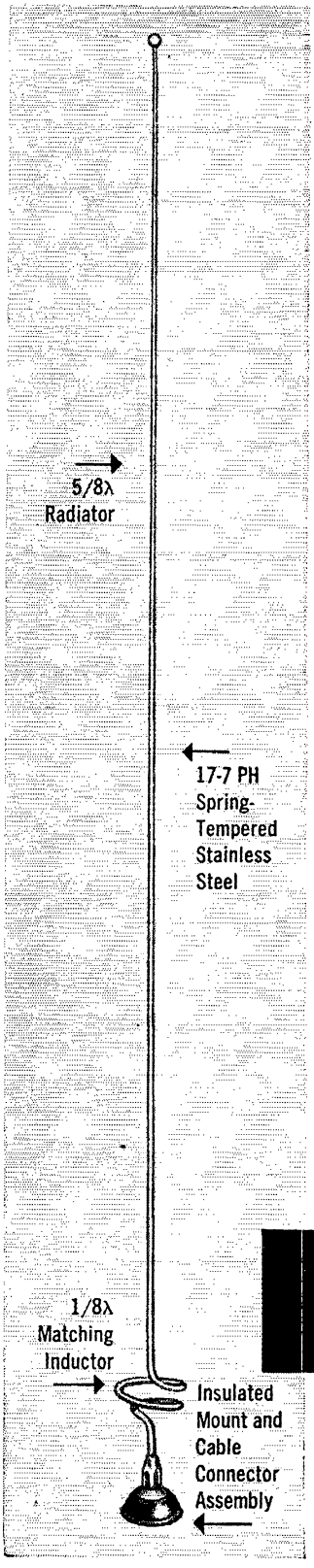
5. W. V. Richardson, W1LGH.
6. Wes Miller, W5QNK.
7. Charles R. Hart, W2UF1.
8. Dominic Badami, W2HSY.
9. Charles M. Ham, W2KDC.
10. H. M. Nickel, D.D.S., W3IUF.

709, K2MBU 104, K2OZT 92, K2BIG 83, W2PHX 83, W2EFU 70, K2LKI 62, K2BIO 61, K2RKY 57, W2ATA 51, K2AYB 36, K2EIU 35, K2YTD 26, WA2ALO 22, WV2DRP 19, K2HNW 16, WA2AUC 11, WA2DWU 5, WA2EKE 5. (Dec.) K2BIG 31.

NEW YORK CITY AND LONG ISLAND—SCM, Harry I. Dannals, W2TUK—SEC: W2ADO. RM: W2VDT. PAM: W2UGF. V.H.F. PAM: W2EW. Section nets: NLI, 3630 kc nightly at 1930 EST and Sat. and Sun. at 1915 EST; NYC-LIPN, 3908 kc. Mon. through Sat. from 1730 to 1830 EST; NYC-LI AREC, 3908 kc. Sun. at 1730 EST; V.H.F. Traffic Net, 145.8 Mc. Tue.-Wed.-Thurs. at 2000 EST W2VDT is the section's BPL winner on originations plus deliveries. All of our section nets welcome newcomers. Join a traffic net and enjoy yourselves in cooperation with others. K2VCO passed the Extra Class exam and has been appointed editor of the *Eastern States Net Bulletin*. An SB-10 is now in use at W2OME. K2IUT joined the married ranks and his wedding present was a DX-100B! A new Seneca is in operation at K2SJP. W2PF has the new S/ Line installed. K2TXA is the new NCS for the 6-Meter L.I. Emergency Net. K2TPU has a new Globe Hi-bander on the air. W2MDM is getting started in RTTY. WA2EUL passed the General Class exam. New officers of the NYURC, W2DSC, are K2UMO, pres.; K2KMA, vice-pres.; and K2SXB, trustee. W2LRJ has a 220-Mc. Para-amp in operation. Ex-W2OTC now signs K1NBN from Derry, N. H. New officers of the Bayside ARC are K2UVV, pres.; K2OWT, vice-pres.; K2JLD, secy.; WA2EGK, treas.; and K2HGR, NCS. K2QBW reports from M.I.T. and bemoans the fact that no net participation is permitted from the club station. Don't worry, Ray, there will be lots of time for BPLs after nailing down the sheepskin! WA2DLO's Dad received the call WV2JUH. W2OTA totaled his 420-Mc. contacts for 1959 and came up with a figure of 125! K2DRP is enjoying 20-meter s.s.b. with a LO-B and 200-watt linear. New officers of the CCNY Amateur Radio Society, W2HJ, are K2IYC, pres.; K2KQJ, vice-pres.; W2PVO, secy.; and WV2DMB, treas. Officers of the Staten Island ARA are K2EFB, pres.; K2RHG, secy.; W2EUY, corr. secy.; and W2HXV, treas.; A new 144-Mc. eight-element Telrex beam is in use at WA2GPT, WA2CSE joined the many NYC-LI boys at Cornell U. W2EW has plans for RTTY work. A new radio shack is under construction at W2LDC/K2UAG. A new Valiant is on the air at the Levittown ARC, W2GLO. New officers of the club are W2HCZ, pres.; K2SDM, vice-pres.; K2IHQ, secy.; and K2YHD, treas. New officers of the Crossband Communication Club are, K2AZC, pres.; K2ZKE, vice-pres.; K2BIE, rec. secy.; K2MVT, secy. and act. mgr.; and WA2SGY, treas. Anyone interested in joining the club may contact its officers. The King County AREC cooperated with the Brooklyn Red Cross in a well-planned and executed drill. Your SCM has been maintaining contact with W2KEB/W2KFV as they mobile across the States. Contacts have been on 10, 15 and 20-meter s.s.b. with excellent results. George and Georgie send their regards to all. Has your club joined HARC? HARC's plans for the future in the Hudson Division count on you. Traffic: (Jan.) W2VDT 309, K2UBG 162, K2VCO 111, W2DUS 93, W2WFL 84, K2YQK 75, W2EW 58, W2JBQ 52, W2GP 35, W2OME 34, K2OFD 25, WA2GPT 19, WA2CSE 18, K2IUT 17, W2UAL 16, W2TUK 15, WA2BST 14, K2QBW 14, K2IRS 13, K2SJP 12, W2GQN 10, K2AZT 8, W2PF 8, K2BH 7, K2PHF 7, K2AAW 6, WA2GHD 6, K2JHW 6, K2RKL 6, W2OBU 4, 2RBS 4, K2RBW 4, K2RHG 4, W2IN 3, K2TPU 3, WA2EUL 2, W2MDM 2, K2MEM 2, K2UAG 2, WV2DXH 1, WV2IMO 1. (Dec.) K2RAR 363, K2QBW 121, K2RDP 43, K2PHF 40, W2AEE 20, W2LGK 16, K2MIG 12, WA2DLO 4.

NORTHERN NEW JERSEY—SCM, Edward Hart, jr., W2ZVW—SEC: WA2APY. RM: W2RXL. PAMs: K2KVR and K2SLG. NJN (CW) on 3695 kc. daily at 1900, met 31 times with 623 stations and handled 457 messages. NJPN (phone) meets daily except Sun. on 3900 at 1800 and had 31 meetings with 726 stations and handled 129 messages. NJ 6 and 2 (phone), on 51.015 Mc. at 2300, had 9 meetings, 156 check-ins, 63 traffic. K2JTU enjoyed the CD Party, as would many more appointees if they would turn out. W2CJX is better after a low month. W2KNN again will be on 40-meter c.w. after an absence of ten years. K2PVH is recovering after the Christmas traffic rush. K2SRD has a 10-meter beam. W2BVE has RTTY and a BC-221. K2AGJ still is trying to get an 80-meter antenna working. YL Fran, K2CEP, built a 6- and 2-meter rig for her OM, Tech. Class licensee K2IQT. K2VVL made BPL via originations. A first report was received from WA2APT. K2CBG is now Radio Officer for Riverdale. K2UCY lost a key member of the V.H.F. group, W2KEB. WA2ASM worked WAC, but still needs two

(*Continued on page 120*)



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2.5 db gain

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Bandwidth ± 2%

Range 144-174 MC

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cards. K2VAB received Asia and South America QSLs for WAC. K2SLG has a 20A. K2EQP is now running RTTY. WA2COO has a new 135-ft. Zepp. W2ADE is off because of moving. WA2EJZ received the W Del certificate. Your SEC needs EC volunteers. Write to Dan Earley, WA2APY, 216 Grove St., Metuchen, N. J. Traffic: K2ZHK 369, W2RXL 281, W2CQB 156, WA2APY 152, WA2COO 148, K2VVL 144, K2VNL 130, K2MFF 98, W2EBG 97, W2BSC 70, WA2CCF 67, K2LWQ 64, W2ZVW 61, K2UCY 40, W2ZCH 37, W2BVE 34, K2JTU 33, W2ANG 30, W5FKL/2 26, K2VAB 26, K2LXL 24, W2RZO 23, K2EQP 22, W2BRC 21, K2ETS 17, WA2AKM 13, K2SLG 13, K2BWQ 10, WA2EJZ 10, WA2APT 9, K2CBG 9, K2QGD 9, K2CEP 5, K2AGJ 4, W2EWZ 3, W2NIY 3, WA2ASM 2, K2PVH 2. (Dec.) WA2APY 340, W5FKL/2 54, W2CFB 3.

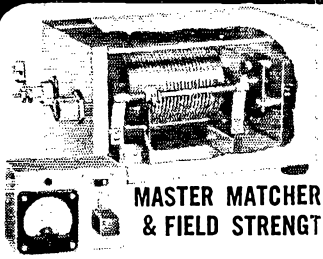
MIDWEST DIVISION

IOWA—SCM, Russell B. Marquis, WØBDR—The new officers of the Fairfield High School Club are KØIQV, pres.; KNØUXW, vice-pres.; KØBRE secy.-treas.; UEG, act. mgr. Officers of the Iowa Illinois Club at Burlington are UTG, pres.; KØEXT, vice-pres.; KOP, secy.-treas. Officers of the Tube & Shutter Club of Cresco: LZQ, pres.; KTP, vice-pres.; ODK, secy. NGS resigned as the 75-Meter Phone Net manager. LGG is acting net manager. KØAAH and CNM renewed their EC appointments and BLH renewed his ORS. KNØUVE, of Burlington, made a 50-state WAS. K2RFZ, from Jersey City, visited EAA. VWF is vacationing in Florida. KØMYU, of Cresco, and SJR, of Bayard, are General Class now. NGS has the Collins 75S-1 and 32S-1 s.s.b. gear. LCX reports two new TLCN members—IFX, of Redoak, and KØQWG, of Boone. MIB is a new net control for the 75-Meter Phone Net. KØAHZ reports that the 160-Meter Phone Net had 733 QNS with 39 messages. FMZ received a 1000 Traffikers certificate and NYX got a 2500 one. KØJRN is active on 6 meters with a Johnson Challenger and a six-element Yagi. Traffic: (Jan.) WØLGG 1950, BDR 1505, SCA 1249, LCX 987, NTB 62, BLH 47, KØGBD 37, EAA 33, WØQVA 24, UHO 24, KØMMZ 23, WØNGS 20, VWF 19, VQX 13, KØKAQ 10, KTP 8, SEW 8, WØFMZ 7, HTP 7, KØIHC 7, GXP 6, APL 5, WØEEG 5, JGM 5, JNK 5, KØEXN 5, KØGOT 4, WØQVZ 4, KØOFK 3, BRE 2, WØCOD 2, KØOTV 2, WØUTD 1. (Dec.) WØFMZ 5, WGQ 5, COD 2.

KANSAS—SCM, Raymond E. Baker, WØFNS—SEC: IFR. Asst. SEC: LOW. RM: QGG. PAM: VZM. V. H. F PAM: HAJ. New appointments: KØGIC as OES; KØRNZ and LEW as OOs; KØRNZ as OPS. Renewals: WJB as OPS; KØJWT as OES. Hamtests will be held by the Hi Plains Club at Plains May 15 and by the CKRC at Salina June 5. Hope to see all of you at both places. BLI has left for Florida. Hurry back, Ted. KØIQA finds time to work some choice DX as well as handle traffic. RJF also is working choice DX. The Army finally has caught KØBIX. However, the XYL, KØLJH, will uphold both ends now. KØJWT still is working with TV 420-450 Mc. ETX also is busy with his TV equipment. Do not forget your RM QGG and PAM VZM, both of whom do a fine job with their section nets, the KPN on 3920 kc. Mon.-Wed.-Fri. 0800 Sun. and the QKS C.W. Net on 3610 kc. daily: Traffic: (Jan.) WØOHJ 441, BLI 340, SAF 161, KØGHI 125, WØQGG 121, KØHVG 93, WØABJ 88, KØBIX 78, WØSYZ 56, UTO 51, KØKED 47, WØTOL 39, KØIZM 32, JTW 32, WØORB 27, VZM 27, KØGYA 26, TOA 26, SMQ 18, WØFDJ 17, KØEFL 14, EWW 13, WØGJG 13, IFR 11, TNW 10, KØIQA 10, GIG 7, QWN 7, WØSTC 7, WFD 7, KØLJH 6, WØFHT 5, KØJID 5, LHF 5, WØVRZ 4, ECD 3, KØQOB 3, WUZ 3. (Dec.) KØHGI 506, IZM 19, WØBBO 10, KØIQZ 10, GEL 7.

MISSOURI—SCM, C. O. Gosch, WØBUL— Net reports: MON (3850 kc.; 1900 CST M-S) 25 sessions; QTC 143; QNI 194; NCS—OUD 13, KØQCQ 4, KØKBD, OJC, ONK 2 each, KØBLJ 1, RTW 1. MEN (3885 kc.; 1800 CST MWF) 13 sessions; QTC 139; QNI 446; NCS—OHC 5, OVV 4, KØOLW 3, VPQ 1. HBN (Ham Butchers Net) (7280 kc., 1205 CST M-F) 21 sessions; QTC 411; QNI 580; NCS—KØJTW 6, KØFCT 2, QJU 3, PLS 2, KØLTJ 7, KØHGI 1. The following clubs have reported elections with the officers as indicated: Three Trails Radio Club (Independence)—ITX, pres.; VBL, vice-pres.; PSA, secy.-treas.; ATM, act. ch. Tri-State Amateur Radio Society (Joplin)—WEB, pres.; DRC, vice-pres.; PKI, sec.; KØJAY, treas. Suburban Radio Club (St. Louis County)—DMB, pres.; KØCOD, vice-pres.; KØMMU, secy.; KØDQV, treas. Washington U. Radio Club (St. Louis)—PWO, pres.; KØWLG, vice-pres.; WV2GPQ/Ø, treas. Southwest Missouri Amateur Radio Club, Inc. (Springfield)—BUB, pres.; KØLTP, vice-pres.; CGJ, secy.; AH, treas.; KØLTJ, bulletin. We have just been notified that the following are affiliated clubs: Aurora Amateur Radio Society (Aurora)

(*Continued on page 122*)



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NEW! SLIM-JIM ALL-BAND BASE LOADING ANTENNA COIL

96" WHIP

FOR 10, 11, 15, 20, 40, 80 METERS

SIZE 1⅜"X 19"

Positive action, just slide whip in or out to loading point and lock nut into position.

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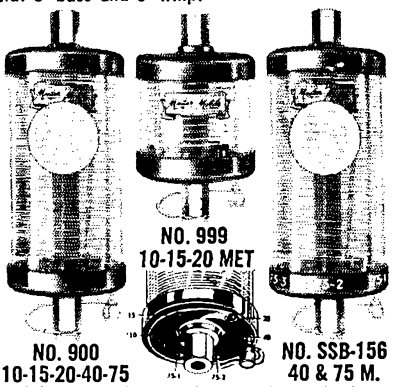

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NO. 999
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• Rigidly tested & engineered—found to have "Q" of 525 • Handles 500 Watts input • Operates into a 52-ohm cable • Positive contact—noisefree, troublefree operation • Weathersealed • Factory pre-tuned—no adjustments needed. YOUR CHOICE EA **$14.95**

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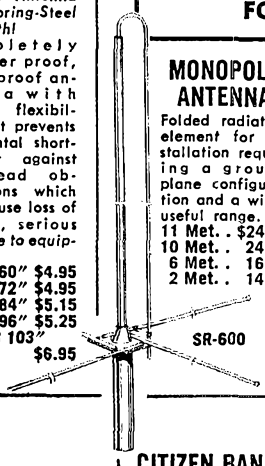
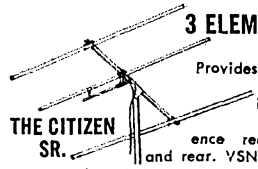


SR-600

3 ELEMENT 11M. BEAM NO. SR-500



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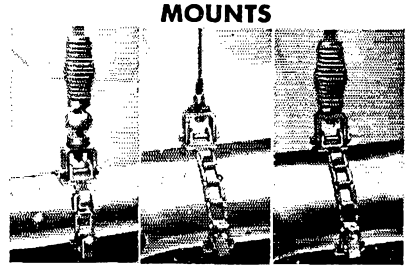
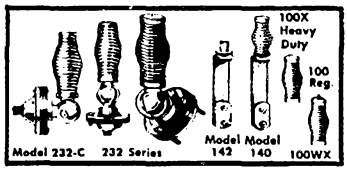
Provides a power gain of approx. 2½ (8DB) in forward direction. 10 to 1 interference reduction from sides and rear. VSNR-1. 1 to 1 at band center when fed with 52 OHM coax. . . **$36.00**

MOUNTS



No.444 $17.80 No.445 $7.95 No.446 $13.45
Adjustable to any bumper. No holes to drill.



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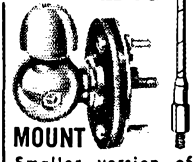

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and Midwest V.H.F. Association, Inc., of St. Louis. The following are reported as NCS-ANCS for the Ham Butchers Net: KØBFH, QJU, KØLTJ, FCT, KØJTW, PLS, OMM. TPK is back on MON after a long absence. DRI is another new check-in on this net. KØJPJ reports contact with the ZM7DA DX-pedition. Only two stations, KØLGZ and KØSGJ, from the section were active in the phone section of the recent CD Party. All section appointees are eligible! WAP and JUR report a daily 147.10-Mc. sked. The SWMARC, Inc. (Springfield) will be host at the Missouri Picnic in August. Thanks are extended to OOs WYJ, KØOJC and LGZ, OBS, OVV and OESs KØSGJ and KØBWQ for their fine reports. Traffic: (Jan.) KØLTJ 422, KBD 367, ONK 290, SGJ 256, LTP 196, WØOMM 110, ZBR 89, KIK 71, OUD 71, BVL 61, OVV 58, KØQCQ 51, WØVPQ 49, BUL 34, ARO 28, KØPFF 25, WØWAP 16, KØCFY 14, IHY 10, WØPXE 9, KØLGZ 4, WØGBJ 2, RTW 2. (Dec.) KØSGJ 320, QCQ 291.

NEBRASKA—SCM, Charles E. McNeel, WØEXP—NYU reports the Nebraska Section C.W. Net had 31 sessions with QNI 347, QTC 215. The Western Nebraska Net, NIK reporting, had QNI 876, QTC 670. Those reporting 100 per cent during January were KØAIE, KØBMQ, KØELQ, KØELU, GGP, NIK, OFP, PZH, KØTUH and KØRRL. The Nebraska Emergency Phone Net had QNI 547, QTC 56, as reported by ZOU. The 75-Meter Morning Phone Net: QNI 738, QTC 147. The December report for the 75-Meter Morning Net was QNI 717, QTC 219. New officers of the Homesteader Radio Club are YTZ, pres.; MYT vice-pres.; AQQ, secy.; KØCBV, treas. The new club call is TIA. KØSCM, in Lincoln, handled over 100 messages during the emergency of Jan. 18. KØDGW has been appointed the new PAM. KPA is back on the air after six weeks in the hospital. Traffic: WØGGP 656, RDN 330, NYU 235, KØQFK 112, IJW 95, RRL 92, WØNIK 80, ZJF 68, OKO 62, KØSCM 61, CDG 56, KUA 49, BDF 44, WØKDW 43, KØDVW 40, ROP 35, TUH 35, ELQ 34, WØOCU 33, KØDFO 31, ULQ 31, KJL 29, UWK 28, CYN 27, WØEGQ 26, RJA 26, KØOAL 24, KJP 20, MZV 20, SBP 19, WØRSM 17, KØURR 17, WØBOQ 16, KØODF 15, WØVEA 15, LFF 12, LJO 10, ZOU 9, HTA 8, KØMSS 8, ELU 7, WØHOP 6, SEC 6, KØBRQ 6, LJF 6, WØVZJ 6, YFR 4, WKP 2, KØWPG 2, WØAFG 1.

NEW ENGLAND DIVISION

CONNECTICUT—SCM, Victor L. Crawford, WITYQ—K1WCM, AW, EFW, OBR, YBH and YU made the BPL. BDI has a new amplifier using 813s. K1LAH checks in to CN regularly. NJM had a visit from KYQ. MWB is running a Viking II with a 3-wire folder dipole. K1MOT has new 20- and 80-meter dipoles up and is checking in to CN. KN1NFE is a new Novice in Bristol. GVJ is brushing up on his c.w. so he can check into CN. K1CAK's new rig is working fine. HYF enjoyed the CD Party. FPF reports some c.d. activity, with the town of Litchfield buying a Gonset III. YBH reports that CPN met 31 times, handled 352 messages and had an average daily attendance of 29 stations. On the CPN attendance honor roll are K1AQE, DAV, FHP, YBH, 31; K1BSB, IHG, 30; TVU, VQH, 27; K1DGK, K1GCS, LWW, 25. ROX has cured his transmitter trouble and is back on the CN. K1CCB enjoyed operating in the CD Party. FHP reports that CVN handled 28 messages during 13 sessions with 90 stations checking in. High QNI goes to FHP, 13; KN1KEA, KN1KGI, HJG, 9; K1AQE, 8. KLK has gone to France with the Air Force. K1BUI has joined the AREC and c.d. in Bridgeport. K1JUJ has his General Class license and is on with a Ranger. JRV and GWW are on RTTY. IM handled traffic for Gov. Ribicoff between Puerto Rico and Hartford on s.s.b. EJH converted a 522 for 2 meters. KN1MNY worked 26 states using a DX-20. KYQ reports the CN first session handled 408 messages during 31 sessions with an average of 14.7 stations per session. The second session handled 162 messages in 26 sessions with a 5.8 average attendance. OBR, RFJ, and K1HWF were high QNI. HCZ is now stationed in Huntsville, Ala. New officers of the Hamden ARA are SBM, pres.; K1AMO, vice-pres.; UKX, treas.; K1KSH, rec. secy.; ECE, act. comm. LQZ heads up the TVI Committee. STT is on with a new HT-32. QPD has an HT-32 into a pair of 250THs on s.s.b. and is converting an HT-20 for RTTY. WHL advises that the 6-Meter Net handled 23 messages during 8 sessions with an average of 7 stations. High QNI goes to K1BYD, 8; WHL, 6; IMG, K1CRD, 3. New officers of the CQRC are FHP, pres.; K1AQE, vice-pres.; K1BSB, treas.; ECH, secy.; KN1KEA and KN1JXB trustees. FVV has a new Hallicrafters SR-34. AW added UN1KAA and ZL3VH/Chatham for new countries. ECH made 198 QSOs in 38 sections on phone during the CD Party. KN1KRY has a Globe Scout and an S-40. He worked a KZ5 on 7 Mc. KN1MOF

(Continued on page 124)

The Ham from Harvey says:

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The 'TO' Electronic Keyer

forms dits, dahs, and spaces **electronically,** at any speed from 10 to 65 wpm. Employing digital computer circuitry, it opens and closes the circuit in perfect rhythm, regardless of what the operator does. Holding the key closed will result in a stream of dits or dahs, all properly spaced and perfectly formed.

If you should deviate from the pre-set speed of the Keyer, a dual neon indicator on the front panel flashes a warning. Pre-set speed remains constant regardless of temperature or line voltage variations.

The 'TO' Keyer installs in an instant. Just connect it to your transmitter's key terminals, and plug in the Keyer's AC line.

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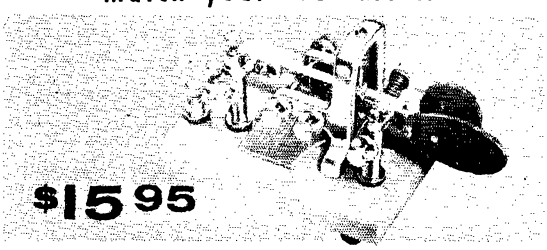

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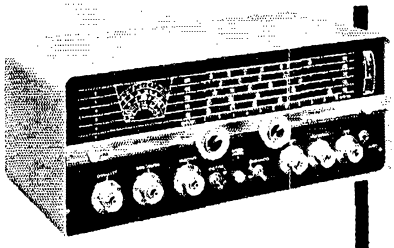
is active on 80, 40, and 15 meters. TYQ attended the Tri-City ARC meeting Jan. 12. K1GWP has a 300-watt homebrew rig. CHR is using a straight key while recovering from a smashed thumb. BRX has a homebrew kw. on 10, 15 and 20 meters. EFW gave the Southington ARA a talk on ARRL and ZZK demonstrated his KWM-1. HNX made WAS. HNA has the Heath mobile twins. New Novices in the Willimantic Area are KN1KPI, KND, MGR, MGS, LYW, LYV, MGO, MQZ and MMJ. New appointments: WAZ as EC for Stonington, K1JBN as OO, HJG as OPS, K1AWO as OBS. Appointments renewed, OS and EXO as ECs; ECH as OO. Reports received: OES from LGE and FVV; OO from K1CCB, K1EFI, QPD and TYQ. Traffic: K1WCM 648, W1YBH 562, OBR 520, EFW 371, AW 349, QJM 268, NJM 207, KYQ 192, BDI 140, OQC 139, K1JAD 131, W1YU 124, K1LAH 102, W1CHR 95, TYQ 72, MWB 63, FHP 61, K1HWF 58, CBV 53, W1RFJ 53, K1HAN 46, W1CJD 31, K1MOT 29, W1VIY 28, K1AQE 27, DGK 21, W1VOV 16, ZLT 15, HJG 13, K1BSB 8, W1FCE 8, RRE 6, K1AAE 5, W1CUH 5, GIX 5, GVJ 5, K1BUU 3, W1EJH 3, KN1MJC 2, W1WAZ 2, K1CAK 1, K1OTW 1.

MAINE—SCM, Jeffrey I. Weinstein, W1JMN—SEC: JMN, PAM: BXI, RM: EFR. JMN's Official Bulletin frequency is 3600 kc. The Sea Gull Net meets Mon. through Sat. at 1700 on 3940 kc. The Pine Tree Net meets Mon. through Fri. at 1900 on 3596 kc. The Maine Slo-Speed Net (Novices) meets Tue., Thurs. and Sat. at 1730 on 3726 kc. New appointments: SWX as OO; BDQ as OPS. CXX (OES) worked England on 6 meters with a 599 signal report. A few of the regulars on 2 meters are CXX, GKJ, ZKL, RPH, HAR, GTL, HAV and KJU. KN1MZB is a new Novice in Gorham. The MSSN is reporting good turnouts from the Novice group. Officers of the Westbrook Amateur Radio Club are EFZ, pres.; BBZ, vice-pres.; GSF, secy.; LAY, treas.; and EPB, act. mgr. The Spud Pickers Amateur Radio Klub (SPARK) reports a large and growing roster of members. The Cumberland Co. Emergency Phone Net meets every Sun. at 1230 on 3960 kc. The CCEPN also is sponsoring a mobile hunt once a month in which all hams are welcome to participate. Your SCM was pleased to hear so many appointees on during the January CD Party. A few heard at JMN were GVQ, GKJ, SWX, KSG, EFR and ISO. AREC and RACES can always use more members. Sign up as soon as possible. The mobiling and hamfest weather is approaching, so keep watching this column for the "wheres" and "whens" of outstanding events. Contact your SCM if you are interested in working on a license plate bill committee in your area. Let's hear from more clubs and individuals about their activities. Traffic: (Jan.) W1ISO 54, K1DWQ 52, KSG 25, W1EFR 15, JMN 9, K1BYE 8, BDQ 7, GVQ 6, CJK 5, DYG 2, W1TKE 2. (Dec.) K1DWQ 58.

EASTERN MASSACHUSETTS—SCM, Frank L. Baker, jr., W1ALP—New appointments: UXN as EC for Dedham, TZR as EC for Reading K1HWE as OBS, K1IXT as ORS, Silent Keys: AHX and K1KUF. WK informs us that ex-1PWK is now KH6DJP. Because of his health HSN has resigned from all RACES work. JBY is now in Quincy. FZT is on 75 meters. On 2 meters: EHX, UVC, DDI, K1AEK, MCD and EIQ. The Attleboro ARA has applied for affiliation with ARRL. AOG reminds all ECs to send him their monthly reports. 3MVK, ex-1HLK, is operating K1KBO at Fort Devens on many bands. The Waltham Club made over 93,000 points in the V.H.F.SS. K1LJK is working DX on 10 and 75, meters also NF. WU is working in his shop. DBY spoke at the Middlesex Pomona Grange on ham radio. Who are KN1s MOK and LBA in Beverly? KN1MNS has a Globe Scout, and a Gonset II. K1MMQ is manager of the Hudson Traffic Net on 40 meters. K1JCC has a new dipole on 10 meters. K1BYV is in many nets. K1JAW is active in the H.T. Net. KN1s NDK and NCU are new in Newton. K1MHM has a new electronic key. K1KWC is AAR's XYL. K1JIU is secy. of K1HOA and has a Viking I and an NC-173D. K1LCQ has hi-fi Indians. K1AGE has a Globe Scout 65B and an NC-98 on several bands. K1HNM has an HQ-110 on 40, 15 and 10 meters. KN1LYR has a Globe Chief 90A and an S-38E. WA2BEX was winner of the Mass. QSO Party, sponsored by the Merrimac Valley ARC. PFO gave a talk on his expedition to St. Pierre Island. New officers of the Merrimac Valley ARC: K1HDV, pres.; K1JPW, vice-pres.; K1AHH, secy.; K1BZT, treas.; TWB sgt. at arms; K1TSV, pub. mgr.; K1DIR, act. mgr.; K1DIT, member of the Board of Directors; SFD publicity dir. for Lawrence. KN1LOI has an Adventurer transmitter and H&W R-9A receiver. The Radio Club met at MVQ's QTH. K1HCH is on many bands and on active duty at Ft. Devens. K1TSV, pub. mgr.; K1DIR, act. mgr.; K1DIT, member of the Board of Directors; SFD publicity dir. for Lawrence. KN1LOI has an Adventurer transmitter and H&W R-9A receiver. The Radio Club met at MVQ's QTH. K1HCH is on many bands and on active duty at Ft. Devens. K1JQG is working DX on 15- and 20-meter c.w. GLW spoke at the Braintree Club. VVI, editor, and his group put

(*Continued on page 126*)

NOW AT RADIO SHACK!
NEW LOW DOWN PAYMENTS
ON HALLICRAFTERS

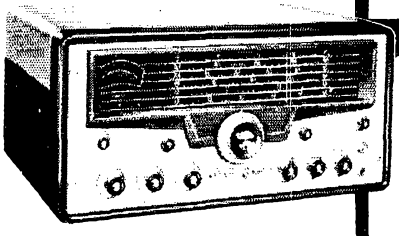


$5 DOWN AT RADIO SHACK

HALLICRAFTERS SX-110 RECEIVER **$159.95**

$12 monthly

No cash needed!

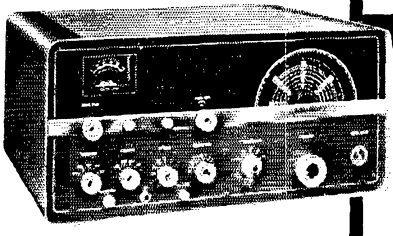


$10 DOWN AT RADIO SHACK

HALLICRAFTERS SX-101A RECEIVER **$399.50**

$25 monthly

Use Trade-in as Down Payment!



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HALLICRAFTERS NEW HT-37 TRANSMITTER **$450.00**

$29 monthly

Low monthly payments!

$15 DOWN AT RADIO SHACK

HALLICRAFTERS HT-32A TRANSMITTER **$695.00**

$34 monthly

BIG "PLUS-20%" TRADE-INS . . . MAIL COUPON TODAY!

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167 Washington St., Boston
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Use coupon to order.

RADIO SHACK CORPORATION DEPT. 4D
730 COMMONWEALTH AVENUE, BOSTON 17, MASS.

Please quote an extra 20% allowance on my model _____

I would like to trade for the following HALLICRAFTERS

- ☐ HT-37 Transmitter @ $450.00
- ☐ SX-101A Receiver @ $399.50
- ☐ SX-110 Receiver @ $159.95
- ☐ HT-32A Transmitter @ $695.00
- ☐ Send Free Bargain Catalogs for one year
- ☐ Send 1960 Electronic Buying Guide, Free!
- ☐ Check
- ☐ Money Order
- ☐ C.O.D.

Name _____

Address _____

City _____ Zone ____ State _____

out a nice monthly ham news for the Yankee Radio Club. AQE has a Seneca for 2 and 6 meters. The Framingham Club had a movie shown by QVK, K1HTK had his 100-watt 6-meter transmitter at another meeting. JMA spoke at the South Shore Club on TVI. New officers of the QRA: EYZ, pres.; EED, vice-pres.; WEX, secy.; ZNG, treas.; SPL, Tom Cook, FSK, VRK, IGK and KNS, directors. Winn Jackson, of Cannon Elec. spoke on "Transmission-Lines." K1MMQ is RM for the 40-meter c.w. band. KH6IJ spoke at the El Rav Club. A meeting of the States Area Radio Officers was held at RO's QTH attended by K1GFR, BL, BSG, MKT, QFB and ALP. K1GUN has an Apache transmitter. K1GLM is mobile on 6 meters. KYC will be on 2 meters. K1LSY, Sudbury, and K1MLO, Acton, both from Tennessee, are on 2-meter s.s.b. K1AII has a 30-Mc. Panadaptor. NKA is mobile on 6 meters and says there is a teen-age net on 50.28 Mc. with K1GLM, LMZ and GFX. BB is busy with 160-meter DX. K1LWJ has his General Class license. DEL is in Maryland for Naval Reserve duty. WLP moved to Wakefield. K1JOV is on 2 meters. PEX has a Gonset on 6 meters. OFK, George (N1CCE), SIV, K1GYM and MHC put on a comm. demonstration for the Cub Scouts. IHC is working on 3.5-Mc. gear. Appointments endorsed: TY, AOG, K1GRP, BB, MRQ and AQE as ORSs; AOG as OES, EIQ Bedford, MMQ Milton, PST Brookline, YHQ Eastham, MRQ Groveland, KWD Weymouth, IBE Rockport, MCR Boston. K1GUN Norwood as ECs; UIR as PAM for 2 meters and UIR and TZ as OOs; UIR, TZ, AAR, VMD and OFK as OBSs; AAR, BB, MRQ and OFK as OPSs. 4ERX/1 is on 6 meters in Saxonville. Net certificates have been issued to another group in the 6-Meter Cross Band Net. Another fine copy of *Yankee Club Ham News* has been received. EAE, YCV, QA and K1LJN are teaching a course, "How to Become a Radio Amateur," at the Museum of Science in Boston. ZTO is working DX on 40-meter c.w. ENS has as a new "Hula-Hoop" on top of the car. THO has a 6-meter rig in the car. ENS, FWQ, KCO, LLY, QXX and THO held a meeting. We all extend our sympathy to Nat Hallenstein on the death of his mother. K5URL/MM, in Boston, is on 75 meters. AQE is RM for 15-meter c.w. K1AYE contacted FWS's son-in-law from the South Pole on the S.S. *East Wind*. K1KHJ. Traffic: (Jan.) K1MMQ 816, W1PEX 537, EMG 508, AWA 398, EAE 220, UIR 192, K1JCC 185, KBO 155, W1DIO 141, ZSS 136, K1BYV 105, DGI 92, W1OFK 76, K1JAW 71, GNR 64, IXT 57, W1SIV 56, AUQ 53, VYS 46, KXT 38, K1MHC 30, W1NJL 26, K1DTJ 25, W1AKN 24, K1GYM 22, MKX 21, W1RQL 21, K1BGK 19, W1HGO 18, TWG 17, K1LLX 15, DNG 14, K1JIU 10, MHM 10, W1AAR 10, W1MER 8, K1JIC 4, JML 4, LCQ 3, W1TZ 2, K1EJW 1. (Dec.) W1MIX 40.

WESTERN MASSACHUSETTS—SCM, Percy C. Noble, W1BVR—SEC: BYH. RM: DVW. PAM: DXS. WMN meets on 3560 kc. at 7 P.M. Mon. through Sat. MPN meets on 3870 kc. at 6 P.M. daily. WMN had a total of 22 stations reporting in during January. The two highest in net attendance were DVW with 26 and K1IJV with 22 (out of 26 sessions held). The Worcester Area is weak in attendance. MPN (combined East. & West. Mass. sections) had a total of 31 stations reporting and handled 364 messages during January. Sorry to lose our star OO, MUN, who has moved to W8-Land. The Quinebaug Valley Radio Club is sponsoring a "homebrew" u.h.f. equipment contest among its members. Its 6-meter net still operates at 1900 on Wed. and 1100 on Sun. WEF has a new Cheyenne rig working nicely. ZPB's new receiver damper and c.w. monitor are working FB. The Berkshire County Amateur Radio Association now has a total of 43 members. WF is on with a Heath KW on both c.w. and s.s.b. CRK is working on a Seneca. PFD is now back in Pittsfield, and is on 75-meter s.s.b. and 50 Mc. BKG, K1JDC and KQK, all of Pittsfield, are active on WMN. The timing of the ski races at State Forest was handled by amateur radio. UEY is active on 7-Mc. c.w. WF and AZW worked ZM6AP/ZM7. K1DDB now has a 50-ft. tower. DGT worked HCCC8, the Galapagos Islands Expedition. CRB now has a B&W 5100 on 75-meter phone. Copies of all West. Mass. club bulletins would be very much appreciated by your SCM (much of the news above is from the BCARA bulletin). K1HTS is getting a new HQ-110. K1LBB is a new ORS in Great Barrington. Traffic: W1DXS 236, BYH 177, DVW 150, BYH 102, AGM 85, ZPB 70, K1CAU 68, LJV 67, W1DGA 62, WEF 50, K1LBB 34, W1OSK 19, MHS 16, K1GCV 8, JDC 2.

NEW HAMPSHIRE—SCM, Robert H. Wright, W1RMH—RMs: K1BCS and K1HIK. PAM: HQ. V.H.F. PAM: TA. The GSPN meets at 1900 Mon. through Sat. and at 0930 Sun. on 3842 kc. The NHN (c.w.) meets nightly at 1830 on 3685 kc. The Northeast V.H.F. Net meets daily at 1930 on 145.8 Mc. All N. H. amateurs are

(*Continued on page 128*)

TO SAVE, OR NOT TO SAVE

(A soliloquy in Three Acts, with a happy ending.)

Cast: A hep Ham, who has just decided to get more fun out of life by enjoying some better equipment in his shack.

Act I

(Our hero is in his shack. He has called CQ seventeen times, and is listening to the other fellows working the DX)

"To save, or not to save. That is the question. Whether it is safer to stick to new equipment, or wiser to get some better used gear for a lot less money.

. . . Come to think of it, every rig on the air is a used one! And, if I could be sure of getting a really good one, there's no reason why I can't have a bigger one, save a lot of sheckels, and still have the same performance and results of a brand new job.

. . . Aye, there's the rub! How can I be sure of getting a good one? . . . Mustn't buy a pig-in-a-poke.

Pig-in-a-poke? . . . that's what Bil Harrison has been saying in his ads about his used equipment! . . . All my friends tell me that Harrison Radio is the most reliable, and stands squarely behind everything it sells. That's the main reason they have grown to be called 'Ham Headquarters, USA'.

. . . No point in taking a chance. I'll get in touch with Harrison right away."

(Curtain)

Act II

(The world-famous Harrison Trade-In Center. Our hero is rapturously inspecting the rows upon rows of shelves stretching into the distance, loaded with the greatest array of ham gear ever displayed under one roof.)

"WOW! . . . Never saw so much ham gear in my life! . . . There's several of the very model I want . . . Every piece has a green tag on it . . . shows Service Lab verification of performance . . . certainly no 'Pigs-in-a-poke' here! . . . And just look at the prices on those tags! . . . Never thought they could be so low.

There's Bil, W2AVA, and Ben, W2SOH, and Ray, W2QYS, and Bernie, K2IMD, and Bob, K2JVQ, all bustling about like busy bees, helping make the crowds of hams look so pleasantly happy.

. . . No wonder they do such a brisk business in the Harrison Trade-In Center . . . there's such a wide assortment to choose from . . . and most of those trade-ins can hardly be told from new! . . . Here's their Clearance Section, where any unit which does not pass their high performance standards is yellow-tagged at a give-away price, and sold 'as-is'.

. . . All the boys are so friendly and helpful . . . they'll fire up anything I select, and let me prove to my satisfaction that it is perfect before I take it home.

. . . There's certainly no risk here! . . . Everything is unconditionally guaranteed . . . if anything should go wrong, their experienced service lab will competently fix it without any charge for parts or labor during the first ninety days . . . And, if for any reason I am not entirely delighted with my purchase, I can return it at any time up to three whole months later and get a brand new one of the same or any other model for only the difference in price.

. . . They really gave me a swell allowance for my old stuff . . . the swap cost a lot less than anywhere else! . . . And if I want to, I can spread the balance over many months . . . Their low carrying cost lets me enjoy now, pay later.

. . . Those new roads make it a snap to drive to this convenient, central location only 12 blocks straight downtown from the Holland Tunnel . . . plenty of parking, too.

It's sure great to deal with Harrison!"

(Curtain)

Alternate Act II

(For the ham who cannot visit "Ham Headquarters, USA", so trades by mail.)

(Time: A few days later.)

"Here's Harrison's speedy reply by return mail! . . . He gives me a choice of the models I asked about . . . the prices look real good. . . . More important to me, it's the values that are guaranteed to be unequalled!

. . . He says I can enjoy all the advantages of those hams who come in to the Harrison Trade-In Center . . . they'll fire up and check it out before carefully packing and safely shipping it to me . . .

. . . I have the same privileges of returning it, even for full cash refund within 15 days. . . . He offers a really top allowance for my old gear . . . and I can take up to 24 months on the balance.

No question about it . . . for the best deal, every time — my order goes to Harrison!"

(With look of well justified happy anticipation, he seals envelope.)

(Curtain)

Act III

(Back in the shack, a few days later)

"Please stand by, VQ1SSB. I have 9M2DB on the hook, and he says XZ2AD has been calling me."

". . . This is certainly FB gear I got from the Harrison Trade-In Center . . . and their boys gave me some good dope on how to get the best out of it. . . . Never heard of values to equal this . . . and the money I saved let me make the little YF happy with a new mink coat.

Golly, we both are glad I always deal with Harrison!"

(Curtain, sustained applause)

Epilogue

Honestly OM, I can't promise you'll make DXCC right away, just because you get your gear from me. At least, not in the first few days!

But I do tell you sincerely that whether you want to save with safety on my like-new equipment, or if you want the very latest new production, you'll always get more real value for your money and you'll always feel more comfortable at "Ham Headquarters, USA".

Come on in, and bring your old gear. I guarantee you'll return home happy with your trade. Or, drop me a line telling what you want, what you have to swap and the terms you would like.

TNX 73

Bil Harrison
W2AVA

urged to participate in the annual N. H. QSO Party Apr. 23 and 24. Welcome to K1MOW, a new ham in the Concord Area. New officers of the Nashua Mike and Key Club are DUB, pres.; TA, vice-pres.; BXM, secy.; QKA, treas.; and OLY, act. mgr. The Nashua C.D. Net meets on Thurs. at 2000 on 145.25 Mc. DUB is keeping meteor skeds with Florida on 2 meters, and experimenting with parametric amplifiers for v.h.f. QKA also is evaluating the parametric amplifier for 432 Mc. BXM is working at General Electronics at Cambridge, Mass. K1MID is employed at Aerotronic Associates in Contoocook. K1IIK reports the NHN is on the upswing but still could use more N. H. stations. Traffic: K1BCS 821, FDP 671, IIK 322, W1EVN 49, HQ 18, K1JDN 17, W1CUE 12, MID 7, W1RMH 5, BYS 2.

ELEVENTH NEW HAMPSHIRE QSO PARTY

April 23 and 24

The Concord (N. H.) Brasspounders, W1OC, announce their sponsorship of the Eleventh New Hampshire QSO Party, and cordially invite all interested radio amateurs to participate. Here are the details:

(1) Contest period: Saturday, April 23, 6 P.M. EST to Sunday, April 24, 6 P.M. EST.

(2) No time limit and no power restrictions.

(3) Scoring: N. H. stations count 1 point for each N. H. contact, plus 2 points per outside contact; stations outside the state count 2 points per N. H. contact; both multiply by the number of counties worked (10 maximum).

(4) Engraved certificates will be issued to all participants reporting, with special endorsements for the highest-scoring stations, both in N. H. and outside, in the phone and c.w. categories. Single operator stations only are eligible for the special endorsements.

(5) Operation is restricted to 80 meter c.w., and 75 meter phone, and 6 meter c.w. and phone. The same station may be worked for additional credit on either band, c.w. or phone.

(6) General call: "CQ NH" on c.w.; "CQ NH QSO Party" on phone. N. H. stations are requested to sign *de NH W1OC K* or give other indication of the fact they are from N. H.

(7) Contact information required: Report and QTH (including county of N. H. stations) and number of QSO. Those operators participating in both the c.w. and phone categories must submit separate logs for each mode of operation. Each log shall be scored separately based on the number of contacts and counties worked in each mode. Logs and scores must be postmarked not later than May 15, 1960, and should be mailed to the Concord Brasspounders, P.O. Box 339, Concord, N. H.

(8) The WNH (Worked New Hampshire) certificate will be awarded to stations working all ten counties during this QSO Party, participating logs confirming.

RHODE ISLAND—SCM, John E. Johnson, K1AAV—SEC: PAZ; RM: SMU; PAM: YRC; V.H.F. PAM: KCS. Monthly reports were received from VSZ, ESK, YRC, GR and K1CBR. K1BBK won the Merit Award for the first place score for the Rhode Island section in the Mass. QSO Party in December. He also won first place with top score in R. I. in the W. Va. QSO Party. KCS, with K1CRN, worked feverishly to prevent 2BVU from invading the R. I. section for a v.h.f. win in January and it is believed that the W2 only has the W. Mass. section to beat. An appointees' meeting was held Jan. 23 with N. E. Director EFW present. Additional meetings are planned for the future in the hope we can build a strong section. Your SCM was appointed Asst. Dir. at the meeting. The PRA Club of Providence graduated 15 in its code class. PRA officers elected were VZP, pres.; K1LRP, vice-pres.; HIK, treas.; K1JAI, secy. The W1AQ Club reports a tech. comm. of K1CZD, W1SMU and WAC appointed, also LFW as sanitation engr. The NCRC Club of Newport installed its first YL president, K1CUY. Appointments: WED and VSZ as OBSs; YKQ as EC; LQJ as OO; CMH as ORS. Traffic: W1SMU 718, K1LSM 561, W1TXL 76, K1BBK 52, W1CMH 43, K1AAV 33, W1HKN 20, VBR 16, WED 13. (Dec.) W1YKQ 17.

VERMONT—SCM, Harry A. Preston, Jr., W1VSA—SEC: EIB. RM: K1BGC. PAM: HRG. Vermont fre-

(*Continued on page 130*)

AVAILABLE AGAIN!

FAMOUS T90 BANDMASTER TRANSMITTER

Look at the Savings • Factory Guaranteed

Now sent direct to you from Factory

Save $80. was $179.50 now **$99.50**

also available

APS 90 Power Supply
save $30.00
was $79.50
now $49.50

VPS 90 Power Supply
save $15.50
was $75.00
now $59.50

hw

Literature available on all models

full 90 watts
go through 10 meters
completely wired and tested
tubes included, VFO or crystal
PI network output
Ideal for fixed or mobile operations
Size only 12⅜ x 10½ x 6¾

Gentlemen:

Enclosed is my check for _____. Please send me:

_____T90 Bandmaster at $99.50 each
_____ APS 90 Power supply at $49.50 each
_____VPS 90 Power supply at $59.50 each
add $6.00 handling, shipping and insurance charges.

Name_____

Address_____

City_____

HARVEY-WELLS ELECTRONIC INC. NATICK, MASS.

quencies: C.w. 3.520, phone 3855, RTTY 3620 kc. Nets: C.w. M-W-F at 1830, VEPN Sun. at 1730, VTPN Sun. at 0900, GMN Mon.-Sat. at 1730. It is with regret we record here the passing of AVP and JZF. V.h.f. activity is rapidly expanding in the Green Mountain State. K1CPC has recovered nicely from his recent illness. Jean Bryan, of Burlington, passed the Novice Class exam. International Field Day, sponsored by the BARC., Inc., is in its planning stage and probably will take place in early or mid-June 1960. Civil defense has two phone nets on week ends: Sat. morning at 0900 on 3993 kc. for training and general information. Sun. at 1000 on the same frequency for official business. K1GBS is promoting RACES and is making efforts to visit various clubs to emphasize the importance of amateur radio in c.d. FPS has been appointed Radio Officer for Brattleboro C.D. A new ham in Wilder is K1NIW. Another new ham in Williston is K1LEN. Traffic: VE2AZI/1 358, K1HMQ 261, W1OAK 204, K1BGC 89, W1KRV 82, ELJ 31, K1IRH 21, W1HRG 11.

NORTHWESTERN DIVISION

ALASKA—Acting SCM, Kenneth E. Koestler, KL7BZO—Our very dear friend CP is now back in Anchorage after being outside for medical care. APV has gone outside for a couple of months. CUS, of Fairbanks, says the club members are doing everything possible to make contact on 2 meters with ADX, the agent for the Alaska R.R. at Nenana, about 60 miles distance. CUS has an SX-28 and a DX-40 with doublet doing quite well for low power. Pres. AEQ and Ann, BNY, his daughter, both just got married. Ann passed the test for 1st-class phone. PJ is getting a new six-element beam on 2 meters. He has 205 countries worked. BZO has a new Monarch Telrex and a 2-meter Telrex beam. CIW is putting a new electronic key which he built on the air. CUK, who is now residing in Anchorage, has been around the world with several ex-calls to his credit. He was Asst. SCM in KG6-Land and has been a ham for 36 years. He will be on the air soon with a 75A-2, a 32V-1, a Pacemaker and a 3DZZ beam. AN has been a ham for 49 years and finally is getting up his beam on a 60-ft. tower. BK will be helping the Polar Amateur Radio Klub of Alaska in sending messages for the girls who operate a message center at the PNA office downtown during Fur Rendezvous.

IDAHO—SCM, Mrs. Helen M. Maillet, W7GGV—ZRQ is a new EC. The Boise C.D. 2-Meter Net received 7 out-of-city check-ins in January. Nampa has five 2-meter stations on the air. DWE attended the c.d. meeting in Boise. K7BWV is the new NC for the District 4 C.D. Morning Net. The new editor of *Ham Hill News* is OCR, assisted by CRE. Send them your c.d. news. K7DUX is the new prexy of the S.E. Idaho Radio Society. The Magic Valley ARC held an auction and pot luck supper in February. The Pocatello ARC had a dinner dance and elections in February. FARM Net Manager JHY shook up check-ins when he decided to handle traffic before roll call to avoid troublesome QRM. K7ATO has a new daughter. K7KBX was formerly ØMMJ. EF is moving to Oregon, and K7AYU will change his QTH to California. EF is taking over the Weather Net. Olga, K7GEB, made WAS phone. FARM Net traffic: 116. Traffic: W7VQC 34, K7BWV 29, W7GGV 29, K7AYU 24, W7EVP 14, EEQ 12, K7GHG 9, GHX 6, W7DWE 5, ABK 4.

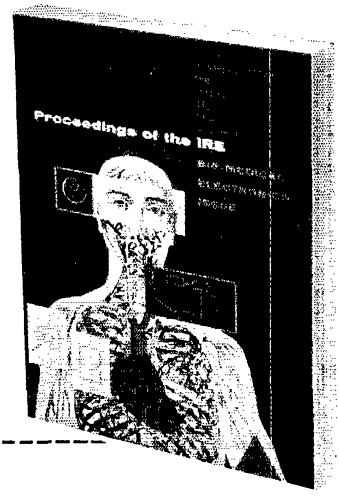
MONTANA—SCM, Vernon L. Phillips, W7NPV/WXI—MPN meets M-W-F at 1800 on 3910 kc. MSN meets T-T-S at 1830 on 3530 kc. TPE received confirmations for the WPX Award. K7CHA and RZY earned WAC. K7OHA and K7CWA earned WAS. K7BKH made his 7th consecutive BPL. DXK, K7FCC and K7FDZ handled emergency communications for the Opheim Radar Base. MBV has a new jr operator. THP has a new baby girl. YQZ celebrated his 88th birthday. K7HOS is a new Conditional Class at Stockett and K7HOT is a new Conditional at Belt. CK vacationed in Florida. Ham picnics are scheduled as follows: Harlowton June 5, Wolf Point June 19, Lewistown July 10 and Havre Aug. 7. The Glacier Hamfest will be held at Apgar July 16-17. The Watthounds is a new club at Miles City and has graduated 9 Novices. Officers are YUP pres.; K7CML, vice-pres.; and BDB, secy. New officers of the Central Montana Radio Club are WSE, pres.; K7GVZ and HFZ, vice-pres.; K7GWA, secy-treas.; K7GWB, pub. chmn. and FTO, net EC. Recent appointments: K7CTI as OO, FTO as OPS and EC and IDK as OO. Traffic: K7EWZ 283, BKH 200, BYC 81, GHC 14, W7IDK 11, SFK 10, EWR 4, YQZ 4, K7JBH 2, W7NPV 2, TPE 2.

OREGON—SCM, Hubert R. McNally, W7JDX—BDU still is coming through with BPL but both ZB and K7CLL slipped a little this month. ZB lost two au-

(*Continued on page 132*)

Here is the fascinating field of

BIO-MEDICAL ELECTRONICS



The purpose of this special November issue of Proceedings, as outlined in the guest editorial by J. W. Moore, National Institute of Health, is "to provide its readers with some interesting, informative and perhaps provocative examples of various weddings of electronic art and concepts to some of the life sciences. This collection of articles is not intended to delineate Bio-Medical Electronics, but rather to illustrate the breadth of the field of interest of the Professional Group on Medical Electronics, which, by constitutional definition, is the study of biological and medical systems." Thus begins one of Proceedings' most fascinating issues—one that presents the scope of the broad new avenues of experimentation in biological measurements opened up by the speed, versatility and precision of modern electronics. This special issue is not only the current record of the progress in Bio-Medical Electronics, it is fascinating reading for radio-electronics engineers in general.

26 ARTICLES BY LEADERS IN THE BIO-MEDICAL ELECTRONIC FIELD

Below is just a partial listing of the articles this special issue covers. For example, the development of a broadband electrometer is described in the article by Gesteland, Howland, Lettvin and Pitts on "Microelectrodes and Their Use." This issue gives considerable emphasis to basic biological research. And, because the recruitment and training of personnel to work in the bio-medical instrumentation area is probably the most pressing problem to be faced by the PGME, there are supplementary articles in this area. This special November issue of Proceedings of the IRE on Bio-Medical Electronics is only one of the many services offered members of the IRE. If you are a non-member and wish a copy of this vital link in the record of radio-electronics, return the coupon below, today, to reserve it for yourself or your company.

PARTIAL CONTENTS OF THIS NOVEMBER BIO-MEDICAL ELECTRONICS ISSUE:

"An Analog Computer to Stimulate Systems of Coupled Bimolecular Reactions," by E. F. MacNichol, John Hopkins University
"Electron Transfer in Biological Systems," by B. Chance, University of Pennsylvania
"Alternating Current Spectroscopy of Biological Substances," by H. P. Schwan, University of Pennsylvania
"Comments on Microelectrodes," by R. C. Gesteland, B. Howland & J. Lettvin, Massachusetts Institute of Technology
"Some Functions of Nerve Cells in Terms of an Equivalent Network," by W. H. Freygang, National Institutes of Health
"Electronic Control of Some Active Bioelectric Membranes," by J. W. Moore, National Institutes of Health
"Measurement of Mechanical Properties of Muscle under Servo Control," by M. Lubin, Harvard University
"Scanning Microscopy in Medicine and Biology," by L. E. Flory, RCA Laboratories
"Instrumentation for Automatically Pre-Screening Cytological Smears," by R. C. Bostrom, H. S. Sawyer & W. E. Tolles, Airborne Instruments Laboratory
"A Magnetic Flowmeter for Recording Cardiac Output," by H. W. Shirer, R. B. Shackelford & K. E. Jochim, University of Kansas
"The Use of an Analog Computer for Analysis of Control Mechanisms in the Circulation," by H. R. Warner, Latterday Saints Hospital
"Some Engineering Aspects of Modern Cardiac Research," by D. Baker, R. M. Ellis, D. L. Franklin & R. F. Rushmer, University of Washington
"Stability, Oscillations, and Noise in the Human Pupil Servomechanisms," by L. Stark, Yale University
"What the Frog's Eye Tells the Frog's Brain," by J. Y. Lettvin, H. R. Maturana, W. S. McCullough & W. H. Pitts, Massachusetts Institute of Technology
"Repetitive Analog Computer for Analysis of Sums of Distribution Functions," by F. W. Noble, J. E. Hayes, Jr. & M. Eden, National Heart Institute
"Medical Ultrasonics," by J. F. Herrick, Mayo Clinic; H. P. Schwan & J. M. Reid, University of Pennsylvania
"The Use of Electronic Computers to Aid Medical Diagnosis," by R. S. Ledley & L. B. Lusted, National Academy of Sciences
"New Instrumentation Concepts for Manned Flight," by L. J. Fogel, Convair
"The Origin of the Professional Group on Medical Electronics," by L. H. Montgomery, Vanderbilt Medical School
"Instrumentation in Bio-Medical Research," by P. E. Klopsteg, National Academy of Sciences
"On the Role of the Engineer in Bio-Medical Instrumentation," by J. P. Hervey, Rockefeller Institute
"Medical Electronics Center—Interdisciplinary Coordination," by V. K. Zworykin, Rockefeller Institute

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tennas in the big windstorm; likewise the SCM is out of business until his 75-meter dipole can be restored. K7AXF is a busy boy in Coos County and should be the new EC there. LT still is busy on MARS. DEM is the new trustee for the Southern Oregon Radio Club in its license application. DIC is recovering from a vacation trip to California. K7CNZ is working on a new shack and 2-meter rig. K7EZP is busy on 50 Mc. WPW has a major rebuilding project and expects to be making a lot of noise soon. K7KRE has started an Oregon Bible Net on 50.55 Mc. at 8 A.M. each Sun. K7-AIS has a new 2-meter Communicator; likewise JDX, who hopes to work some of the 2-meter gang in Northern Oregon. QXS is building new 2-meter sets from scratch. Hope to hear you fellows soon, Bill. WKP is busy with Official Bulletins. A fine AREC meeting was held in Eugene Jan. 17. Sorry the SCM was under the weather and could not attend. VND, formerly of Forest Grove, is now WA6JKT in Salinas, Calif. DRS, formerly of North Bend, is now K1MOU and will be in Germany soon with a DL4 call. ZBH and ZDW, of Boring, are new OESs. It looks like very heavy 2-meter activity in Northern Oregon this Spring. Traffic: W7-BDU 510, K7CLL 268, W7ZB 217, K7AXF 134, W7LT 70, ZFH 38, MTW 34, AJN 18, DEM 13, VIL 13, DIC 10, K7CNZ 5, EZP 2.

WASHINGTON—SCM, Robert B. Thurston, W7PGY—SEC: HMQ. RM: AIB PAMs: LFA and PGY. Your SEC is HMQ, not MMQ as shown in Feb. *QST*. New officers of the North Seattle Amateur Radio Club are IMV, pres.; K7CFC, vice-pres.; PGY, secy.; KN7-EQX, treas.; CO, LWB, OEX, PGY, ZXM and VX trustees. A new Official Bulletin Station in the Seattle Area is K7CHH. VE2LE/W7 now is operating out of Seattle on 160, 80 and 40 meters using both phone and c.w. and is looking for contacts. The Bremerton Annual Hamfest will be held at the Sons of Norway Hall, Bremerton, May 21. Keep an open date for then. OIV has 50 watts on 6 meters and monitors the AREC frequency in the Puyallup Area on 10 meters. K7DOB has Ranger troubles. The VARC's code and theory classes are going nicely with DNU in charge. Washington State Net had 23 sessions. 320 QNIs and 252 QTC's for December. K7DWL is active on 20 and 40 meters. JHS has a new 300-watt c.w. rig. K7GNA lost two antennas in the big wind so left for a vacation in W6-Land for a month. K7ASY and CNK are QRL with TV experiments. REC is working portable out of Forks. ZSH is portable out of Olympic Hot Springs. OMO is a new ORS in the Warden Area. GIP is the new manager for WSN, with DZX as associate manager. IEU is active in WSN now. AIB says there is nothing new in ham radio, but is QRL getting ready for income and real estate taxes. INK is waiting for MARS confirmation. K7ABB is QRL with teletype. JHS renewed his OBS and DZX his OPS appointments. New officers of the Radio Club of Tacoma are K7ATD, pres.; RXS, vice-pres.; K7-AYC, secy.; RGD, treas.; and K7s AYD and ARD, trustees. KN7IUQ has a new Gotham V-80 vertical. AMC is QRL planning a new ham shack. K7AJT has a new trap vertical for 10, 15 and 20 meters. CWN was active in the CD Party on 7 Mc. K7CWO is waiting for a new Apache and is active in the AREC program from the Richland Area. K7EKE is planning on a new 500-watt transmitter. K7GUO is a new Technician in Hoodsport. ESV returned from California and received his old call back. JWE made WBCN, OHA and WAV during January, all on 20 meters c.w. DZX received his BPL medallion. Traffic: W7BA 1038, DZX 688, QDH 270, HUT 173, KZ 160, APS 134, GIP 121, K7EKE 98, W7AMC 89, AIB 62, GYF 52, K7ABB 41, W7JHS 40, IEU 38, K7CWO 36, W7USO 34, K7INK 30, W7IST 26, EKT 18, JEY 13, LFA 12, UNI 12, IGF 12, OIV 8, OMO 7, K7AJT 5, AIA 4, W7YFO 4, K7APJ 3, W7EHH 3, JWE 2.

PACIFIC DIVISION

HAWAII—SCM, Samuel H. Lewbel, KH6AED—W7MCU, chief operator at KW6CGA and net control for the Pacific Net, has been transferred to Panay Island in the Philippines. KW6CGA will be off the air until at least one of the three Novices Len left there passes his Conditional class exam. KH6BM is on the air with the entire S/Line equipment. KH6KH is on s.s.b. with a new HT-32; so is KH6ABQ but with a different final, home-brew in both cases. KH6AED is back on with RTTY using the built-in FSK feature on the new 100V. KH6AFQ has had several operations on his ear and has shown an improvement each time. Ken is the chairman of the convention committee and is setting up for a real Hawaii Island Aloha, so plan to attend. Don't forget Fourth of July week end in Hilo. KH6AJF continues to be the only station reporting traffic. Where are the rest of you fellows? Traffic: KH6AJF 384.

NEVADA—SCM, Charles A. Rhines, W7VIU—IWT

(*Continued on page 134*)

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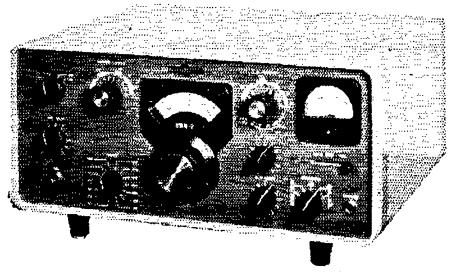

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got in the Jan. CD Party for a short time. ZHW is handling traffic to the Reno Area from KG1 and KH6. CX is working on RTTY equipment. KHU is doing an FB job as OO in between contacts for S.S.B. WAC. BIC finally left the hospital. OND joined the NARA. TQE has a new rotator. HJ is operating on 10 meters. JU is going Air Force MARS and hoping to operate mobile on Lake Mead. VIU has added OHA and WWCNY to his certificate list. UPS will go mobile with his new station wagon. KOI has a new HQ-170. QYK has CB gear. The 13-year-old son of KOA and QYL is awaiting the outcome of his Novice examination. K7CMI made 28-Mc. WAS and WAC. AHA spent January in Reno going to Bell Tel. School. The NARA will sponsor the Nevada QSO Roundup in May. Details later. Traffic: (Jan.) W7VIU 281, KHU 29. (Dec.) K7CWV 282.

SANTA CLARA VALLEY—SCM, W. Conley Smith, K6DYX—Speaking for all the section we owe a debt of gratitude to W6NVO for his long and faithful service as SEC and we pledge our support to W6ZRJ, who takes on the job. Many famous old-timers and distinguished amateurs were present to honor K6BJ at a testimonial dinner given by Eimac in San Mateo on Feb. 1 upon the occasion of his retirement. On Feb. 3, W6MLZ spoke to a large group of amateurs at the civic center in San Jose and explained the outcome of the Geneva Conference. At the NCN dinner in San Francisco on Jan. 31, W6DEF won a Vibroplex bug. WA6CLT reports that K6EEV, WA6JOT and K6VSN/6 are newly active on 6 meters in the Monterey Bay Area. W6YHM, who is busy reworking surplus gear, had VE6MX as a visitor. K6TEH had K4GWO as a visitor. W6MMG has a new hilltop QTH in Belmont. W6PLG is working nights so is off the nets for a while. W6OII is really QRL as secretary of ALN. W6FON complains bitterly of all the poorly-addressed traffic he is expected to deliver. K6HCQ has a new HQ-145 and is rebuilding the shack. Anyone interested in a microwave experimenters group is asked to contact K6HCP. K6ZCR is playing an electronic organ built by the OM. Traffic: (Jan.) W6RSY 769, K6ZCR 253, K6DYX 203, W6AIT 100, W6DEF 80, W6YBV 56, W6FON 45, W6HC 37, W6YHM 32, W6PLG 26, K6VQK 26, W6OII 23, W6ZLO 15, K6TEH 8, K6GZ 6, K6YKG 4, WA6CLT 1. (Dec.) W6YHM 51.

EAST BAY—SCM, B. W. Southwell, W6OJW—SEC: K6DQM. ECs: W6EFI, K6EDN, K6JNW and K6ESZ. W6DEF won the chromed bug at the NCN Dinner and K6OSO won a 4-250A. W6IFZ, with K6OSO operating, made 59,400 points in the CD Party. K6JKY has a DX-40 on 3.9-Mc. phone. K6QHC made 118,800 points in the CD Party, and has gone to sea with the USN. The NCN held its Net Dinner on Jan. 31. 1960 officers of the ORC are W6YIJ, pres.; K6VQF, vice-pres.; WA6ITN, secy.; K6DOQ, treas.; and K6YSS, sgt. at arms. The Marin Amateur Radio Club hosted the CCRC Jan. 6. K6YAF is selling his receiver and going back to flying. K6SWY and W6IPY started a code and theory class in Hayward. K6AUR is going s.s.b. The MDARC held its Jan. meeting at Diablo Valley College Jan. 15. EBRC officers for 1960 are K6GEP, pres.; W6SME, vice-pres.; K6TIP, secy.; and K6SRD, treas. WV6FKN is trying to get WAS before his Novice ticket runs out. WV6FLD and WA6FSO qualified for the RCC sheepskin. W1BUD was in the Bay Area Jan. 30-Feb. 2 to address local clubs on the Geneva Conference. W6WWD nosed out W6KG as club winner in the ARRL DX Contest. W6TI is 283/281 DX-wise. W6OJW got cards for the 599X certificate and WFKA. That's all for this time, gang. Send in those reports. Traffic: (Jan.) K6ZYZ 107, W6JOH 27, K6OSO 8. (Dec.) K6QHC 18.

SAN FRANCISCO—Leonard R. Geraldi, K6ANP—Asst. SCM, Jeri Bey, W6QMO. RM: K6PQG. PAM: W6PZE. ECs: K6EKC, W6OPL, W6JWF. OOs: W6GQA Class I, K6OHJ, W6OKR, W6PHS. OBSs: W6GGC, W6MXJ. ORSs: K6PQG, W6GGC, W6QMO, W6OPL, W6BIP, W6GQY, K6QJB. OPSs: W6PZE, W6GGC, K6OHJ, W6FEA. The Far West Club had a fine pot-luck dinner Jan. 30. About 30 amateurs and their families shared in the festivities. Reports are that a good time was had by all. The Bandspanners is organizing a 2-meter net for all the members' convenience. The HAMS is starting early with its Field Day plans. The San Francisco Radio Club is working on a project for its Novice members. Future plans include display of home-brew equipment, talks on the Novice field, traffic, v.h.f. and DX. A new club in the San Francisco Area has been formed at the Lick-Wilmerding High School. Members at present are K6GRX, WA6ECH, WV6FKR and WV6FOK. The club has the trustee's call, K6GRX. The BAYLARC will be meeting at the QTH of K6UDT for the next five months. The NCN held its dinner in San Francisco on Jan. 31. About 18 attended. Main prizes were a 4-250A tube and a chrome Vibroplex bug. W6OPL and W6GGC went to Squaw Valley on Feb. 1 to complete antenna installations and to be available dur-

(*Continued on page 136*)

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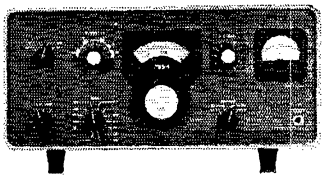
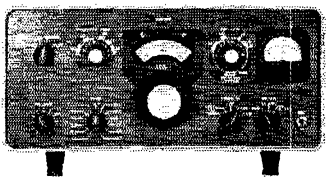


75S-1 Receiver



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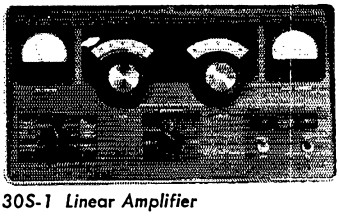

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ing the practice sessions of the Olympic Games. The boys were there 'til mid-February when the regular operators took over. W6GQA held forth for the San Francisco section in the January CD Party. W6OKR needs Arkansas for a 50-state 6-meters-only WAS. He has almost completed his 2350-Mc. gear. K6PQG is now on 40 meters during the day with her new dipole. Besides being active on NCN, K6QJB has spots on the MTN/C.W. Net. Ralph also is on RN6 Thurs. and TCC station 1DA Fri. W6QMO now has two TCC spots on Tue. and Thurs. Jeri also is active on NCN and holds NCS spots on RN6. NCN was host at the February CCRC meeting. I attended the testimonial banquet in honor of K6BJ, given by Eitel-McCullough (Eimac) on Feb. 1. The toastmaster was Mr. Herbert Hoover, jr., W6ZH. The speakers and the guest list were most impressive and I sincerely feel that it was an honor to have been invited. Traffic: W6GQY 949, W6QMO 338, K6QJB 279, K6PQG 16.

SACRAMENTO VALLEY—SCM, Jon J. O'Brien, W6GDO—Asst. SCM: William van de Kamp, W6CKV. SEC: K6IKV. RM: W6CMA. PAMs: W6ESZ and W6PIV. Correction: SARC's 1960 officers are K6GZS, pres.; K6YII, vice-pres.; WA6IHX, secy.; K6IRI, treas. Last month we listed the 1959 officers. Sorry for the mistake. GEARS officers for 1960 are WA6AMI, pres.; WA6FWM, vice-pres.; and W6YKU, secy.-treas. Mt. Shasta RC's 1960 officers are W6SDP, pres.; WA6FGO, vice-pres.; K6OTI, secy.; and W6HRF, treas. K6YBV has a new Apache and an NC-303. K6SXX is manager of the c.w. section of MTN. MARS-sponsored code and theory classes at McClellan had such a large sign-up that two classes of fifty each have been made with a waiting list should any of the original students drop out. W6WLI still is active in this section on week ends, commuting between the job in Berkeley and home in Yuba City. He has a Gonset 11I on 2 meters to pass the time during the week. W6PDT was chosen "King" for the Veterans March of Dimes Dance in Chico. W6ICO made good use of his emergency generator on a net check-in when the power failed in his area. K6SEA was winner of the RAMS Liars Night contest. W6ZOH is the proud owner of an Elmac mobile station. The Chirps had a very nice dinner party celebrating its third anniversary. W6GDO and K6HHD enjoyed a visit by W5OXJ and XYL KG6AIA, who have just returned from two years on Guam. We solicit your reports for this column and certainly appreciate those which we receive. Traffic: K6YBV 762, K6SXX 206.

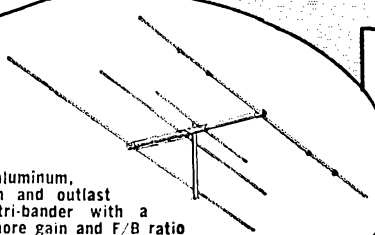
SAN JOAQUIN VALLEY—SCM, Ralph Saroyan, W6JPU—The Bear Mountain Radio Club is a newly-formed club in Arvin, Calif., with the following officers elected: K6SWR, pres.; W6NXT, vice-pres.; K6DMC, secy.; W6RQU, treas.; and K6SGI act. man. The Northern and Southern California DX Club held its annual dinner in Fresno. Among those attending were W6KUT, W6HYG, WA6EYP, W6BSS, W6EFV, W6BVM, W6ONK, W6PXP, W6JPU, and K6LKJ. W6HYG is installing a 105-ft. self-supporting steel pole self-guyed, rotating 2 r.p.m. with a four-element Telerex beam. W6KUT is running an HT-32 with a Thunderbolt and chasing DX like crazy. W6TRP has a KWM-2. W6JUK has an SX-101A and an HT-33A for shoes. W6BSS has a pair of 250TLs on 20 meters. K6CBR is heard on 75-meter mobile. New officers of the Porterville Radio Club are W6QXF, pres.; WA6DQF, vice-pres.; K6CWO, dir.; Lydia Geoble, secy. The Tulare Co. Radio Club is sponsoring a night class in "International Morse Code." K6GSN got married and has moved to Mountain View. WA6CUZ is on 6 meters. K6LSB, W6QXF and WA6BXF have Hornet beams. K6ROU operated portable from Badger Pass with K6AUA, WA6CUZ and WV6BXD logging. W6ILR has moved to Visalia. W6SJJ and W6BYY are back in Tulare County. W6ADB is on 40-meter c.w. W6USV made WAS. K6OZI is on 2 meters with a 522. W6LRS is on 2 meters. WA6BTK is on 6 meters. WV6ILA is a new Novice. W6KMI, W6OII and W6JPU attended the Testimonial Dinner for K6BJ in San Mateo Feb. 1. Traffic: W6USV 144, K6EJT 20, W6ARE 8, W6FXV 2.

ROANOKE DIVISION

NORTH CAROLINA—SCM, B. Riley Fowler, W4RRH—PAM: DRC, V.H.F. PAM: ACY. Activity on the Tar Heel Net is very encouraging. QC was elected net mgr., YBN asst. mgr. Directors are QC, YBN, K4IEV, K4CXN, BAW and K4CHU. TJA was reelected as net sect. Cliff Blalack, asst. communications officer for civil defense, visited many counties in Western North Carolina in January. The purpose was to consolidate RACES programs in many of the counties. RVH talked to the radio club in Charlotte on teletype and reports additional interest in the medium in that area. News for this column is hard to come by. Most of what I get I

(*Continued on page 138*)

BULLSEYE BUYS at ARROW!



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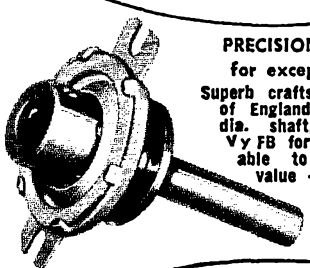

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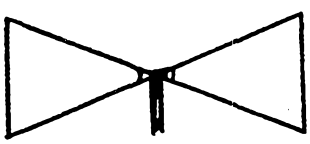

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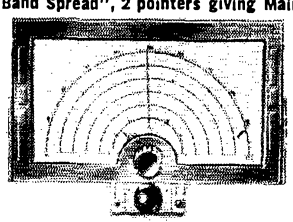

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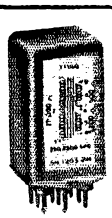

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have to listen for on the bands. If you have items of general interest to the amateur, please send them along. If you work in contests or special events send reports along. I will refer them to the proper ARRL department. What is your club doing? Reports of that sort are solicited. We are doing quite well in the civil defense work in the State, and most of our nets are doing fine and I receive regular reports on these matters. I also receive reports each month on MARS Army. If you would like to see other phases published in the State send items along. I can only report what I KNOW about. So let's have club reports and reports on what you are doing in AREC and club projects. It is the club secretary's business to let the SCM know what is happening. All official appointees are reminded that a report is due each month.

SOUTH CAROLINA—SCM, Dr. J. O. Dunlap, W4GQV—SEC: K4PJE. PAM: HE. RM: AVU. VIW totaled 3060 points in the ARRL V.H.F. Sweepstakes. New officers of the Mike and Key Club of Greenville are K4VCA, pres.; KN4FYS, vice-pres.; VIW, secy.; BHR, treas.; DEN is a new member. K4AVU and PIA held a business meeting of the SCN in Barnwell Mar. 13. HDR is visiting in the Argentine (LU-Land) and expects contacts back home. K4QDV is the new president of the Blue Ridge RC. TOY is secretary. The first hamfest of the year is planned for the 1st Sun. in May at Greenville. TDJ is back on the Sun. A.M. Phone Net. K4PJE is happy with a new meter beam. DX addressed the Camden B. & P. W. Club on c.d., AREC and RACES. K4IQY is looking for contacts from DL4-Land. K4KIY expects to resume NCS duties on 3930 kc. after moving to Barnwell. New amateurs are HLN in Williston, KHF and JOY in Enoree, FJP and ERW in Barnwell. K4LNO is the new president of the Spartanburg RC. GQV was nominated for a second term as SCM without opposition. NDH is the new editor of *Scarab* and UMW is business manager. The address is Box 90, Rock Hill, S. C. Traffic: K4PIA 186, VVE 138, W4AKC 83, K4AVU 81, GAT 65, W4KNI 37, PED 36, K4ZHV 34, LNJ 14, MBN 14, HE 12.

VIRGINIA—SCM, John Carl Morgan, W4KX—SEC: K4MJZ. RMs: W4SHJ, QDY, K4JKK, QER, QES and EZL. PAMs: W4BGP and ONV. Please note the new SCM's address on page 6 *QST*. ATQ reports the SVARC's code and theory classes resulted in the following new licenses in the Winchester Area: KN4s: RMX, STT, SUN, SUO and SUP. K4EUS, the new prexy of the Petersburg ARC, reports the club has started weekly classes there. MJZ says AREC activity is starting to pick up, but volunteers still are needed for EC appointments in many parts of the State. CXQ is getting in more ham-time from V.P.I. and reports he finally got that 100th QSL for DXCC. K4DWP operated 1MX from M.I.T. during the V.H.F. Contest. K4ARO is readying new-homecooked s.s.b.; K4QIX likewise for 6 meters. JUJ snagged two more certificates. Chas. was tops for Virginia in the Mass. and W. Va. QSO Parties. CVO still is sending regular reports from everywhere in the world but home! The smoke in KX's shack was the receiver front end cooking. The 250-watt transmitter and separate receiver antenna did it. There is much better reception and a cooler receiver with the DVT special TR-unit. This will be last SCM column by KX. Again my most sincere thanks to all for your faithful reports and your support, which makes possible my turning over to QDY a thriving section. I've truly enjoyed working with you, and will continue to be in evidence on VN and elsewhere on the bands. Traffic: (Jan.) K4GFR 762, KNP 615, W4QDY 392, K4QIX 377, SGQ 317, W4SHJ 257, K4MXF 205, W4BZE 174, DVT 169, K4JKK 89, W4ATQ 72, K4AJL 63, W4PRO 48, RHA 45, KX 32, K4IIP 30, W4CXQ 28, APM 21, CWT 18, OWV 16, YVG 13, ZM 13, AAD 10, PVA 8, JUJ 7, K4VWK 6, W4LK 5, K4JRE 1. (Dec.) K4QES 106.

WEST VIRGINIA—SCM, Donald B. Morris, W8JM—SEC: HZA. PAM: K8BIT. RMs: K8HID, GBF, PBO and VYR. WVN C.W. Net meets on 3570 kc. at 1900, phone on 3890 kc. at 1730 and 1830 EST. It is with deep regret that I report the passing of GGC, of Princeton. KN8JPC operates on 3720 kc. and hopes to be the State's youngest General Class licensee at age 12. K8PFK has a new DX-100B on 80 and 40 meters. ESH and K8BLR worked Texas on 6 meters. K8MMZ worked Liberia on 14-Mc. c.w. K8JSX reports that 9 mobiles are operating on 6 meters around St. Albans and he has a 350-watt generator for stand-by. K8HID is acting as c.w. net mgr. for HZA. VMP is on s.s.b. with a 20-A PRT moved to Florida. WHQ is quite active again after a recent illness. WHQ's ex-YL now has her General Class license with the call K8JSY. Officers of the Kanawha Radio Club are K8HID: pres.; K8CNB, vice-pres.; VMP, secy.-treas.; K8JLF, act. mgr. Committee chairmen are K8MQB, GTQ, DHX, K8LGU, K8MNF,

(*Continued on page 140*)

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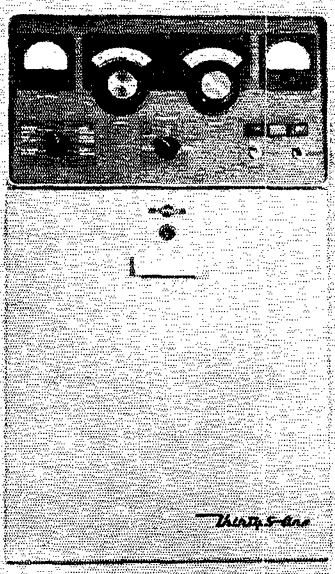

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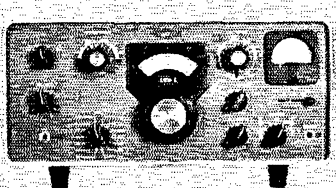

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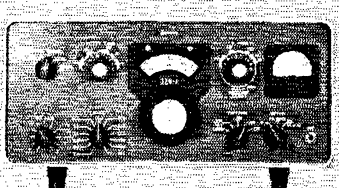

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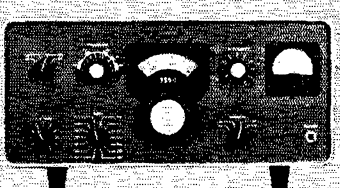

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K8AKG, K8CSG and K8HGM. Mark your calendar for July 9 and 10 when the West Virginia Hamfest will be held at Jackson's Mill. Attention, WACWV hunters: The West Va. QSO Party will be held May 6 to 8. Traffic: K8JLF 330, W8PBO 156, K8CNB 108, W8GWR 103, K8HID 98, BIT 49, GAG 35, W8NYH 31, ELX 29, K8LGX 24, MMZ 20, W8CCR 19, K8CSG 16, JPV 10, KN8JPC 7, K8AEN 4, W8JM 4.

ROCKY MOUNTAIN DIVISION

COLORADO—SCM, Carl L. Smith WØBWJ—SEC: NIT. RMs: WME and EDK. PAMs: CXW and IJR. OBSs: KQD and DCC. We respectfully honor the memory of PTK, who lost his life in the line of duty with the Colorado State Patrol. KQD was honored by the Edison Award Committee with the issuance of a Special Citation for her efforts in behalf of NTS. Traffic activities took the usual post-holiday slump; however, the overall increase in net activity, both in QNI and QTC, for the past year indicates the amount of effort and hard work that has been put forth by the RMs, PAMs, Net Managers, NCSs and all members. Now is the time to start planning for Field Day. Help the SEC and local EC by volunteering in whatever way you can be of the most service. How about some club challenges for high FD scores and the continuation of a friendly rivalry with other sections in this division? Congratulations to VVL for DXCC. NIT. IQZ, BGN, DML, and the gang at ENA are operating RTTY in Pueblo. YOK is the call of the Abbey Radio Club in Canon City. The DU Club at ANA is active on 160 meters with contacts in 8 states (but no Colorado). Copying c.w. and Q signals is a snap when you try to read the XYL's crochet instructions! KØDCW made BPL in January. Traffic: WØKQD 427,. KØEDH 321, WØWME 311, ANA 299, KØDTK 218, EDK 204, DCW 199, RTI 164, WØYQ 109, KØDXF 108, WØEKQ 84, KØEVG 40, WØENA 36, BWJ 33, KØRBI 27, QGO 22, WØIA 15, CBI 12, PG 10, KØDNP 9, LCZ 1.

UTAH—SCM, Thomas H. Miller, W7QWH—Asst. SCM: John H. Sampson, 7OCX. FSC has resigned his post as Section Emergency Coordinator. Thanks for a job well done, Doug. The AREC now has a total of 82 members throughout the State. New officers in the Ogden Club are RQT, pres.; LRP, vice-pres.; and K7DOU, secy.-treas. The Beehive Utah Net (BUN) has increased in membership to 47 stations and it is becoming increasingly difficult to maintain the high efficiency of past months. K7BDX has earned the BUN certificate. This is quite a feat since the net has been operating on a daily basis. Rumor has it that VEO is going s.s.b. DX has really improved on 40 meters during the early morning hours. Send your monthly station activity report forms to your SCM about the first of each month. Traffic: W7OCX 252, K7HIO 8.

NEW MEXICO—SCM, Allan S. Hargett, K5DAA—SEC: CIN. PAM: ZU. V.H.F. PAM: FPB. NMEPN meets Sun. at 0730 on 3838 kc., Tue. and Thurs. at 1800 MST on 3838 kc. The New Mexico Breakfast Club meets Mon. through Sat. at 0700 MST on 3838 kc. NMBP meets Mon., Wed. and Fri. on 3570 kc. at 1900 MST. TWN meets Mon. through Sat. on 3570 kc. at 2000 MST. Try to check in as many nets as you can. I want to take this opportunity to congratulate K5IQL, the new SCM for New Mexico. Please send your traffic and news by the 5th of each month to Frank, 504 W. 2nd, Roswell, New Mex. Help him as you have so generously helped me in the past two years. We are sorry to lose ØOME/5 as EC of Las Cruces. K5CDM is now home from the hospital. A speedy recovery to you. GRI, of Albuquerque, now has a new ham shack. LEF worked 10 hours in the C.W. CD Test. Traffic: (Jan.) W5ZHN 648, K5IPK 73, W5UBW/5 71, K5GOJ 66, LMJ 50, DAB 32, DAA 26, LWN 12, W5GD 8, VC 7, GB 6, BZB 4, ZU 4, K5IQL 3, W5KWR 3, K5PRS 3, DBH 2, EPS 2, W5-FHL 2, ESN 1, K5IPA 1, ONE 1. (Dec.) K5IPK 156.

WYOMING—SCM, Lial D. Branson, W7AMU—SEC: CQL. The Pony Express Net meets Sun. at 0830 MST on 3920 kc.; the Wyoming Jackalope Net Mon. through Fri. at 1200 MST on 7255 kc. for traffic; the YO Net is a c.w. net on Mon., Wed. and Fri. at 1830 MST on 3610 kc. LKQ has been appointed EC Natrona County replacing YXM, who resigned. W5GWX/7 is first Assistant EC. The YO Net needs more members. The Wyoming Hamfest Committees set a temporary date as July 23-24. PVN put up a new beam at the ranch in Shirley Basin, assisted by YJG and YWY, from Cheyenne; also DW and IDO, from Casper. YWW Cheyenne, has been in the hospital for a check-up. The Casper Radio Club had a pot-luck dinner on Feb. 19. AMU and his XYL went to Pinedale for the Cutter Races and to visit AEC. Traffic: W7DXV 110, BHH 62, AXG 60, LKQ 8, K7KLE 5, W7NMW 5, AMU 4, IAY 4, YXM 4, BKI 3, YWY 3, AEC 1, K7IHO/7 1, W7ISR 1.

(*Continued on page 148*)

SOUTHEASTERN DIVISION

ALABAMA—SCM, William D. Dotherow, K4AOZ—Asst. SCM: O. K. Gibbs, K4BTO. SEC: JDA. RM: RLG. PAMs: PHH, BTO and OCV. New appointments: K4RJM and SAV as ORSs; K4IQU, MBM and CIN as OESs; K4SIZ as OBS; PTR as OO. Congrats to new Alabama net mgrs.: AENO, K4HAG; AENR, K4YKQ; AENS, K4KJD; AENT, K4DJJ. We welcome the Springhill Amateur Radio Society, Mobile, whose officers are CIY, pres.; K4MEP, vice-pres.; ZRQ, secy.; K4YAF, treas.; CRY, K4ESR and MLF, directors. DFE and USM made DXCC. CIN has a 2-meter, 12-watt transmitter using a 6-element beam and calls CQ on 145.170 Mc. each night except Mon. and Fri. at 10 P.M. CST. New officers of the Muscle Shoals ARC are K4RIL, pres.; K4EEX, vice-pres.; K4AUP, secy.-treas. Welcome to AENB, K4LHZ. Congrats to K4SAV and K4RJM on being 100 per cent on AENB in January. K4ISZ has a new 200-watt homebrew rig. USM is on s.s.b. with a 20A to a Thunderbolt at 1 kw. Anyone interested in AREC Field Day with the Jefferson County group should contact K4JDA. All are welcome. ATK uses a new Elmac transmitter for fixed and mobile. A new ham in Jasper is KN4QMH. The Selma Amateur Radio Club participated in a boat race demonstration, relaying from start to finish via the rig in an airplane. K4DJJ has a new Viking Ranger. K4FTC reports that Haleyville has 4 Generals and 1 Novice. Traffic: (Jan.) K4PFM 267, W4RLG 228, K4SAV 100, UEE 85, DJJ 82, YGS 74, AOZ 69, W4KIX 53, K4CFD 51, PHH 48, W4MI 46, ATK 45, K4RIL 45, RJM 41, W4PVG 39, YRO 29, USM 28, K4SSB 26, HVN 24, JDA 23, BTO 22, IPF 18, OCV 18, W4CIU 16, K4RSB 14, JSP 13, SPP 10, TSN 10, ISZ 8, ZXX 8, W4EVU 6, K4JGQ 6, KJD 6, ZBX 6, HFX 5, W4CEF 4, CIN 4, K4UGR 4, W4RTQ 3, K4BWR 2, RIX 2, ZNI 2, W4DGH 1. (Dec.) K4AJG 60, FTC 6, YTR 5, W4ZSH 4, FNA 2.

EASTERN FLORIDA—SCM, John E. Porter W4KGJ—SEC: IYT. RM: K4SJH. PAM: TAS: V.H.F. PAM: RMU: New officers of the New Smyrna Beach ARC are K4LCF, pres.; K4SJU, vice-pres.; K4ISA, secy.; K4TUH treas.; and OY, sta. engr. The Manatee Club had a successful booth at the County Fair. K4FXG has a new Tri-Bander. DVR has a new HQ-170C. New officers of the Miami Springs ARC are K4GGX pres.; SA, vice-pres.; KN4YSV, secy.-treas. We were sorry to hear of the passing of LMG. New officers of the Broward ARC are K4FQS, pres.; K4VGD, vice-pres.; K4SJP, secy.-treas. and K4BVP, sgt. at arms. The St. Pete ARC started its spring code class Feb. 24. The class meets each Wed. at 1930 EST in the club house at 1331 Beach Drive, S.E. K4LBX, net mgr. of FEPN, is back on with his big rig, a pair of 450TLs. Floridoras now have over 83 members. New officers of the Ft. Pierce Club are K4CXW, pres.; K4UDQ, vice-pres.; K4OEP, secy.-treas.; and K4YWV, act. chmn. As of this time there are more than 8 s.s.b. stations on 6 meters in the Miami Area. FNR has worked over 25 KP4s on 50 Mc. We believe this gets him the first WPR 50-Mc. award. AREC activity really has picked up in the Daytona Beach Area because of the support and backing of the two active clubs in the county, the Daytona Beach ARA and the New Smyrna Beach ARC. Keep up the good work, fellows. Ten made BPL for the month of January. Let's keep those reports coming in. The Miami Hamboree put on by the Dade Radio Club was a big success. It is estimated that more than twenty-five hundred showed up. Traffic: (Jan.) K4SJH 989, BY 750, FMA 661, QLG 620, KDN 581, EHY 525, W4FPC 485, K4LCD 460, LCF 308, ODS 272, RNS 180, W4NLX 157, K4ILB 156, GBS 132, W4TAS 123, K4AHW 95, W4LMT 92, IOC 88, FFF 87, K4AX 69, W4GJI 64, IYT 40, K4ZNC 39, AZM 34, FXG 29, W4BKC 28, FE 28, DVR 27, K4TDT 21, KN4LDF 20, W4SMK 17, DQS 16, AFF 12, K4ZRH 10, W4KGJ 9, EHW 8, TRS 8, K4MTP 7, KN4GQT 6, K4OSQ 5, KN4GLI 3, W4DPD 2. (Dec.) K4AHA 702, W4LMT 194, K4GBS 128, W4IMU 67, EHW 15.

WESTERN FLORIDA—SCM, Frank M. Butler, Jr., W4RKH—SEC: HKK. PAM: RZF. RMs: AXP and UBR. Blountstown: K4DSH reports that a club has been formed by hams in this area. Perry: KQP now checks into the W. Fla. Phone Net on 3836 kc. Port St. Joe: K5ISQ/4 has moved to White City and is active on 75 and 40 meters. Madison: DLO, PBO, RCO and RDQ are the only hams in Madison County. A recent survey of the Callbook shows that four counties in the section have no hams at all—Liberty, Wakulla, Jefferson and Hamilton. If you know of any, please write your SCM,. Ft. Walton/Eglin AFB: K4UBR is the new RM for W. Fla. He already is net mgr. for Fla. C.W. Net, 3650 kc. The Eglin Club made a little money and had a lot of fun with its auction. A new heater has been installed in the clubhouse. Crestview: ECJ, a practicing M.D. is active on 10 meters. He and JOZ,

(*Continued on page 144*)

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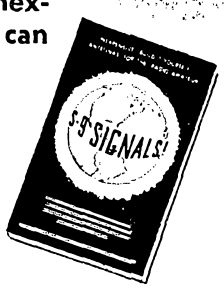

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Defuniak Springs, have been worked on ground wave from Ft. Walton, Pensacola: PARC and Grice sponsored an FB hamfest, transmitter hunt and banquet to mark the visit of Danny Weil, of *Yasme* fame. NYLs were entertained by the club auxiliary members. HF is experimenting with ham TV. K4RSD writes an interesting DX column for *Parasitics*. Note to all ECs: Please send your monthly reports to Clark Simms, HKK, 3365 Newton Drive, Pensacola, Fla. Traffic: (Jan.) K4UBR 269, BSS 26, W4GAA 14. (Dec.) W4SRK 314.

GEORGIA—SCM, William F. Kennedy, W4CFJ—SEC: PMJ. PAMs: LXE and ACH. RM: DDY. GCEN meets on 3995 kc. at 1830 EST on Tue. and Thurs., 0800 on Sun.; GSN, Mon. through Sun. at 1900 EST on 3595 kc., DDY as NC.; GTAN, Sat. at 1000 EST on 7290 kc.; 75-Meter Mobile Phone Net, each Sun. at 1330 EST on 3995 kc., K4JTC as NC; ATL Ten-Meter Phone Net, each Sun. at 2200 EST on 29.6 Mc., KWC as NC; GPYL Net, each Thurs. on 7260 kc. at 0900 EST, K4DNL as NC; GAN, on 7105 kc. at 1800 EST Mon. through Fri., K4KZP as net mgr. The flu bug disrupted the Georgia Peach Net during the month of January, hitting K4GCT, GCF, LVE and BAL. The Peaches sure are sorry to lose K4CYV, Olga, to W5-Land. We hope this is a temporary move. K4PKK reports many new members on 6 and 2 meters. Stations that participated in the March of Dimes in Columbus, Ga., were K4UYC/M, K4SZU/M, K4BAI/M, W4CVY/M, W4AHA/M, K4VGI/M, and stations operating W4LVY 4 were W4BAB, K4QFC, W4PZL, W4WXW and W4FIZ/M. The Greater Atlanta V.H.F. Society Net meets Fri. at 2030 EST on 50.169 mc. Net control is K4FNZ. Drop in any Friday night; the members will be glad to have you. K4BAI reports that the Columbus High School Amateur Radio Club station, KLN, is now on the air. K4BYK is remodeling the shack and may be off the air awhile. The Dalton Cherokee Radio Club was reactivated Jan. 7, 1960. K4TFY operated from Grassy Mtn. 3650 feet above sea level during the V.H.F. Sweepstakes. Check the dates on your ARRL appointments and be sure they are renewed on time or they will be cancelled. Traffic: W4ZKU 564, DDY 265, K4EJI 191, MIH 134, BQP 126, BAI 67, PHA 12, BYK 9, W4FWH 6, K4LEM 3, W4ZTJ 3.

WEST INDIES—SCM, William Werner, KP4DJ—SEC: AAA. DJ skeds W6NUN on 28,114 kc. at 1800/-2030Z Sat. AMG is in YV-Land again for IT&T microwave tests. AIS assembled a Seneca transmitter for use on 50 Mc. ALY is improving AHQ's SR Challenger transmitters. AMU measured with an average error of only 26 parts per million in the Nov. ARRL FMT. DW was active on 40-meter c.w. and is renewing his license. AZ changed the bias on the p.p. 810 final for class B for s.s.b. HR1ML is studying radio maintenance at the FAA receiving station. W5QFL, FAA Chief Maintenance Eng., was in KP4-Land on business. Ex-KP4VB is back with a new call, KP4AUR. K3EFT, *visiting* KP4-Land on a cruise ship, contacted his home QTH via KD. YT and CC received "Worked United Nations Award" certificates for working 70 countries that are UN members. YT, CC, KD and RK worked ZS6IF/ZS8. CC and KD worked VU2ANI and ZM7DA. KD got a DXCC-250 sticker and an "ARAC" (CO7) diploma. Noontime ragchewers are campaigning to absorb mugwump holdouts of the old Banana Net on 7250 kc. 7 Mc. is active night and day in KP4-Land. LR is mobile on 7 Mc.

CANAL ZONE—SCM, Ralph E. Harvey, KZ5RV—The Canal Zone Amateur Radio Association held its annual election in January, and the following were elected: SW, pres.; KQ, vice-pres.; QS secy.; RJ, treas.; BS, act. mgr. We extend our best wishes to them during their term in office. RM was in Pasadena, Calif., on business for the company, and expects to be back there in June. RJ and his XYL left Feb. 12 for an extended vacation on the West Coast in the San Francisco Area. RR has returned from a vacation on the Pacific Coast. RM has his new Apache on the air after some slight difficulty with the v.f.o. because of an extra long machine screw causing a slight short. The Crossroads Amateur Radio Club expects to hold open house at its new club house at a date to be announced and invites all amateurs to be present. LC was visited by W8MXS en route to the HC8 DXpedition. Traffic: (Jan.) KZ5OB 85, OA 80, RJ 72, AD 58, JW 45, RR 34, WB 22, VF 21, LC 6, VR 5. (Dec.) KZ5JW 60.

SOUTHWESTERN DIVISION

LOS ANGELES—SCM, Albert F. Hill, Jr., W6JQB—SEC: W6LIP. RMs: W6BHG and K6HLR. PAMs: W6BUK and W6ORS. The following stations earned BPL this month: K6MCA, W6GYH, K6PXQ, K6HLR,

(*Continued on page 146*)

K6WAH, K6EA and WA6EEO. Congrats, fellows! New officers of the Hamilton High School Radio Club are WA6CDV, pres.; WA6EEO, vice-pres.; WV6VRG, treas. K6EA is doing an FB job on MCN. K6PXQ hit high score in the Phone CD Party. W6SRE is back on the road again for a spell. K6CLS/6 has come up with a new SX-110. W6RKU has a new final on the air. W6BHG is back working for a living again! K6OZJ is sporting a new Johnson 6N2 rig. W6WPF was hit with the flu bug, as were many others in the section. WA6DWP was visited by W1JAS, from Maine. W6SYQ is liaison man for MTN to the v.h.f. nets. K6COP worked some fine DX on s.s.b., including VU2ANI and ZM7DA. K6PZM and the SoCal 6 Net handled a stack of emergency traffic from snowbound people at Mt. Baldy. Nice going, fellows! K6LVR has added a tape recorder to the shack gear. The Douglas El Segundo Amateur Radio Club is running code classes on the 1st, 3rd and 4th Thurs. of each month. W6ORS reports a contest in the Ramona Radio Club for building mod-osc. superregen gear for 420 Mc. New officers of the Associated Radio Amateurs of Long Beach are W6IMT, pres.; W6IVT, vice-pres.; K6CPX, secy.; K6KNP, treas. W6AHY is conducting code classes for the Rio Hondo Radio Club. K6SIX improved the Globe Scout for 6 meters and put up a new "J" antenna. W6NKE reported to KFI of their being heard regularly by ZL3AF. W6NKR worked VU2ANI and ZM7DA and is working on transistor gear. K6PSP has a transistorized keyer. W6OYM operated in a high peak near Santa Barbara on 3 meters. Support your section nets: C.w, SCN on 3600 kc. at 1900 PST; phone, SoCal 6 Net on 50.4 and 50.1 Mc. at 1900 PST. Traffic: (Jan.) K6MCA 1659, W6GYH 1064, K6PXQ 671, K6HLR 645, K6OZJ 484, K6WAH 472, W6WPF 354, K6LVR 331, K6EA 309, W6BHG 299, K6CLS/6 280, WA6CKR 228, W6QR 209, WA6EEO 179, W6SYQ 170, WA6DJB 99, K6PZM 90, K6PSP 64, K6SIX 30, K6TPL 28, W6CK 16, K6GCC 16, W6BUK 14, W6NTN 12, W6SRE 11, K6COP 10, W6UFJ 10, WA6DWP 9, W6USY 8, W6YSK 8, WA6DHM 7, W6NKR 6, WA6AWD 2. (Dec.) K6MCA 2666, W6SYQ 422, WA6DJB 228, W9OWZ/6 55, W6YSK 10, WA6AWD 4, W6NKR 4. (Nov.) K6HLR 690.

ARIZONA—SCM, Cameron A. Allen, W7OIF—SEC: CAF. PAM: CSN 3880 kc.: FMZ. The Tucson Area AREC has set up a 75-meter section with K7CET as Asst. EC. Other new assistants are SQX, K7CRO and GI. In line with this there will be a drill on 3880 kc. at 1900 MST each Wed. BFE and BFC have a new harmonic. Congratulations, Joan and Bill. OZM, RFK and SNJ have passed away. OZM and SNJ were old-time members of the Arizona Net. PVD, Globe, is taking traffic from TWN and PEQ brings it to CSN. The AARC held another 75-meter transmitter hunt which was won by CAF and FMZ. YRD is on s.s.b. with a new S/Line. CAF is on s.s.b. also. RSV, at Morenci, is the new EC for the Greenlee Area. Traffic: W7PVD 80, AMM 27, K7CET 14, W7OIF 11, CAF 8.

SAN DIEGO—SCM, Don Stansifer, W6LRU—K6EUE, former president of the El Cajon Valley High Radio Club, has moved to Racine, Wis. The new president is K6DWH, and the new vice-president is WA6IKJ. The new chief operator of W6IAB at Camp Pendleton is K6BVV, who recently returned from operating as KR6MD in Okinawa. Recently moved to Orange is K3CXZ/6, who operates on 6 meters. Also new in Orange County at Fullerton is K1CSW/6 with a Ranger. All members of the Mt. Soledad Radio Club have been issued new RACES/c.d. licenses by K6JPI, Radio Officer for the City of San Diego. W6KUU is now EC for East San Diego County, replacing W6EOT, who is RM and ORS. Thanks to Cecil for a good job while he was EC. W6RCD is pushing 200 confirmed on a.m./s.s.b. W6CHV, the only OPS in the section, was the first local to make 200 confirmed on a.m. phone only. W6CDF spoke to a high school group recently about satellites. The February meeting of the San Diego DX Club was held at the home of W6NXP. The big signal out of Bonsall is W6BZF, who I knew in Santa Barbara in the 30s and in Pasadena in the 40s. He and Bonnie are now ranchers. W6DLN, in El Centro, is in charge of audio visual education for Imperial County. A number of local members of the DX Club attended the joint meeting in Fresno in late January. Traffic: W6IAB 737, W6EOT 632, K6BPI 572, W6ELQ 161, WA6CDD 133, WA6ATB 119, WA6DJS 39.

SANTA BARBARA—SCM, Robert A. Hemke, K6CVR—WV6IIU passed the Conditional Class test and is awaiting his call. K6MQX was ill at home but made it to the rig. WV6HRV and W6YCF visited W6MSG, W6BRY and WA6BLM in Paso Robles for a jr.-size eyeball hamfest. W6YCF took part in the CD Party, both c.w. and phone. WA6BLM is working on an RTTY station and hopes to get it on the air soon.

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K6TOP returned to radio school in Oklahoma. K6THH is equipping his cattle truck with a B-19 transceiver. WA6BGL completed remodeling his home, including sky-hooks and is planning to move again. WV6GUR and WA6FLK have a schedule every Sun. evening. K6LLY/6 moved back to the home QTH, Palmdale. K6KCI was interviewed on a local BC station about amateur radio as a hobby. WA6YIU received a special award from Westinghouse. Traffic: WA6BLM 596, W6YCF 24, W6FYW 4.

WEST GULF DIVISION

NORTHERN TEXAS—SCM, L. L. Harbin, W5BNG—Asst. SCM: E. C. Pool, 5NFO. SEC: K5AEX. PAM: BOO. RM: K5ETX. K5AWQ let an electric drill get loose and wind the cord around his arm—result, one broken arm. I do not like to use anyone as an example, but it is possible that accidents such as this one, when brought to the attention of others may prevent similar misfortunes. Sorry to hear of it, Roy, and we wish you a speedy recovery. GNX, now in Beirut, Lebanon, sends best wishes to the West Texas gang and advises he expects to return to the States in December. BOO, McClennan County EC, is stirring up much interest in AREC by having several good emergency drills. MSG has an AF-67 working on all bands. The NTO Net has changed its name to North Texas Traffic Net. GY reports RN-5 is going fine. With the opening of Mexico to third-party traffic there is possibility for some pioneering in the good-neighbor policy for ham radio. During the January CD Party, K5PXV worked ØTQD, an old college classmate from whom he had not heard in 20 years. WKT reports many contacts on 6 meters, including such distant states as Virginia, Ohio, Maryland and Western Penna. VNN is operating portable with an HT-9 at College Station, where he is attending Texas A. and M. The WHO Club of Ft. Worth (Women Ham Operators) operated its station, K5LZW/5, at the Southwestern Exposition and Fat Stock Show, Jan. 29 through Feb. 7 and made the BPL. Traffic: W5BKH 408, GY 321, K5IPG 292, LZW/5 216, W5BOO 144, K5QWR 102, W5LGI 101, K5RAV 90, IBB 76, GYU 42, ACD 36, JSN 23, W5CF 18, KPB 14, LR 14, K5PXV 8. (Dec.) K5IPG 267.

OKLAHOMA—SCM, Adrian V. Rea, W5DRZ—K5DJA, EC for Mayes County, got 80 amatuers together at Pryor for AREC planning. SEC UYQ was special guest. K5JOA/5 supplied many contacts Jan. 23 from Delaware for "Oklahoma 77." Choctaw County now boasts an amateur, K5YJP. VVQ is NCS on RN5, Fifth Region NTS Net. The Edmond Club offers a certificate, "EARS," to anyone working four club members. JCY, and ERY made television news by contacting Peru at the time of the earthquake. K5VKG now is on phone. ADC, Hughes County EC, has two new recruits in Holdenville—K5TZS, and KN5ZNP. Bartlesville is finally in possession of the Bartlesville-Muskogee Field Day Plaque. *Chit-Chat*, the Chisholm Trail Club paper, is really full of interesting news. More power to you boys at Duncan. The Oklahoma Six-Meter Net set up a portable station at Camp Kickapoo the last of January and kept the 50-Mc. airways hot with messages from the Scouts to parents and vice versa. BDX, of Enid, an old-timber and a well-loved amateur, put his key on the shelf Jan. 25, and went on to the other world. His many friends will miss him. Traffic: K5JGZ 257, W5DRZ 196, VVQ 130. K5CAY 109, BAY 96, USA 69, W5MFX 47, QMJ 46, K5QEF 43, W5UYQ 43, JXM 41, K5DLP 36, W5VLW 33, K5ELG 28, W5PNG 28, K5INC 26, JOA 26, AUX 23, W5CCK 20, K5OVR 19, W5KY 16, WAF 15, K5BNQ 11, QEE 9, W5WDD 9, K5EZM 6, OJD 6, LYM 4, W5WAX 4, K5CBA 2, QAK 2.

SOUTHERN TEXAS—SCM, Roy K. Eggleston, W5QEM—SEC: QKF. PAM: ZPD. RM: K5BSZ. We are sorry to report that K5EGE is going to a remote assignment in Alaska. Hurry back, Doc. AUO spent a vacation in Wisconsin to see a white Christmas and some YLs at the end of the road. Don't think he was disappointed in either. UUC and his XYL visited in Brownsville. ZON and family have been visiting in California, and came back through Las Vegas, Nev. EV missed his Annual New Year's Party on 75 meters this year, the first time in many years. Age will do that to you, Bill. HEH and QZC are on 2 meters out El Paso way. KN5ZON is a new call in El Paso. The 7290 Traffic Net had 41 sessions, 649 messages with 1276 station check-ins. AIR and DSF are working on new s.s.b. equipment. Looks like I will be forced to it. EJT is doing FB on DX, having worked 60 counties in the last three months. UX is fast approaching his 270 mark on countries. There was a nice write up and picture in the *Houston Chronicle* about K5EYZ. More

(*Continued on page 150*)

articles like this would certainly benefit amateur radio. Incidentally, EYZ is 80 years young. HEH is a new OES in El Paso. Traffic: (Jan.) W5ZPD 79, BHO 67, K5WIC 49. (Dec.) W5AC 268.

CANADIAN DIVISION

MARITIME—SCM, D. E. Weeks, VE1WB—Asst. SCMs: A. D. Solomon, VE1OC, and H. C. Hillyard, VO1CZ. SEC: BL. New appointments include HJ as RM and IM as OPS. VO1EX reports that the NFLD Net has changed frequency to 3785 kc. at 1900 (1830 AST) daily. Bill also reports that VO1s AE, CZ, EC and EX are operating on 6 meters. Maritime s.s.b. operators and presidents of the various clubs met at the Brunswick Hotel in Moncton recently to discuss petitions to the Department of Transport for a change in A3 allocations in the 14-Mc. band. The genial host was ADU, and about 30 amateurs with their XYLs were in attendance. Ex-VO2IA is now VE1BG. VE1s TN, US and others contributed greatly to the success of amateur emergency communications as a result of the severe snow storm which struck the south shore area of Nova Scotia. More details when they become available. W9QNI/VO2 is making an all-out effort to revive the Labrador 40-Meter Net. The approximate frequency is 7268 kc. Traffic: VO1EX 31, VE1AEB 26, DB 16, OM 4.

GOOSE BAY QSO PARTY

April 8-18

All amateurs are invited by the Goose Bay Amateur Radio Club to participate in the annual Goose Bay QSO Party which commences at 0100 GMT April 8 and ends at 2359 GMT April 18. All bands and either phone, c.w., or both may be used. The exchange will consist of RS or RST, name, and QTH. A WAG (Worked All Goose) Certificate will be awarded to all U.S.A. and Canadian stations reporting QSOs with five GBARC members during the contest period, and to all other stations reporting QSOs with four GBARC members. Logs showing dates, times, signal reports exchanged, and stations worked should be submitted to Ted Harvey, VO2AB, Awards Manager, Atradio, Dept. of Transport, Goose Bay, Labrador, Canada. No QSL cards need be submitted for WAG as logs can be checked locally. The following VO2 stations will be on during this period: *VO2s* RH, JH, NA, EB, UA, RC, AW, AB, FS, GB.

ONTARIO—SCM, Richard W. Roberts, VE3NG—We regretted to inform our members of the passing of AL, who will be missed by all of us. At one time Keith was ARRL Canadian General Manager for ARRL. NF was in Toronto for surgery and is now back on the job once more. The s.s.b. lads held a dinner at Oakville, with more than 50 present. The Hamilton ARC elected DGJ, pres.; CSX, vice-pres.; DYO, secy.-treas.; COV, CXG, COE and EGL, directors. ATU, recently back from Geneva, was a guest speaker at the Ottawa ARC. Sudbury had Mr. Lavasseur, R.I. S.S. *Marie*, pay a visit. ASD is FD coordinator for the Quinte ARC. ALV is awaiting his WAC certificate. DCX is hot on the c.w. nets. DVY has a new phone ticket. EAW is hot on s.s.b., also DMI and RH. New officers of the Gateway ARC are EGP, pres.; CXM, vice-pres.; EAW, secy-treas.; HF, DKA, BIN and Bob Graham, directors. DTO and DXZ have a new beam. AML is back on the air. By the time you read this my term of office as SCM will have expired. I have consented to be nominated again and I wish to thank all of you for your very fine support during the past two years. The Nortown ARC operated from the Sportsman Show at Toronto. Much traffic was handled. CMR was a visitor to VP5-Land and met ex-VE3GH and VE3DEX, who resides there now. CMA is on 15 meters. The Gray/Bruce ARC is training s.w.l.s for their tickets. Just about all of our clubs also are doing the same thing. RN assisted his neighbors during an emergency in Willowdale. Ice conditions damaged Hydro wires. Lee used some of his own to effect temporary repairs. Traffic: (Jan.) VE3BUR 177, NG 118, DPO 117, NO 68, BZB 64, EAM 50, DTO 40, AUU 28, KM 28, EHL 25, DWN 18, ELC 15, RN 15, DVG 10, DLC 8.

QUEBEC—SCM, C. W. Skarstedt, VE2DR—Elections: MARC—QQ, pres.; AFM and AKT, vice-pres.;

(*Continued on page 158*)

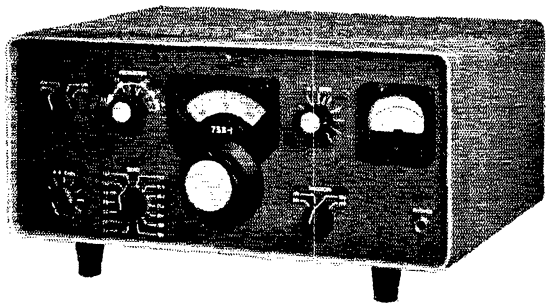
BB, treas.; HI secy.; TA, conv. chmn: South Shore: PD, pres.; IK, vice-pres.; NY, treas.; GD, secy. CJO: ABE, pres.; IU, vice-pres.; NP, treas.; AAD, secy. YA contacted Russian station UPOL-8 on 20-meter c.w. QTH: North Pole. DK obtained a pilot's license. QC maintains 10-meter skeds with VE8. OQN (Ontario-Quebec C.W. Net) now is slow speed (12-15 w.p.m.) to encourage larger participation. The local DX brigade did well in the BERU Test. WW will place near the top. YU, WA, NV, AYY and others turned in fine results. NV also was active during the WAE Contest. Sorry to learn that Betty, RR, suffered a stroke. We join all her friends in wishing her a speedy recovery. JE acquired a 32V-2 and is now exploring the mysteries of the higher frequencies. ZG, OX, AIM and AFU are active net men on 2 meters. News of Keith Russell's (3AL) death came as a shock. He was prominent in VE and did much for the ham fraternity. AHY and BCL bought new bugs. The latter is on 10-meter s.s.b. AGN rejoined the traffic gang. BAT (ex-G3DGN, VS7IT) reports starting a 14-Mc. ex-G station net. ABE expects to have a new 2-meter beam going soon. Interest in 160 meters is on the upswing. EC, the old "Grandfather" of the Three Rivers gang, also is your SCM's most faithful reporter. The Annual Banquet of the South Shore Club was an outstanding success, and CA won the "Most Active Award" for 1959. YA (QSL Mgr.) asks us to extend hearty thanks for all Christmas greetings. The MARC is sponsoring the convention to be held in Montreal, Sept. 17. Much work is necessary and your earnest cooperation is requested. Traffic: VE2WT 346, WA2CNS/VE8 171, VE2DR 116, BG 40, EC 13, AGN 4, YA 2.

BRITISH COLUMBIA—SCM, Peter M. McIntyre, VE7JT—During January the BCEN had 52 sessions on 3650 kc. divided between 1900 and 2200 hours, with 400 check-ins and 245 pieces of traffic handled. At the moment the roster shows 23 members, 20 VE7s and 3 VE6s. AOT has been appointed RM for B.C. JQ is a new ORS. QC tells me there is a ham club in Terrace, the TARA, with 8 active hams and 7 students, among them 2 XYLs and 1 YL, and classes are held on Sun. nights. IN's antenna had a strange fascination for a bull elk—no more 20-meter antenna. AEC is sporting a new Navigator and ABQ wonders what happened to the *Canadian Amateur* magazine. AIY is the proud papa of a son. The wee small hours for DXing are "changing." AQU has completed his 6-meter rig. BDC is checking into BCEN regularly and, according to AOT, shows signs of being able to take over some leadership posts. AOT is up to his ears in traffic, mail, and work. AQD has the liaison assignment to RN7. For years the BCARA has helped the amateurs of British Columbia with various and sundry problems, the biggest one being TVI. The TVI committee has spent many hours of its time with the problems of individual amateurs, giving help, advice and lending equipment. The BCARA (Jack Sibson, VE7BQ) asks the gang who have these TVI services available to provide assistance in the form of funds or equipment to help carry on their work. Traffic: VE7AAF 130, JQ 90, AOT 63, AEC 38, AQD 28, BDC 3.

MANITOBA—SCM, J. A. Elliott, VE4IF—This will be my last report as SCM and I want to thank all those who have been so generous with their assistance. Special thanks to JY for taking over the duties as SCM. Please give him your support, gang. GB is spending his vacation south of the border. PA, from The Pas, was in Winnipeg recently and took home a new auto. LO has smoke signals on the air at last. SIZ visited Winnipeg, St. James, Brandon and nearby areas on his time out from Eskimo Point. KX has a Collins SSB transmitter and will be heard with a new s.s.b. signal on the high frequencies. LP has joined the s.s.b. ranks with his new Viking Pacemaker. We welcome AJ back to ham radio. RS is back on the air after basement repairs. LN received a new Heath Mohawk for Christmas. The 6-meter group meets at 8 o'clock each evening on 50.035 Mc. TP has been working lots of DX with his new antenna. From early indications BJ, in Binscarth, seems to be top man for Manitoba in the BERU Contest. Others heard in the contest were TJ, MJ, XO and IM. HW got his quad going. MR has a new NC-300 receiver. TL is getting out well with his new Eico transmitter. AY is back on 75 meters with the kind assistance of OS, DU, HS and Bill. Congratulations to KB who, we believe, is the first blind ham in Manitoba. IM has worked 126 countries on 20-meter c.w. in 10 months. Traffic: VE4IM 65, SL 38, PE 19, EF 11, JY 10, QX 8, NW 6, RB 6, EH 5, MW 4, PA 4, IW 3, MN 3, AN 2, AY 2, GU 2, WS 2, XP 2, PW 1.

SASKATCHEWAN—SCM, Harold R. Horn, VE5-HR—It's nice to be back again as your SCM. I hope I

(*Continued on page 154*)



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Collins 75S-1 Receiver

Collins 75S-1 SSB Receiver incorporates the same standard of excellence and many of the design features of the 75A-4. These include dual conversion with a crystal controlled first oscillator; bandpass first IF; stable, permeability tuned VFO; Mechanical Filter for selectivity and sideband selection; excellent AVC characteristics for SSB reception with full RF gain, and product detector. Another worthwhile feature is the use of only 150 volts on all vacuum tube plates—you get less heat, compact design, and better reliability.

Bob Kelly, K8NZA, Willys Motors, Toledo, Ohio, says, "Me, I'm a cliff dweller now days, and I don't have room for a lot of different pieces of radio equipment. So, I decided upon the Collins S/Line. It's complete, yet compact. And really looks good in my combination eating-living-recreation room."

73 Dale . . . W8GDE

SELECTRONIC SUPPLIES, INC. 3185 Bellevue Road, Toledo, Ohio
801 S. Adams, Peoria, Illinois

can do a good job for you this term. A lot depends on each and everyone of you by way of sending me reports on monthly activities and taking part in the amateur program in this section. Our biggest item of course is the announcement that we will be displaying VE5 car license plates this year. Be proud of them and live up to the rules of the road so that no blemish may befall us. The Saskatchewan Amateur Radio League executives along with XX, are to be congratulated on the excellent results obtained from their presentation of the issue to the Provincial Government and licensing body. LU will be looking after administration and inquiries should be directed to SARL, P.O. Box 842, Regina Sask. QL is building a new mobile transmitter. 2AZT, a visitor, gave an amateur tv demonstration to a group of Saskatoon Amateurs that proved very interesting. JO is recovering nicely after a severe auto accident. The Saskatoon Club, under Prexy CU, is training 35 new amateur prospects. UC is back on the bands after a long absence. DR and VL are pushing their DX totals higher on s.s.b. AJ is a new s.s.b. enthusiast and puts out a good signal. GN, Ex-2EF and the XYL of 3ACF, is a new XYL heard on 14 and 28 Mc. She also made WAC in quick order. OM/ACF, is taking a post graduate course in electrical engineering at the U. of Saskatchewan. QC and XYL missed some frigid weather while visiting in KH6-Land. TH is trying to iron out modulator troubles for spring mobile activities. LM received the "Certificate of Merit" Award from the Saskatoon Club for "outstanding service to amateur radio." Our sympathy to the family of EX-5JT, who passed away in February. Traffic: VESQL 39, EO 8, HQ 8, NX 8, DC 6, DR 4, TM 4, IL 3, PQ 3, BF 2, CR 2, HF 2, LD 2. QST

How's DX?

(Continued from page 73)

with K8s ONV ONW, KN8s OHG and RBB earned him a WAR certification — Worked All Rydens — from the hammiest DX family in Birmingham, Mich. . . . . VERON, WGDXC and WVDXC supply further Pacific notes: ZL1AB is out to see if sideband really works in the Gilberts. . . . VK5BP looks forward to rare Northern Territory activation this summer. . . . VR6AC's DX renaissance with a 100-watter finds him active on Mondays, Tuesdays and Wednesdays after 0530 GMT, 14-Mc. a.m. preferred. Colleague VR6TC expects to return to Pitcairn next month. . . . Kermedecs possibilities are said to be in process of enhancement. . . . FK8AS anticipates another Wallis session next month or thereafter. . . . ZL3VH/3 intended to climax Chathams doings with operational ZM6-ZM7 probes.

Hereabouts — VP2KD fired up from St. Kitts with a single borrowed rock. K6BX hopes David stocks a few more crystals before he wears 7004 and 14,008 kc. to a complete frazzle . . . . . On the 13th-15th of next month KIs EFI IVT and LST will endeavor to fill overseas Vermont needs with a concentrated "/1" effort on 10 through 80 meters, c.w., a.m. and possibly s.s.b. Watch 3540, 3840, 7010, 7270, 14,040, 14,215, 21,040, 21,280, 28,040 and 28,575 kc. for their Apache under all three calls . . . . . W7TVF offers his Nevada kilowatt for c.w., a.m. and sideband schedules. You name the band . . . . . W1MGP made it 107/102 and phone DXCC with a mere 40-watt 807, Heising-modulated by a single 6L6, "except for about five countries I got with a borrowed Ranger three or four years ago. I lay a great deal of my success to two Lazy-Hs and two Bi-Square switchable arrays. I also can blame my lack of Asians on orientation problems. The trees here just aren't in the right places." . . . . . W8MXS and friends had a lot of fun signing HCCC8 in the Galapagos some weeks ago. A QSO with WA2CCC would have been unique, but Paul is now KØWQI in Iowa . . . . . Hmmm — K2YFE observes that VE2AZR is a Mountie at Port Harrison on Hudson's Bay where zero degrees F. is tee-shirt weather. [Wonder if he always gets his QSL, Boss. — *Jeeves*] And VE8TU, through W2JBL, puts in his bid for world's farthest-north ham station, Ellesmere Island some 400 miles from the peppermint pole . . . . . W8ROF interests us with casual mention of his new *twelve*-element 28-Mc. rotary . . . . . "Talk about concentrated r.f.!" exclaims K3CUI. "A news item reports there are forty kilowatts of r.f. to every square inch of the sun's surface." California sunshine! . . . . . VE8GW could use some of that stuff, for W6KG logged him at 52° below . . . . . This month, according to W6KG, W5DIX will be performing portably from various rarish California counties. Parties interested in sewing up their WACCs should write 'DIX for his itinerary — s.a.s.e., of course . . . . . W6JQB, ARRL's L.A. SCM, finds it hard to squeeze out new ones while surrounded by such local DX talent as W6s CJS HAL, K6s COP GLC KUF and THG. And then there's newcomer W6FB (ex-TA3GVU-

(Continued on page 156)

KA2DX-W4FB-W4GVU-etc.-etc.) to reckon with . . . . TG9TI couldn't land Japan nohow for months, months and months. Then came early January on 10 phone and Rod was buried under an avalanche of fifteen JAs in less than two hours. TG9TI now is president of CRAG, by the way, and this Guatemalan society is considering the issuance of TG-type awards of interest to local and non-TG DXers . . . . "DX really seems to pour in at my new Alaskan QTH," writes KL7COI from Eklutna. "But there are two things still to be desired: (1) a device that will automatically attenuate W6/K6s about 60 db., and (2) a DXpedition to Delaware to complete my WAS." . . . . Competition is rough and "firsts" are hard to score these days, but W1JTL managed to be PJ3AI's first c.w. QSO . . . . According to ARRL DXCC Deskman W1WPO, all HC8JU QSOs in the Galapagos were made aboard *Cristobal Carrier*. Contacts under this call occurred with the ship at anchor; this is "land-based" by Ecuadorian interpretation but does not jibe with DXCC Rule No. 8. Needless to stress, there was no deceptive intent by HC1JU — it's just the way the ball bounced . . . . VU2ANI/5 easily wins Niagara Frontier DX Association's January Signal-of-the-Month award. CE0ZA (CE3AG) edged out eleven other 1959 Signal-of-the-Month winners (HS1C, KS4BB, VE3MR, VR5AC, KH6UK-W6NLZ, VQ9s ERR AIW, 4S7FJ, DU7SV, UA1DZ, 7G1A and ZS6IF/8) to rate NFDXA's special Signal-of-the-Year citation. W2FXA, club secretary, reports lively ballotings in these "elections" . . . . Ws 4QCW 1NLZ and 2EMW checked in with "DXCC²" credentials Nos. 23, 24 and 25, respectively (see p. 69, July 1959 *QST*). Perceptive s.w.l. A. Rugg of Quebec is nearing his own one-way version of DXCC² . . . . Additional hemispheric ionospheric flashes thanks to ISWL, SCDXC VERON, WGDXC and WVDXC: More KC4 action is due from USC, Marble Port; USG, SS *Glacier*; USM, the *Staten Island*; and USX, a fresh land base. . . . San Diego DX Club brass for 1960: W6s RCD, pres.; OME, v.p.; and NXP, secy.-treas. . . . VP2SL hopes to follow Montserrat radiations with British Virgin Islands QSOs. . . . HP9FC/VQ8/mm/etc. shoots for Easter Island action in a few weeks. . . . Weird Caribbean entry XW8AI/FG7 was a real logful. He's now FG7XS. . . . VP4WD (G3TA) went home from Tobago after some 350 W/K QSOs with 35 states, and 200 other contacts with 40 countries. A slack receiver held Jack back. QST

Correspondence

(Continued from page 75)

DATA FOR THE BLIND

¶ May I say how much we appreciate the information which you recently sent out entitled "Ham Data For The Blind."

As librarians we often get requests for information of this nature, and your complete statement about it will prove a valuable bit of information to keep on hand to answer questions. I hope that you will be able to bring this information up to date from time to time. There are certainly many blind people who are interested in radio, and anything we can have is a help. — *Nelson Coon, Perkins School For The Blind, Watertown, Massachusetts.*

SSB HERE TO STAY

¶ I was rather startled to see a diatribe against s.s.b. appear in *QST* as an "article". I have reference to the blatt from Mr. Blett, W8CBM, in the February issue. Perhaps you will permit a few words of rebuttal.

I hope I am wrong but I rather fear that Mr. Blett is one of the a.m. men who attempt to QSO on 14,280 and then complain bitterly about s.s.b. QRM. His concern for the proper use of the English language is indeed laudable, but he should be more eclectic. Listening to one of the hour-long monologues to which a.m. men are so addicted should provide him with plenty of material for a second "article."

W8CBM mentions nets. As an ex-op (Alaska Communications System), I am very much in favor of nets. A paucity of unimportant traffic is inefficiently handled, but this is a fringe benefit. The great value of nets to ham radio is that they serve to keep all these people on one frequency, thus reducing QRM on the rest of the band.

It is true that frequency fighting does occur; deplorable, but under the proper stimulus even a ham will exhibit atavistic tendencies.

S.s.b. is here to stay, boys, and is growing daily. To paraphrase a contemporary politician, "Some of these hams must be dragged, screaming, into the 20th century." — *Leonard Cross, W7IAT, Portland, Oregon.*

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¶ Hats off to W8CBM for his critical remarks on s.s.b. antics.

It is quite obvious that within the past few years sideband has most definitely "come into its own." As I can see, it enjoys the present position of passing a.m. in both efficiency and popularity.

However, my main reason for not having swung over to sideband is the general poor operating practices that I have observed in many hours of listening. Specifically, I do not care for "uh's" and "ah's", off-frequency squealing voices and long tiring talks on the marvelous advantages of sideband frequencies!

Sadly, too, it has been my impression that many sideband operators tend to sneer at other modes of amateur transmission and to place themselves in a self-appointed world apart from the "peasants." Is not this a sick attitude? — Let us hope that W8CBM's article will bring about self-criticism and a general improvement in sideband operations. — *Mike Christie, K6OHD, San Luis Obispo, California.*

CHESS GAME? . . .

¶ We the undersigned are interested in contacting other hams who would like to play chess over the air.

As there are few chess-playing hams in the local area, we thought we would drop *QST* a line, and see if maybe you could help us out.

Those who are interested should look for us around 29.0 Mc. or drop us a line for schedules on 10, 15 or 20 meters. — *Dede Stier, WØWYV, Carlos R. Hernandez, KØQFM, Bellevue, Nebraska*

. . . NOT HERE!

¶ To begin with, ARRL is a fine organization and *QST* is tops. That takes care of the roses. Now to what I believe is a legitimate complaint: I have finally discovered what makes 75 such a mad house. It is not the a.m. boys stacked four deep on the frequency; it is not the s.s.b. boys generating their scrambled telephony; it is not the Novices; it is not the SS or anything else. It is the boys who like to play long distance (short-wave) chess games. On this night at 2331 hours I came upon a very powerful station on the air. No one was saying a word. I waited for CQ or anything else. At 2337 I got, "I move my Queen, etc." Back came the other station at 2339 and held it until 2343, when he made his move. Under this thunder of QRM there were two fellows probably running a mere 200 watts trying to have a QSO.

Chess is a fine game. Play it over the air if you like. But don't hold your rigs on the air while you are trying to make a profound move that is designed to shake the grand masters: Your attention is invited to *The Radio Amateur's Handbook*, Chapter 24, page 542, paragraph 2.4 (Just like Navy Regis, Hi). . . . — *David McCarthy, K2KBC/3, Stroudsburg, Pa.*

[And to section 12.134 of the FCC regulations! — *Editor.*]

Strays

Another place where the editorial "we" is rather inappropriate. A guy on 14 Mc. referring to his wife as "our XYL."

QST ADVERTISERS

"Advertising is accepted only from firms who, in the publisher's opinion, are of established integrity and whose products secure the approval of the technical staff of the American Radio Relay League."

Quoted from QST's advertising rate card

Amateurs and Electronic Engineers: Practically everything you need can be supplied by the advertisers in QST. And you will know the product has the approval of the League's technical staff.

HAM-ADS

(1) Advertising shall pertain to radio and shall be of nature of interest to radio amateurs or experimenters in their pursuit of the art.

(2) No display of any character will be accepted, nor can any special typographical arrangement, such as all or part capital letters be used which would tend to make one advertisement stand out from the others. No Box Reply Service can be maintained in these columns nor may commercial type copy be signed solely with amateur call letters.

(3) The Ham-Ad rate is 35¢ per word, except as noted in paragraph (6) below.

(4) **Remittance in full must accompany copy, since Ham-Ads are not carried on our books. No cash or contract discount or agency commission will be allowed.**

(5) Closing date for Ham Ads is the 20th of the second month preceding publication date.

(6) **A special rate of 10¢ per word will apply to advertising which, in our judgment, is obviously non-commercial in nature.** Thus, advertising of bona fide surplus equipment owned, used and for sale by an individual or apparatus offered for exchange or advertising inquiring for special equipment, takes the 10¢ rate. Address and signatures are charged for. An attempt to deal in apparatus in quantity for profit, even if by an individual, is commercial and all advertising so classified takes the 35¢ rate. Provisions of paragraph (1), (2) and (5), apply to all advertising in this column regardless of which rate may apply.

(7) **Because error is more easily avoided, it is requested copy, signature and address be printed plainly on one side of paper only. Typewritten copy preferred but handwritten signature must accompany all authorized insertions.**

(8) No advertiser may use more than 100 words in any one issue nor more than one ad in one issue.

Having made no investigation of the advertisers in the classified columns except those obviously commercial in character, the publishers of QST are unable to vouch for their integrity or for the grade or character of the products or services advertised.

WANTED: Early wireless gear, books, magazines, catalogs before 1922. Send description and prices. W6GH, 1010 Monte Dr., Santa Barbara, Calif.

2ufd 4000v DC capacitors, $5.00 each, or 2 for $9.00. F. G. Dawson, 5740 Woodrow Ave., Detroit 10, Mich.

COAXIAL Cable. New surplus RB-54A/U, 58 ohms impedance —30 ft. prepaid, $1.00. Radio magazines, buy, sell, trade. R. Farmer, 3009 No. Columbia, Plainview, Texas.

HAM licenses, resident courses. Novices and General classes, 3 evenings weekly, Delehanty Institute, 117 East 11th St., New York City 3, N. Y. Tel. GR 3-6900.

MOBILE Hams! Stop generator whine ignition noise regulator clicks, $5.25 postpaid. Specify frequency. Gerald Electronics, 19 Salem St., Cos Cob, Conn.

"PIG-IN-A-POKE"? Not if you visit Ham Headquarters, USA and see and choose from the hundreds of "Like-New" bargains in the world-famous Harrison Trade-in Center. More for your money, because tremendous turnover makes lower overhead! Terms, trades. Send postcard for mouth-watering photograph and price list Q-6. For the best in all new and used equipment, it pays to come to "Ham Headquarters, USA"! BCNU, 73, Bil Harrison, W2AVA, 225 Greenwich St., New York City, N. Y.

KWM1 and a few high plate dissipation tubes wanted. 304TH/TH 4-1000A, 4PR6CA, etc. Ted Dames, W2KUW, 64 Grand Place, Arlington, N. J.

USA DX QSL Coop. Box 5938, Kansas City 11, Mo. Save time and $ $ $. DX QSL'ing. Only 3¢ per card after membership, $2, 3 yrs. $5.00, 10 years. WSL Bureau. Return env. service, $1.50 year. Free info.

MOTOROLA used FM communications equipment bought and sold. W5BCO, Ralph Hicks, Box 6097, Tulsa, Okla.

WANTED: Military or Industrial laboratory test equipment. Electronicraft, Box 399, Mt. Kisco, N. Y.

S.S.B. xfrmrs, exact set of 3 (hermetically sealed) for W2EWL Special, brand new, $3.00 postpaid. New compact G-E 100-watt modulation xfrmr, multi-impedance (10 lbs.), $6.25; new Elmac vacuum condenser, 12ufd at 32 kilovolts, $5.50. G-E Pyranols, 4 ufd at 1000 v.d.c. (330 vac) min. 4 for $3.50. Please include postage, no c.o.d.'s Tucker, W2HLT, 51-10 Little Neck Parkway, Little Neck 62, N.Y.

WANTED: Commercially built Single Sideband transmitting and receiving equipment like Collins or equivalent. Al T. O'Neil, Lake City, Minn.

LEECE-NEVILLE 6 volt 100 amp. system—alternator regulator and rectifier, $45; also 12 volt 100 amp. system, $85. Guaranteed no ex-police car units. Herbert A. Zimmerman, Jr., K2PAT, 115 Willow St., Brooklyn 1, N.Y. Tel. ULster 2-3472 or JAckson 2-2857.

MICHIGAN Hams! Amateur supplies, standard brands. Store hours 0830 to 1730 Monday through Saturday. Roy J. Purchase, W8RP, Purchase Radio Supply, 327 E. Hoover St., Ann Arbor, Michigan. Tel. NOrmany 8 8262.

HAM TV Equipment bought, sold, traded. Al Denson, W1BYX, Rockville, Conn.

CASH for your gear. We buy, trade or sell. We stock Hammarlund, Hallicrafters, National, Johnson, Gonset, Globe, Hy-Gain, Mosley and many other lines of ham gear. Ask for used equipment list. H. & H. Electronic Supply, Inc., 506-510 Kishwaukee St., Rockford, Ill.

OUTSTANDING QSLS!! Largest variety samples 25¢ (refunded). Callbooks (American calls), $5.00; (Foreign calls), $3.00. Religious QSL samples 25¢; "Rus" Sakkers, W8DED, Holland, Michigan.

QSL-SWLS. 100, $2.85 up. Samples 10¢. Griffeth, W3FSW, 1112 Pine Heights Ave., Baltimore, Md.

QSL. Glossy 2 and 3-colors. Attractive, distinctive, different, 48-hour service. Samples 10¢. K2VOB Press, 62 Midland Blvd., Maplewood, N. J.

QSLS "Brownie," W3CJI, 3110 Lehigh, Allentown, Penna. Samples, 10¢ with catalogue. 25c.

QSLS-SWLS, Samples 10c. Malgo Press, 1937 Glensdale Ave., Toledo 14, Oh.o.

FAST Service. Send stamp for QSL samples. Koster, K2UAX Press, 2941 Ewell Place, Wantagh, L. I., N. Y.

DON'T Buy QSLS until you see my free samples. Bolles, 7701 Tisdale, Austin 5, Texas.

QSL'S New design, lower prices, fast delivery. Catalog 25¢ (coin only), refundable. Dick Crawford, K6GJM, Box 607, Whittier, Calif.

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.

C. FRITZ says, "Is your QSL as sharp as your signal?" Be proud of both! Samples 25¢ deductible. 1213 Briargate, Joliet, Ill.

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., KN5ZMT Creative Printing, P. O. Box 1064-C, Atascadero, Calif.

QSLS-SWLS. Samples free. W4BKT Press, 123 Main, McKenzie, Tenn.

QSLS Samples dime. Sims, 3227 Missouri Ave., St. Louis 18, Mo.

QSLS. Taprint, Union, Miss.

SUPERIOR QSLS, samples 10¢, Ham Specialties, Box 3023, Bellaire, Texas.

QSLS. 3-color glossy. 100—$4.50. Rutgers VariTyping Service, 7 Fairfield Rd., New Brunswick, N. J.

PICTURE QSL Cards of your shack, home, etc. Made from your photograph. 1000, $12.00. Raum's, 4154 Fifth St., Philadelphia 40, Penna.

QSLS WAT, Box 1, Brecksville, Ohio.

QSL's-SWL's: That are different, colored, embossed card stock, and "Kromekote." Samples 10¢. Turner, K8AIA Box 953, Hamilton, Ohio.

GLOSSY QSLS, 100, 4 colors, $3.50. Others less. Samples 10¢. Dick, W8VXK, 1018 Arthur, Mt. Pleasant, Michigan.

QSLS, $1.00. Riesland, Del Mar, Calif.

QSLS, Lapel pins, samples dime. Kephart W2SPV, 4309 Willis, Merchantville, N. J.

QSLS, SWLs, XYL-OMs (sample assortment approximately 93¾¢) covering designing, planning, printing, arranging, mailing; eye-catching, comic, sedate, fantabulous. DX-attracting, prototypal, snazzy, unparagoned cards (Wow!). Rogers, KØAAB, 737 Lincoln Ave., St. Paul 5, Minn.

DELUXE QSLS. Petty, W2HAZ, Box 27, Trenton, N. J. Samples, 10¢.

QSLS, SWLS. Samples 10¢. Onondaga Press, Onondaga, Mich.

QSLS-SWLS, reasonable prices. Samples free. Robert Bull, W1BXT, Arlington, Vt.

QSLS. Samples free. Phillips, W7HRG, 1708 Bridge St., The Dalles, Oregon.

QSLS. High quality, low prices. Fast service. Samples 10¢. Dave, 601 E. Maude, Sunnyvale, Calif.

QSL'S SWL'S Nicholas & Son Printery, P.O. Box 11184, Phoenix, Arizona.

QSLS. Stamp brings samples. Eddie Scott, W3CSX, Fairplay, Md.

QSLS-SWLS, 100 2-color glossy, $3.00; QSO file cards, $1.00 per 100. Samples, 10¢. Rusprint, Box 7507, Kansas City 16, Mo.

QSLS: Send 25¢ (refundable) for samples. W6CMN, Schuch, 6707 Beck Ave., North Hollywood, Calif.

QSLS-SWLS. Free Samples. Spicer, 4615 Rosedale, Austin 5, Texas.

QSLS-SWLS. 3-colors, 100 for $2.00. Samples, dime. Bob Garra, Lehighton, Penna.

QSLS. Samples, dime. Printer, Corwith, Iowa.

QSLS, Glossy 2 and 3 colors, attractive, different, 48-hour service. Samples 10¢. Free ball point pen with order. K2VOB Press, 62 Midland Blvd., Maplewood, N. J.

COMPLETELY Different QSLS. Dime. Filmcrafters, Box 304, Martins Ferry, Ohio.

QSLS, reasonable, nice designs, sample dime. W2DJH Press, 31 Warren, Warrensburg, N. Y.

QSLS-SWLS. High quality. Reasonably priced. Samples. Bob Teachout, W1FSV, 204 Adams St., Rutland, Vt.

QSLS, $1.75 per 100 postpaid U. S. only. Glossy, red & green. All orders mailed within 10 days. Free sample. Hobby Print Shop, Umatilla, Fla.

QSLS. Fine quality. Choose your own combination. 6 styles, 9 card stocks, 8 ink colors, cartoons, $2.50 up. Samples dime. Ray, K7HLR, 679 Borah, Twin Falls, Idaho.

RUBBER Stamps for hams, sample impressions, W9UNY, 542 North 93, Milwaukee, Wisconsin.

ANTENNA 80-40-20-15-10, $21.95. Patented. Lattin, W4JRW, Box 44, Owensboro, Ky.

SALE: Collins 32V1, in mint condx, used only 10 hrs since factory overhaul six months ago: $285. Also HQ129X, $135. Jonn Minette, W7EMI, St. Edward's Seminary, Kenmore, Washington.

FREE Bargain list, Box 575, New York 8, N. Y.

SAN Francisco & vicinity: Communications receivers repaired and realigned. Guaranteed work, factory methods. Special problems invited any equipment. Assoc. Electronics, 58 So. P. St., Livermore, Calif. W6KF, Skipper.

WANTED: 6 to 12 304TL tubes. Callanan, W9AU, P.O. Box 155, Barrington, Ill.

WESTERN Radio Amateur: Third largest ham magazine in the U. S. 1 year, $2.00; 2 years, $3.50; 3 years, $5.00. Also publisher "Surplus Handbook", over 90 pages schematics and photos of popular surplus receivers, transceivers, $3.00 ppd. California, add state tax. Western Radio Amateur, 10517 Waverly St., El Monte, Calif.

CASH For used Short-wave ham receivers, transmitters and accessories. Treger, W9IVJ, 2023 N. Harlem Ave., Chicago 35, Ill. Tel. TUxedo 9-6429.

WANTED: Trades new and used: New KWS; 1, $1250.00; KWM-2, $1095.00; KWM-1, $695.00; 75S-1 $495.00; 75A-2 $325.00; 75A-4 $549.00; 32S-1, $590.00; 32V-2, $350.00; 32V3, $395.00; *HQ-100*, $129.00; *HQ-129*, $149.00; *HQ-145*, $269.00; HQ-160, $379.00; HQ-170, $359.00; Johnson Ranger, $229.00; Johnson Mobile, $75.00; Thunderbolt, $589.50; Valiant $439.50; Johnson Citizens Messenger $139.75; Courier, $289.50; SX-71, $149.00; SX-101 Mark III, $395.00; Viking II, $199.00; SX-100, $295.00; SX-100 $199.00; HT-32A, $479.00; SX-110, $159.95; NC-98, $99.00; NC-183D-$309.00; NC-125, $125.00; NC-173, $129.50; NC-57, $59.00; Globe CB-100-Citizens Band $129.95; Globe King 500A, $425.00; 90 Chief, $39.00; 90A, $49.95; 680, $79.95; DSB100, $103.95; VFO-755, $59.95; NC-300, $279.00; CE Slicer, $37.50; 100V-$695.00; Heath DX-35, $55.00; DX-40, $65.00; SP Super Pro, $199.50. Ken-Els Radio Supply Co., 428 Central Ave., Ft. Dodge, Iowa.

RECEIVERS: Repaired and aligned by competent engineers using factory standard instruments. Authorized factory service station for Collins, Hallicrafters, Hammarlund, National, Harvey-Wells. Our *twenty-fourth year*. Douglas *Instrument* Laboratory, 176 Norfolk Ave., Boston 19, Mass.

CINCINNATI Area: Sale: Globe Chief 90 transmitter, $30. K8CET, 3950 North Fordham, Silverton, Cincinnati, O.

TRADE: DX-35, xtals for rifle or pistol. *W5UZI*. 1351 Sage Loop, Los Alamos, New Mexico.

CAPACITORS, 120 *mfd* 3000V, G-E Pyronol, used, top condx, $35, crating, $3.00. W8LTF, 831 Antoine, Wyandotte, Mich.

GRAND Rapids, 13th Annual Hamvention, April 9, 1960 at Manger Hotel.

LOWEST Prices: Latest amateur equipment. Factory fresh sealed cartons. Self-addressed stamped envelope for lowest quotation on your needs. HDH Sales Co., 919 High Ridge Rd., Stamford, Conn.

SAVE On Electronic, Radio and Communications components and equipment for Hams and Commercial use. See thousands of parts in stock. Many more coming in daily, all at unusual savings. If you live in or near Philadelphia, visit our new warehouse at 31st & Grays Ferry, or send for free catalog. *Selectronics*, 1206 South Napa St., Philadelphia 46, Penna., or phone HOward 8-4645.

FOR Sale: SX-99 with speaker. Heathkit electronic voice control. Heathkit reflected power and SWR bridge. Heathkit Conelrad alarm. Will accept best offer. R. Gayken, Box 184, Watson, Minn.

BOOK Matches with your call. 50 for $2.50. A & B Services, Box 14/C, Kittery, Maine.

SPECIAL! W2EWL SSB transformers. New, 95¢ (3 for $2.50, 10 for $7.50): T-17 mike, brand new, sealed package. Only $4.95; Brochure available. Ling Closed-Circuit TV camera, brochure Glas-Line, $2.89 per hundred feet; Geloso tape recorder, $179.95. available. Complete tube inventory, best quality and sensible prices. 2C51 $1.70; 3B28, $3.00; 4X150A, $7.00; 805, $5.00; 807, $1.15; 807W, $1.25; 813, $8.50; 829B, $8.00; 837, $1.00; 866A, $1.50; 872A, $2.00. Write for free tube price lists. Green sheet catalog on equipment and parts, 25¢. Wanted: Unused transmitting and receiving tubes. Send list for cash offer. Distributors for B&W, Elmac, Hammarlund, Johnson, Westinghouse and others. Barry Electronics Corp., 512 Broadway, New York City 12, N. Y. Tel. WAlker 5-7000.

75A4, KWS1, 3L Tri-Band beam, 20 M. Telrex, full size beam, prop-pitch rotator, control box, cables; 30 ft. aluminum 12" Tri-Tower, D104 mike, 61 ft. steel Vesto tower with top *safety rail and platform. Brand new, never assembled. Still* crated. Spare tubes, etc. This complete SSB-AM station now in operation on all bands. Will trade for building lots, waterfront preferred, bungalow or house. Will add cash if necessary to make deal. All letters will be answered. L. I. or Florida area. Albert J. Bertolisi, 505 Co. Line Road, Amityville, L. I., N. Y.

DRAKE 1A SSB receiver, in top condx, xtal calibrator and WWV built in; 6 months old, no modifications. Asking $220. What's your offer? K4KIN, 730 So. 41st, Louisville, Ky.

SELL: Telrex size TB7E Triband beam, little used, $100. Cost $158. Reason: moving. WA2FUB, 111 Garfield Ave., Merchantville, N.J.

HAMFEST June 5. Starved Rock Radio Club. George Keith, W9MKS, Secy. RFD 1, Oglesby, Ill.

GREAT surplus values!! BC-603 Receiver New $17.00—R-26/ARC5 Rec 3-6 mc New $12.95, used exc $7.95—R-27/ARC5 Rec 6-9 mc New $12.95, used exc $7.95—BC-659 Transceiver with PE-120 $19.95—T-47/ART-13 Transmitters 34/AP $49.00—Sound-Powered Dynamic Phones Pr. $4.75—Rec. Microwave R-111/APR-5 $39.00—Collins CFI 82-Q for Q-5'er compl. w/tubes & instructions $5.95—Collins Mod. Xformer 100 watt 811-PP to 813 final $3.95—RA-62-C Power Supply A-C for SCR-522 VHF 110/60 cyc. New $59.50—Kits only for above, $17.00—Ground-plane VHF antennas 30-200 MC New $9.95—Hi-Mu Electronics—131 Hamilton St., New Haven, Conn. Store hours 10—5. Sat. 9—12.

$50.00 REWARD for information leading to the recovery of my Collins 75A3, #515. Stolen New Year's Eve. Power takeoff on back. Ivory enamel traces on cabinet. K6COB, Chuck, 13554 Raven St., San Fernando, Calif. Tel. EM 7-7425.

SELL Allied tube-tester and Eico signal generator, Model 324, gud condx, $45.00. Robert E. Wittick, 617 Sycamore, Humboldt, Kansas.

ELMAC A54H xmtr 75, 40, 20 11, 10 with homebrew A.C. supply in matching cabinet. In vy gud condx. Best offer. W3PFD, 2025 7th Ave., Beaver Falls, Penna.

FOR Sale: Valiant (factory-wired); HQ140XA, Shure mike, mod. S36 Dow-Key relay, $450 money-order. Equipment 3 years old, in A-1 condx and used very little. For that price I cannot ship, sry! Consider offer for separate equipment. Ernest Stanislau, KØCSK, 418-12th St., Boone, Iowa.

SELL: Precision VFO Collins 70E8A, PTO excellent, $22.00. WØBHA.

JOHNSON Navigator. Used only 40 hrs. Well-built by engineer. $120.00. W1RAN.

SELL DeLuxe all-band KW, 2 finals, 10 panel meters, all in six foot Bud rack: $250.00. Herbert Spivey, K5AIC, Baldwyn, Miss.

S-40B, $75.00; new heavy duty Telrex rotator minus control box and indicator, $55.00 (pert. condx). W1EVK, Joe, 16 Birch St., Braintree, Mass. Tel. Victor 3-8572 week-ends only.

MORROW Falcon receiver, Morrow RVP-250 supply with Morrow mobile spkr, all in darn gud shape, all for $119.00. Don McNamara, 743 Michigan, Evanston, Ill. Tel UNiv. 4-6172.

FOR Sale: 20-4, QT-1, 458 VFO (10 thru 75 meters) $225; KWM-1, $428, A.C., D.C. supplies, mobile tray, speaker, Shure 505C mike, mobile mount, Heliwhips for 10-15-20 meters, $1000. HT-32A, unopened carton, $650. James Craig, 172 W. Third, Peru, Ind. Tel. GR 3-9306.

COMPLETE Collins "S" Line for sale. 75S-1, 32S-1 and 516F-2 AC supply. All in A-1 condx. Certified check or M.O. for $1000. Will not sell separately. R. D. Corbett, W1JJL 46 Prospect St., Torrington, Conn.

SELL: NC-88 and QF-1, $70.00. F.o.b. Racine, Wis. K9CMT, Porzak, 2342 Thor, Racine, Wis.

FOR Sale: *Collins* 75A4, Serial No 5019, 500, 1500, 3100 cycle filters. Used 5 hours, matching Collins speaker, used only 3 hours. Permoflux headset, used 2 hours. Collins KWS1. Never hooked up. Seals unbroken on component parts carton. 108 ft. trapped dipole antenna, with 100 ft. RG-11/U coaxial lead-in. $1800 takes the lot. Sale of individual components considered. Make offer! Arthur Touroff, 605 East 82nd St., New York City.

EARLY Bird registrations close on April 20th for the New England Divisional Convention to be held at the New Ocean House Hotel in Swampscott, Mass., on Sunday, May 1st. If you want to attend the Largest Ham Convention ever held anywhere you must get now. Latest equipment by the manufacturers and their distributors with their representatives there to answer your questions. The country's best speakers, Net meetings, etc., etc., etc. Ask the ham who was at Swampscott last year. Early Bird, $3.00. Banquet, $5.00 extra. Make your check payable to FEMARA, mail to 15 MacArthur Blvd., Danvers, Mass., before April 20th.

XTALS Wanted: 3803, 3997, 7085, 7424, 8334, 8999. Send freq. and price. KØRAX, 4138 Holman Lane, St. Louis 34, Mo.

NC-125 receiver. Like new condx, $120.00 c.o.d. Richard Kleppe, KØKTP, 406 Winneshiek, Decorah, Iowa.

RECEIVER: RDO. Complete 115V, 60 cycc, indicator, 10-60/APA-10 115V 60 Cyc. Wanted: 4X250B, 4CX300A tubes. Gordon W. Roper, 2937 Barth St., Flint 4, Michigan, Phone CE-9-0581.

JOHNSON Valiant, latest modifications, factory inspected HQ-140X w/spkr, Telrex Tri-Band, new, 45 ft. crank-up tower with prop rotator and selsyns; Johnson Matchbox, new, Elmac PMR-7 mobile rcvr with 6-12 volt supply; $600.00 takes all. Can also be had separately. K2HPW, Rockville Centre 4-0598, Meadows 2645 Clydesdale Court, Oceanside, N. Y.

GLOBE Linear LA-1 new, wired, $92.00. WA6BUT, 2781 H St., San Bernardino, Calif.

SALE: 20A QT1-VFO Linear, $160; 3" Dumont 'scope, $30; Stancor xfrmr, 3000V CT, 300 Ma, $15. W2MHL, 147 Farview, Paramus, N. J.

POSTPAID: Never used, Gonset Super 12, perfect, $60.00. K7CXR, 3056 N. E. Oregon, Portland, Oregon.

LOOK! SX-99 and Globe 90-A; new $180? or your offer. WV6EOH.

FAIR Cash offer takes latest HT-9 transmitter, HT-18 and National 50-T. Krueger, 9405 Hoyne, Chicago, Ill. W9EPG.

SELL: Complete station or any part. HQ-150, Adventurer, VF-1, 40 watt modulator, $275. Heilwel, 3850 Sedgwick, Bronx, N. Y.

SELLING: GPR-90 receiver with speaker. Serial #1666. In exc. condx. $335; Millen 90 watt bandswitching exciter, 90801, $45.00; National Multi-band tuners MB-150, $12.50; MB-40DL, $10.00; Precise mod. 315 oscilloscope. $25.00; table rack, $4.00. Some back issues of CQ, QST, Radio Electronics, IRE Proceedings and foreign radio magazines. Joseph Marshall, Jr., 22 Clare Drive, East Northport, L. I., N. Y.

FOR Sale: Globe King 500A with Mod. 755A VFO. $375.00. Will ship express. Going SSB. W4PNF, 106 Quincy St., Fayetteville, N. C.

WANTED: 3.1 Kc and 6 Kc Collins mechanical filter rectangular type, Motorola mobile test set and Hickok 533 or similar model tube-tester. George Magera, W4YLT, Mullins, S. C.

APACHE and SB-10, excellent and little used, $330. W7VMP/6, 54C Escondido Village, Stanford, Calif.

RECEIVERS, Transmitters, and test equipment serviced and calibrated. Low rates. Monarch Engineering, 3058 Lehman, Hamtramck, Mich.

WILL Pay cash for Hammarlund HQ-160 or Hallicrafters SX-100 receiver. State condition and make best offer. For sale:

National NC-98 receiver with Heath "Q" multiplier, $110.00; Morrow 5-band 5BR-1 tunable converter, $50.00; Lynmar 75 ohm TB-4 transmitter balun $10.00. Excellent condition. Will answer all responses. Wilkes Dearing, K4PSH, 996 Galloway, Memphis, Tenn.

SURPLUS RA-69A/B, 115 volt 60 cycle power supplies, contains 3 separate filtered DC units, 4500 volts 4 mils, 300 volts 180 miles, and electronically regulated adjustable 270 volts 88 mils. $15.95. B53A xmtrs, 80 meter CW AM, $9.00 pickup, $14.00 packed. BC653A mounts w/plus, $2.00 pickup, $3.00 packed, any components of above sold separately. A61A dummy antennas with RF meter, $1.95. J44 keys, 50¢. HS 30 phones, 75¢ all F.o.b. Grandview, Texas. K5ENL, Grandview, Texas.

FOR Sale: 150 watt linear with tubes, coils and power supply, $25.00; 75 meter 300 watt linear in 20A case with tubes and power supply, $70; W2EWL exciter 30 watts output, VFO, VoX rack mounted, $65; new pair 4CX300A tubes, $30 ea. Eimac airsockets, $10 ea., see Feb. QST for 2 meter Kilowatt. 837 tubes, $1.00 ea. Charles Copp, W2ZSD, 3 West Drive, Port Washington, N. Y.

FOR Sale: G-66B, G-77A with 12v. and 110v. power supplies, Master Matcher, "Slim Jim" whip mount, and Electro-Voice 600D microphone. Best offer over $500.00. Need money for school. Reg Toumi, W7JHL, 2105 Knight, Helena, Mont.

GSB-100 and HQ170C, practically brand new. Original cartons. First check for $695 buys. Only on air few hours. Claude Goodman, Jr., W5KWC, 1803 S. Marsalis, Dallas, Texas.

FOR Sale: DX-35, VF-1, both in exc. condx: $70.00. Will ship. Write to Ray Husher, Rte. 1, Box 56, Ferriday, La.

QST, complete file, in exc. condx, January 1941 to December 1959, $50 f.o.b. Robert Briggs, W8WYJ, 30524 Garry, Madison Heights, Mich.

WANTED: Automatic high-speed telegraph equipment, keyboard perforator. W8RMH, 1910 Long Point, Pontiac, Mich.

"RICH" At W9JS, Wheaton, Ill., looking for a "Bacon" banjo. Any model or condition. Will swap ham equipment. C. C. Richelieu, 1916 E. Evergreen St., Wheaton, Ill.

SELL: BW 5100B with 51SB-B sideband generator unused. $445.00; B&W SS receiver adaptor, $75; Match Master $25.00. Rev. Dennis O'Neill, W3RPN, 200 Oak Lane, Primos, Penna.

FOR Sale: Collins 75A4 serial 3793 speed dial. Collins speaker, in first class condition. Ed B. Schofield, Box 14, Jarrettown, Penna.

FOR Sale: Tubes: 211A, $2; 813, $10; 833A, $15; 828, $5; 8008, $5; 2C39A, $5; 4X150, $5; 807, $1; 3FP7, $5; 3BP1, $2; 5BP1, $2; 829N, $5. Equipment: BC455, $5; APN1, $5; BC375TU, $2; BC645, $5; BC659 and PE120, $15; HRO rcvr with pwr. supp., all coils and speaker mounted in table relay rack (old model, uses 2.5 volt tubes) for sale after July 1, 1960. $100; two teletype machines, both with keyboards, one uses 1/2" tape, the other roll paper. Both need a little work. Special $50 each. House full, garage full. Must sell! You pay shipping. R. D. Corbett, 46 Prospect St., Torrington, Conn. W1JJL.

FOR Sale: CE20-A, QT-1, VFO excellent, $175; matching table top amplifier pair 814s, complete 2000 V power supply, $50.00. Joe, K3CQY, 409 Falcone Ave., Roseto, Penna.

WANTED: Power supply, CRM-20096, RMCA RM-6 for Navy Raz receiver. W3RLA, G. P. Allen, 733 Cricket Lane, Clifton Heights, Penna.

CHESS By Ground Wave. Los Angeles. Join the Chess-Nuts-Net. Poplar 3-4924.

FOR Sale: Good used equipment: receivers, Hallicrafters SX-71, $149.95. S-53, $65.95; SX-101 MKIIIA, $350.00; SX-43 w/Cent. Elec. Mod. A sideband slicer, $160; SX-28A, $120; National NC-183D, $289; NC-300, $269.00; NC-303 w/xtal calibrator, $360.00; NC-173, $150.00; Hammarlund HQ-129X, $149.95; HQ-110, $200.00; transmitters, B&W 5100 and 515B, $499.95; Johnson Challenger $149.95; Johnson Thunderbolt, $460.00; Viking I, $150.00; Cent. Electronics 600L, $395.00. We have this equipment in stock, ready for delivery to your shack. Call or write Radio, Inc., 1000 S. Main, Tulsa, Okla.

FOR Sale: Cubex quad spiders, 8 ft. boom, 75 ft. RG11U, clamps, painted bamboo for 10-15, $18.50; National MB40SL, $5.00; 300 watt Multi-Match modulation transformer, $12.50; 4 inch x 20 ft. aluminum boom, 4 lengths 1½ in. x 12 ft. tubing, 2 lengths 1⅜ x 12 ft. tubing, 4 element to boom clamps, $20.00. Will ship. W8DYA, Box 1275, Bluefield, W. Va.

SELL: Knight/Space Spanner, perfect condx, $15.00. Rich, WA2FXF, 21 Oregon Dr., Huntington, N. Y.

SELL: "BC221AK" freq. meter with modulation. Self-calibrated from primary standard at major broadcast station. Built in 110 volt regulated power supply, $80.00. M. Spinelli, W4VWY, Jensen Beach, Fla.

HEATH Q-Multiplier, $7.00; 2 xfrmrs 120v. primary, 10-14 v. 10 amp., $5.00; Handset w/switch, $4.50; carbon desk mike T-32, $6.00. Cartwright, Unionville, Michigan.

SELL: NC-188 practically new, $120. Not a scratch. No modifications. Original carton. Instruction book. Shipped prepaid. Jeffrey Luther, K4TRY, Ethridge Lane, Union City, Tenn.

COLLEGE Bound; for sale—Viking II VFO, Mosley TA-33JR 60 ft. crank-up tower. Local deal only. Norm, KØIPD, JA 1-2464.

COLLINS MBF for sale. Converted to ten meters. In exc. condx. W9LZF, Paul Kasinger, 804 Gordon Place, Effingham, Ill.

SELL: GR 100Q 2 KVA Variac, $20; drive and modulation transformers for Class B 811s, to single 813, both $7.50; BC348R with power supply, $45.00; 150 watt 20 meter coil with swinging link and jack bar, $2.00. R. C. Janzow, 12033 S. 68th Ct., Palos Heights, Ill.

SELL: Eico 720, over 2000 QSOS. Modulator PR6146s, 3BPI AM monitor, break-in, PTT, CW monitor, mike, key, $150. HV27s? WA2DGN.

COLLINS 75A-1, $249; 75A4, $545; 51J2, $495; 51J-3, $575; R-390A/URR, 32S-1, AC supply, spkr, 75S-1, $975; 32S-1, $525; 516F-2, $89; KWS-1, $1095, filters, $49; Eldico 100F, $495; SX-99, $109; SX-101, $225; SX-101A, $295; NC-183-D, $239; HT-32A, $519. Gonset III 6 meters, $219, GSB-100, $399; Technical Materiel PMO oscillator, counter dial, $245; Teletype Printers, #14, #15, #19, #26, #28, T-D #14, #14 Reperf., converters. Write Tom, W1AFN, Alltronics-Howard Co., Box 19, Boston 1, Mass. (RIchmond 2-0048).

Exceptional bargain: complete parts: 500 watt cw rig, VFO, floor rack, B&W coils to 160 for osc., buffer, final. Much miscellaneous, 5 panel meters, 60 tubes. Over $75.00 in new, unused parts. Cost over $600.00 in early 1950's. No reasonable offer refused. Send stamp for list. Jim Sayer, K6PDW, 2608 Cherry, Bakersfield, Calif.

HAM Magazine subscriptions: W6LKJ, (Tatum) 1451 Raymond Ave., Glendale, Calif.

SELL: HQ-129X, DX-35, VF-1, QF-1. All in excellent condx. Best offer(s). K2VWW, 108 Hennepin St., Buffalo 6, N. Y.

VHF DXers, Shortwave BC listeners! DXing Horizons, brand new magazine for long range TV-FM fans, experimenters and international broadcast listeners. Published monthly. Acclaimed the most outstanding new electronics magazine in ten years! The news monthly of the weak signal field. $4.00 per year. DXing Horizons, Box 3150, Modesto, Calif. Published by K6EDX. Sample copy on request.

SELL: Hammarlund SP-600 550 Kc to 54 Mc in gud condx, $350; also new ARC-T-13 trans, R-19 recvr, 14 volts, also C-18 cont. unit; SP-600 recvr, gud appearance, needs minor work, working on all bands, $275. sig. gen. TS-497B 2.5 to 400 Mc. Best over $50.00. H. Hodson, W4NCQ, 540 Dover Rd., Lexington, Ky.

GONSET, 88-108 Mc tuner, 6V, $35; Hallicrafters, S27, rack mount, $15.00; National, RBL-5, rack mount, $15; Vibroplex Champion, new, $10; Travel Electric Sr., 6V to 110V 35 watts, $6; rack drawer with bottom plate, new, $5.00. All items F.o.b. Sharpsburg, Md. James Mose, Main & Hall Sts., Box 131.

FOR Sale: Little used KWM-1 with 516F-1 AC power supply, perfect, $650; Mark Products Triband heliwhip with HWM-1 mounting insulator, $15.00. Eimac 4-400A, new, $25.00. W2KFZ, 103 Hendrickson Ave., Beverly, N. J.

SELL: 75A4 Serial 5018; 3.1; 500 CPS filters, perfect: $650. Harry Taubin, 731 Gerard Ave., Bronx 51, N. Y.

FOR Sale: Three separate full size three-element Telrex beams 10, 15 and 20, plus approximately 300 ft. RG8U. All for $129.00. W1PST.

JOHNSON Pacemaker: SSB exciter, in mint condition, used only 20 hrs. Only $295. Milt Levy, K1KIT, 136 Main St., Stoneham, Mass.

SELL: HBR-14 rcvr (see July 1957 QST) completely assembled and wired. All new parts including tubes, crystals and coil forms. Front end needs checking out and aligning. $100.00. KøJOH, Karl L. Baker, 847 Greentree Rd., Pacific Palisades, Calif.

SELL: NC-98 with matching speaker and Heath Q multiplier, $109; DX-100, $149; International Crystal 100 Kc. calibrator, $6.00; FCV-2 6m. converter $12.50; Dow-Key TRM-1 relay, $8.50; October 1958 QST 2EZ6 6m rig with p.p. 6V6 modulator and power supply, $20.00. All shipping extra. Robert Weisman, W3ZQG, 516 Washington, Cumberland, Md.

HC-221 frequency meter, audio modulation, perfect, $49.95. Will ship anywhere. K5DXL, P.O. Box 60, Eupora, Miss.

SELL: Excellent condx NC125, $100. W4CYT.

WANTED: E, F and A, B coils for National HRO-50T1, also best receiver $200 cash will buy. Westphalen, 5234 Dorchester Ave., Apt. #211, Chicago, Ill.

SELL Heathkit Apache, $245.00; SB-10, $90.00; Mohawk receiver with speaker, $300.00, All in excellent condx. Neal Atkins, K9JTV, 6235 No. Francisco Avenue, Chicago 45, Ill.

SELL: HQ129X in exc. condx, $115.00; Unmarred SB10 Apache, FB on all bands, $300.00. Dr. Keith Saylher, 1561B Capehart, Blytheville AFB, Ark.

SELL: 20A SSB exciter, factory-wired, brand new cond., "C" run with BC458 VFO 10-75 meters, $199.50; excellent NC240CS recvr w/spkr, $95, vy gud on SSB. Also exc. Navy RAO-2 recvr, $65.00. L. Kirkman, WØZHI, 2444 D St., Lincoln, Nebr.

FOR Sale: Cleaning house! Viking Valiant, new, in factory-sealed carton, $355; National NC-183D originally cost $450, sacrifice for $210; HQ-170 in new condx, $275; DX-40 used only 3 months, $55.00; HT-32A in mint condx, $510. K2KPM, I. Boilen, 456 Schenectady Ave., Brooklyn, N. Y. PR 2-5612 after 6 PM.

ADD Extra I.F. stage to any 455 Kc recvr. More gain and selectivity. Fits any place. Only 1" x 2" in size. Completely wired and tested with instructions. Only $6.95 postpaid. Specify make and model of recvr when ordering. Belt TV Co., W2NBU, Boles, 5403-4th Ave, B'klyn 20, N. Y.

FOR Sale: Globe King 400B, WRL 755 VFO, in exc. condx, $265; Gonset G66-B W/3 way pwr. supply, In like new condx, $140. W4PQW, 206 Henry St., Warrington, Fla.

WANTED: Wireless gear, literature, ham, broadcast, prior to 1934. Cummings, 63 Arden, Columbus 14, Ohio.

SELL: KWM-2 and 516F-2 AC supply, $995.00. No trades! Write Arivold, RD 1, Box 261, Cheswick, Penna.

SELL: NC-125, $115. Adventurer with modulator, $40.00. Extra nice. K4EZY, 5109 Sylvan Road, Richmond, Va.

SELL: Collins 32S1, $500; Power supply, $60.00; Eldico KW linear, $325.00; Steelman Transitape, $140; condenser checker, $10.00; transmitting micas? Central Electronics MM2 with 455 Kc adapter, $100; Concertone 33ST custom stereo recorder, $750. W3VDE, 1219 Yardley Rd., Morrisville, Penna.

QSL'S (you fill in call) 100-$1.00, 500-$4.00, 10 samples 10¢. Back issues QST-CQ 75¢. Dxerama-$1.60. Schematics, Radio's, T.V.'s, HiFi's, $1.00. Membership DX QSL Coop $2.00 3 years. QSL bureau return envelope service $1.50 yearly. (Write for free info all above.) "Coop", Box 5938, K. C. 11, Mo.

SELL: HQ-100C serial No. 3415, $120; Eico 720 transmitter, $65; Knight VFO $20; A50 watt modulator using pair 1625s in Class AB-1 as in Handbook, $30; Astatic 200-S microphone,

$10; Johnson semi-automatic key, $10. All units in excellent or new condition. I need the money for summer school. All shipped collect from 521 East 5th St., Hutchinson, Kansas. Mike Smith, KØCCM.

HT32. In excellent condx. $395.00 F.o.b. Chicago, Ill. R. Yeager, 1455 Wilson, Chicago 40, Ill.

FOR Sale: Complete mobile A-1 condx, one owner bought new all listed equipment. Elmac A-54, covers 80, 40, 20, 15 and 10 meters; 50 watts input AM and CW. Gonset Triband converter (covers above bands and SW broadcast) Gonset noise limiter, Mallard BFO, Leece-Neville 6 volt, 100 amp., 35 amp idle-speed complete, regulator, rectifier, PE-103A dynamotor, Master Mobile 232 mount, center load Hy-Q coils, 75, 40, 20, 15 with Dow coaxial relay and original cabling and plugs for mobile, ready to install. $275. J. A. Selvidge, WØUMG, 1103 Gardner St., Poplar Bluff, Mo.

HALLICRAFTERS S-85, xtal calibrator, SX-100 S-meter, Heath QF-1, other improvements. Year old, exc. condx, $120. Details on request. W3FYR, Box 240, Drew University, Madison, N. J.

TRADE, Used (complete) stereo and 36 stereo albums for Gonset fixed station communicator or similar equipment. W9CEA, 178 Shady Lane, Wabash, Ind.

4 BAND Receiver, $50; 5 channel 27 mcg. transceiver, $100; Temco 75GA transmitter factory-sealed, $400. Box 211, Olive, Calif.

MAGNECORD P-60, with amp., input xfrmr and transport, used less than year, $400 or trade for VFO exciter or 75A2-4. W5LCI, Box 195, Wynne, Ark.

FOR Sale: B&W 5100B transmitter; B&W 515B generator. Perfect condx. Call New York City SW 5-1166 or WA 3-8117.

SELL: Heath DX-40, exc. condx, $60; Health VFO, $15. Take them both for $65. F.o.b. Munster, Ind. K9TIX 892/ Revere.

CANADIANS! Johnson Pacemaker with recent modifications, like new, $500; Johnson Courier, new, $300. Both for $750. Will answer all inquiries. VE5DG, 1421 Retallack St., Regina, Sask. P., Canada.

WILL Sell HT32A and SX101 for $800. Like new. Hardly used. In original boxes. WØKRH, 2202 Hillcrest Drive, Duluth 11, Minn.

SALE: Johnson Signal Sentry and SWR Bridge, $20; WRL 65A xmtr, excellent condx, $50.00; RME DB23, $30. Kent Bowron, 210 Roosevelt Ave., York, Penna.

TRADE: Want stamp collections. Will trade complete station. SX101A Mark III, HT32A, HT33A, and accessories. Purchased new ten months ago. 10 meter Telrex beam, 50 ft. tower with rotor, cartons of misc. ham gear, equipment in absolutely new condition. On air less than 20 hours. Being a stamp dealer allows too little time for ham radio. Will consider trade as complete unit for stamp collections or lots with a minimum Scott catalog of $6000. Send complete description. If acceptable collection more will pay difference. Harry E. Ide, W3MTV, 8 Byron Lane, Yardley, Penna. Phone CYpress 5-9272.

SELL: New ARC 3 eight-channel automatic tune VHF transmitter, original carton. Conversion data for 2 meters, $50.00; 3" Supreme #546 oscilloscope like new, $25; Wilcox CW3 self-powered, crystal controlled, single channel receiver with manual, crystals, and coils for 5 Mc. and 12 Mc. Like new, $25.00. Revere T100 tape recorder 3¾ speed, $50; BC221 with modulation not calibrated, book, case, AC power supply, $25. L. Kipp, 8268 168 St., Jamaica 32, L. I., N. Y.

WANTED: PR 810's, Triplett 227T, 150 Ma, 500 Ma, 750 Ma DC; DK relay 110V; Jennings VAC variable, UCS 200, 10 Kv; Cardwell 8013 1500 μμfd, Millen 15011 disc neut. cap. KØRAX, 4138 Holman, St. Louis 34, Mo.

FOR Sale: Collin 32V2 xmtr, in perf. condx, $425, W2PNT, Richard Roos, 141-48 78th Rd., Flushing 67, L. I., N. Y.

COMPLETE *1958 QST* and 1959 CQ magazines. Make an offer! W2JBL, 123 Davis Ave., Hackensack, N. J.

SWAP Or sell: Model 26 teletype. Best offer. Milt Johnson, W1EGS, Maple Ave., Durham, Conn.

DX-40, VF-1, in exc. condx, $75. Want mobile. K2RHN, 21 Donald, East Williston, L. I., N. Y. Tel. PI 6-1606.

75A4 Serial 5647, $600; HT-32A, $600. Both in factory sealed cartons. Central Electronics 600-L, $300; Hammarlund PRO-310, $300; SX-101 Mark III, $275; Stancor A-3899 MultiMatch modulation xfrmr 600 watt in sealed box, $65; B-W Matchmaster model 650, $32. W9YFV, 190 E. North Ave., Elmhurst, Ill.

SEE Page 159 January *QST* dual vibrator power supply now only $9.95. Jarvis Electronics Corp., Winnetka, Ill.

FOR Sale: Gonset 6 meter Communicator III with crystals, $160; Heath Q-Multiplier, $8; Heath reflected power meter, $12; Eldico EE-2 electronic key, $22; Drake TV-1000 LP low pass filter, $9; RCA WF-12A geiger counter, $36. All units in new condition with instruction books. Jac Holzman, K2VEH, 3 Washington Sq. Village, N.Y.C. Tel. GR-7-1831.

COLLINS "S" Line: 75S1, 32S1 plus power supply containing speaker. Factory modified July 1959. Used very little. Like new condx, $925; RME 45 and matching speaker, $45.00. Cash deal only. H. I. Johnson, WØJGQ, Remsen, Iowa.

De Forest "Radio Home" type DT-700 receiver with DL3 audion; Amrad 3500-1 RF receiver with 3475 tuner. Also "C3" 4 ft. bus job, 8 tubes! Offers? K2JYM.

SALE: Factory built HQ110 with speaker, $179; factory built Globe Scout 680A, $79; both for $250. Both in like-new condx. K2OFT, Paul Gorad, 102-55 67 Drive, Forest Hills, L. I., N. Y.

SELL: Rack with BC-624C receiver and BC-625C xmtr, 100-156 Mc., 4 channel AM, xtal control, must sell. Best offer over $30.00. Also TRC-8 rcvr converted to 6 meters. Built-in AC supply, 13 tube unit. Sacrifice. Need the money. $50.00. V. Kempisty, W2GRS, 500 Scarboro, Syracuse 4, N. Y.

ALL types of transmitting and receiving tubes wanted. Also aircraft or ground receivers and transmitters. Hamgear or test equipment. For immediate action for cash write or phone Ted Dames, W2KUW, 308 Hickory St., Arlington, N. J.

FOR Sale: Good SX-100, DX-100, Eldico TR-75, 6 volt dynamotor 375 volts at 250 Ma., Heathkit VFO, 50-100 watt modulator. W90HO, 1107 Elm St., Glenview, Ill.

FOR Sale: Like-new, factory-wired Globe Scout 680; 65 watts c.w. 50 watts phone. Has received T.L.C. $80.00 R. B. Weckel, K8AQU, 400 W. 147th St., Cleveland 35, Ohio.

GLOBE King 500C Hardly used. $625; heavy duty rotor, good for quad, $25.00; Gonset silencer, $4.00; large blower $4.50; 75 watt all-band tone & c.w. xmtr, $20; W2LFB, Azzara, 13 *Shepard Pl., Nutley, N. J.*

LISTEN to the Radiotrician Digest; Southern California every Friday 7 P.M., 860 Kc.

FOR Sale: Collins 51J3, perf. condx, dust cover, rack-mounted, less speaker: $585.00, F.o.b. Gwynn, Va. Cabinet available, $20.00. Larry Arnold, K4AET.

75A1 receiver, in exc. working condition, $198.00 cash and carry. W2LT, 104 Munson Ave., West Hempstead, N. Y. Tel. IVanhoe 1-4634 evenings.

FOR Sale: Heath mobile xmtr, receiver and transistor P/S, Master "Slim Jim". $300. K4KNC, T/Sgt Bernard L. Newton, 15 Allegheny, Stead AFB., Nevada.

SALE: SX101 Mark III, like new, with R46B speaker, $300; DX100, in perf. condx, $150. W. R. Hempkins, Box 471, Seminole, Okla.

SALE: CE20A, CE Deluxe VFO, factory-wired, late production model, like-new, both $200.00; Astatic 10-C mike w/6-stand, $23.00; Heath antenna impedance meter $12. Dr. J. R. Perciful, 1169 Eastern Pkwy, Louisville 17, Ky. GLendale 2-2116.

10 Meter Gonset Communicator, in absolutely perfect condition—operates and looks like new. Unmodified, $220.00. Dan Francomano, K4TMK, Madison College, Madison, Tenn.

FOR Sale: DX-100 transmitter, like new, $140 f.o.b. W3VBM, 1727 East 35th, Baltimore 18, Md. Tel. TUxedo 9-5243.

SELL: Apache transmitter with cooling fan, exc. condx. Best offer takes it. Bob Wisleder, K9HEJ, Rochester, Ill.

PACEMAKER, like new condx, $325. W8MPJ, Lauth, 105 Earnshaw Dr., Dayton, Ohio.

IF You have a background in electronics, but are having trouble passing FCC Commercial phone exams, my 13 years experience as chief instructor of electronics school can help you over the hump. Very inexpensive. Free literature. Write, "Shotgun Review". Box 10634, Jackson 9, Miss.

USED: Motorola 2-meter and 6 meter FM xmtrs and rec.; FMTRU5V complete with accessr., $35; FMTRU80D, $65-6v., $75 - 12 v.; FMTRU30D, $35-$50. North West Radio, P.O. Box 502, located ¾ mi. S. of U.S. 20 on Ind. 149. W9IGH, Arnold Hatneld.

TELEREX Beam wanted. 5-element, 15 meter beam. Must be in gud condx. WØWAM.

SIMPSON '355', $18.00; '240', $16.00; c.o.d. Both brand new condx, with leads and manual. K2OWT, 73-07 196 St., Flushing, L.I., N.Y.

MUST SELL DX-100, Electro-Voice 950 mic, B&W low-pass, 110v. coax ant. relay, all $175; SX-96 with spkr, $180; Elmac AF-67, PE-103, Master Mobile antenna and mount, 80 mtr, converter and roller coil, $130. Everything in excellent condx. Steve Boyd, K6JAY, *280 South* Ave., Alamo, Calif.

TRADE Any, all or part: Collins 75S-1, #1602, 312B-3, 32S-1, #1356, 516F-2; need HT-32A or late HT-32 and 75A-4 serial No. over 4400 preferred. Equipment two months old, new condition, factory cartons. All inquiries answered. George DeWoyno, K4SYT/5, 5417 "D" St. Wherry, Biloxi, Miss.

BASIC Unit for boomless quad. Sturdy spider mounts at rotator. Arms protrude at precise angles providing optimum two tenths spacing for any band. Just attach your bamboo and elements for one, two or three bands. Result: properly spaced attractive hurricane resistant quad. Minimum flywheel effect. Inexpensive rotator suffices. Spider on support pipe, $14.95 express charges collect. Wild Goose Antennas, Box 573, West Fargo, North Dakota.

WANTED: PP-1/FRC also MD-1/FRC. Please give condx and other details. Sell: Collins "S" Line complete for lower price than KWM-2. Includes 75S1 rcvr, 32S1 xmtr, 516-F1 heavy-duty pwr supp, and xtra xtals to cover 10 meters. All used less than 2 mos. $1090 or trade for KW-1. W2ADE, John Doremus, Pocono Rd., Mountain Lakes, N. J.

FOR Sale: *QST*s 1920 to 1958 (only 6 issues missing), in excellent condition. No reasonable offer refused. Jos. D. Ogle, WILSS, 304 Bushy Hill Road, Simsbury, Conn.

TORIODS: Uncased 88 mhy like new. Dollar each. Five, $4.00. PP. DaPaul, 101 Starview Way, San Francisco 27, Calif.

SALE: Alliance T-12 rotator with directional indicator and thrust bearing: $20.00. J. T. Morey, W2HXF, 210 Mountain Ave., Princeton, N. J.

SALE: Hallicrafters S38E, like new with instruction manual, $39.00; 80/40 meter tuneable converter, in '58, '59, '60 Handbook with voltage regulator, $19.00, together, $55.00. Dana Geiger, WV2HSM, 360 Riverside Dr., New York City 25, F.o.b., phone AC 2-1614.

SELL: Hallicrafters SX-62 realigned, $100; Globe Chief 90, $40; BC1306 80M xmtr rcvr wid PE237 mobile supply, not operating, $25. Carlson, K2PGW, 229 Cooper Ave., Dumont, N. J. Tel. DU 5-4882.

HAMMARLUND HQ-140X with integral International Crystal 100 Kc xtal calibrator; Heathkit Q multiplier, in exc. condx, $155. W. G. Robbins, 13 Gritman Ct., Westwood, N. J.

FOR Sale: Motorola Model T-19-30HR 10-meter 125 watt phone/transmitter, $65. Will not ship, sry. W9GII, 1009 Warrington Rd., Deerfield, Ill.

SELL: Best offer or trade for foreign auto: Apache transmitter, SX-101 III, Panadapter, Lavcr, 34 Eagle Lane, Farmingdale, N. Y.

WANTED: 105B and 205A Lampkin. Age, condx, lowest cash first letter. Jeff Rish, Rish Radio & TV, Pontotoc, Miss.

NEARLY New SX-99, $100; new UM-1 modulator, F/W, $25.00. Harristahl 6 M. xmtr, with AC P/S, $37.50. U pay shipg. K4JCX, 121 Maple, Oak Ridge, Tenn.

COMPLETE Station in enclosed cabinet. 32V2, SP600JX, antenna relay, directional coupler, speaker mike and pullout operating shelf. Complete 12V mobile Gonset Commander, Dynamotor, mike, plugs, etc. ATC-1 converter. One FCV-2, 6 meter converter, three BC-721 handie-talkies; two BC-1335s on 29.1 Mc suitable for CB. One RT12/TRC-2, suitable for Ship-to-shore. Condx excellent. Sell or trade. Reasonable offers considered. K4LIE, Burlington, Ky. Gaines Manor, R #1.

FOR Sale or trade: Factory wired Viking Valiant xmtr. Make offer. Wanted: DX100B or Apache xmtr, state condx, also SSB adapter for same. E. R. Arms, RFD 1, Harrisburg, Ill.

FOR Sale: Following purchased for evaluation. Now must go. All subject prior sale. Being sold as is: Collins 32S1 SSB xmtr, comp, with pwr supply, new, in cartons, total oprtg time, approx 2 hrs, $575; Hallicrafters HT32 SSB xmtr, in exc. condx, used approx. 5-10 hrs, $475; Drake Model 1A SSB rcvr used approx. 5-10 hrs, $200; National 6, 2 and 1¼ meter converters designed for use w/NC-300, new, in cartons, $25 ea; 1 Gonset G66B rcvr w/12 volt pwr supp., brand new, $175. If interested, contact Jack Scheider or Frank Lester, Hammarlund Mfg. Co., Inc., 460 West 34th St., New York 1, N. Y.

OLD *QST* and CQ. Original price. Send SASE for list. Kuschner, W4GRP, 210 Elm St., S.W., Vienna, Va.

SELL: Globe Chief 90. Asking $45.00. K8EHD, 712 E. Sandusky, Findlay, Ohio.

THOR, Xfrmr, 5840/4840 CT, 1130 V.A., $25.00; PR 805s, $20.00; 828, $12.00; Pr 872As, $10.00. W4EZC, 1480 Seagull Dr. south, St. Petersburg, Fla.

MOBILE First Class, AF-67 xmtr, PMR-7 rec, C-1050 pwr supp, 6-12 volt. Mike, cables, relays, coax, etc. for complete installation inc. MM antenna with all-band coil. $275. M. B. Johnson, 1135 Tamarack Trail, Chattanooga, Tenn.

DETROIT: DX100B, SB-10 transmitter AM, SSB perfect condition. K8LYI, Tel. LUzow 4-3845.

GLOBE Chief 90A plus SM90 Factory-wired, $55.00; L. M. McGee, WA2HPK, 58 Campus Dr., No., Buffalo 26, N. Y.

KWM-1, spkr, AC/DC supplies, rack, cables, Mosley trap antenna, mike, 10/15/20 fixed Hy-Gain vertical, $950.00. Dr. T. W. Samuels, K9MQL, 348 W. Prarier Ave., Decatur, Ill.

MINIFON P55 pocket recorder, case, microphone, table amplifier, battery eliminator, 160 minutes recording wire, shoulder holster, stethophones, exc. condx. Costs $482 new. Your best cash offer. K2DQD, Box 43, Bronx 66, N. Y.

SELL: 500 watt 6 meter linear, using 2 100THs, $50.00; pwr supply 2000V at 400 Ma., $50.00; Johnson 6N2 VFO, $40.00; SCR-522 2-meter transceiver, $25.00. Box 556. W. Lafayette, Ind.

NEW Components and equipment, ⅞" copper coaxial line, meters, power supplies, rack & panels, gear head motors, relays, tubes, miniature DC motors, differentials, antenna rotators, tremendous bargains! Write for complete listing. Dayton Aircraft Products, Inc., P.O. Box 8007, Ft. Lauderdale, Fla.

GLOBE DSB-100, exc. condx, $100. Will ship. Want: Gud Viking Ranger, trade or?? K7GRB, Smithfield, Utah.

RECONDITIONED! Terms! Trials! Full Guarantee! Mobile (and portable). Specify 6 or 12 volt: PMR-6 $79.00; PSR-6 $5.00; G-66 $149.00; 3069-PS $27.50; Commanche $139.00; M[illegible]S $100.00; NC-66 $69.00; KE-93 $179.50; Vocaline JRC-400's pair $39.95; Super 6 $39.50; Super 12 $54.95; 3BR $24.95; 5BR-1 $39.50; Regency ATC-1 $59.50; Lcece-Neville 6 volt complete $39.50; KWM-1's $699.50; Elmac A-54 $95.00; AF-67 $139.00; C-1050 $35.00; Cheyenne $129.00; Viking mobile $75.00; Palco 65 complete $119.00; Sonar SRT-120 $75.00; Stancor ST-203-A $32.50; Subraco MT-15X $37.50; Transcon 6 $69.50; PE-103 complete $19.95; Telecom 2D11 $49.00. Leo, W0GFQ, Box 811, Council Bluffs, Iowa—World Radio Laboratories.

WANTED: "Matchbox" 250-23-3; RME Preselector DB 23; Hallicrafters R-47 spkr. Prefer like new appearance and operation. State price, condition and age of item. R. L. Wildman, 469-9th St., Phillipsburg, Kans.

SELL: RME receiver, $125; RME 4301 SSB adapter, $60; multiphase Q multiplier, $15; Hallicrafters S-102 2-meter receiver, $45; Gonset Super Six converter, $40; Eico 720 transmitter $80; Heath VFO $15; 35 watt modulator, $35; Blue Racer bug, $12. No shipping. K2SOO, TA 9-9611.

75A4 for sale. In perfect condition. Serial No. 1819, $480. F.o.b. Iowa City, Iowa. Dr. Clifton Adams, Route 1.

SALE: GSB-100, like new, $395; Globe Champion 300, $275; HQ-129X (with bandspread 15 meters), $125; LM10 freq. meter internal modulation, with calibration charts and power supply, $70. All items in excellent condx, and will ship at your expense. Wanted: Meissner Comm. rcvr. Henry Mohr, W3NCX, 1005 Wyoming, Allentown, Penna.

6M transceiver in perfect condx, $80; complete description in May 1959 Popular Electronics. 100 Ma. meter instead of bulb. Converter output on BC bands; transmitter 15 w. input. Rig complete with all tubes and xtal (50.165). K9PSX, Tel. WO 4-1415, Milwaukee, Wis.

HRO50: Hallicrafters Panadaptor; Hallicrafters S36 with Navy Panadaptor; Millen 90801 transmitter with modulator and power supply; Morrow 5BR-FTR receiver; Heath AV2; Eico 488; PE-103; RAK-7 receiver. All new or in excellent condx. Best offer. W1PIL.

VIKING II with VFO, $165; B&W L1000 linear, $250. Electronic Engineering Co., Wabash, Ind.

TRANSFORMER for compact modern kilowatt power supply. Brand new. Highest grade commercial design. Very compact, efficient, hermetically sealed, oil-filled. 115 or 230 volt primary; 3750 volts at 400 Ma. each side of center-tap secondary. $34.50. New filter choke, 18 henry 1 amp., high voltage insulation, hermetically sealed, potted, $9.95. C. Brooner, P. O. Box 261, Morton, Ill.

75A-4 perfect, late serial No., $519; Collins 32S-1 xmtr, $479 and 75S-1 receiver, $410, both used; Collins 30S-1 linear, used only 27 hours. $1235; 100-V's old price $695; Johnson Pacemaker, perfect, $259; Gonset GSB 100 SSB exciter demonstrator, $399; HT-32, excellent, $449; used KWM-2 cash, no trades, $935; brand new 75A-4, orig. carton, factory warranty, serial No. 5508, $695. Will trade new 75S-1s for perfect 75A4's late serial. Money back guarantee always. Ed Moory, Ed Moory Wholesale Radio, Box 506, DeWitt, Arkansas. Phone WHitney 6-2820.

THUNDERBOLT factory-wired, $485. Must be picked up in your car because it's too heavy to ship. L. A. Morrow, 99 Bentwood Road, West Hartford 7, Conn. Phone ADams 2-2073.

SACRIFICE complete station: Johnson Pacemaker SSB exciter perfect, $249; Drake sideband receiver xtal calibrator model 1-A, new, $239.00; Tennalab beam 10, 15 and 20 full size, cost $217, sacrifice for $99; mech. filter 2.1 for 75A4, $44; Gonset linear GSB100 used 15 hours, $389; My mobile rig, Collins KWM-2, 12 volt d.c. supply and mobile mount. Best cash offer over $1229. Cost me $1467. Terms: certified check or money order. Money back guarantee. W. G. Davaul, 1724 Franklin St., North Little Rock, Ark. W5FOX, Phone FRanklin 4-0597.

GONSET Communicator III, $200; Drake A-1 receiver and matching speaker, $200; Johnson KW Matchbox, $100. Every item like new condx, used very little. James H. Hayes, K4RJZ, 1101 Spruill Ave., North Charleston, S. C.

IF you held a license (Amateur or Commercial) forty years ago you are eligible for membership in the Old Old Timers Club. You need not have held this license continuously. Initiation fee covers a life-time membership without further dues. Contact any member or write to Earl C. Williams, W2EG, Sec'y.-Treas., P. O. Box 462, Asbury Park, N. J.

FOR Sale: Collins 75S-1 #923, excellent condx. First $455 takes it. Will ship. KØIBH, Box 41, Kesley, Iowa.

KWM2. Will sell or take KWS1 in trade. Gonset 101 linear, $400. WØBNF, Box 105, Kearney, Nebr.

EXCELLENT Buy: Hallicrafters SX-101, Mark III shipped to your door prepaid express for $285. About 40 hours of operation and in a like-new condx. Shipped to you in factory carton. All inquiries answered. Ronald E. Farrell, KØHRN, Box 32, Lancaster, Mo.

HALLICRAFTERS SX-99 and R-46B, gud condx, $105. F.o.b. Jim Russell, 596 Rutland, W. Englewood, N. J.

DX-100, first $150 gets it. E. C. Froehlich, W9RZW, 802 North Central, Marshfield, Wis.

3 KW Wilcox commercial transmitters, 2 to 18 Mc, 3 only $100 each. Cash & carry. University Plating Co., 650 University Ave., San Jose, Calif.

SELL: ARC-5 xmtr 3-4 Mc, $10; rcvr 6-9 Mc, $10; Gonset Super Six, $30. All in operating condition with tubes. E. Taggart, W9RBM, Nashville, Ind.

DX-100, new condx, (4 hrs) $180; Meissner 9-1090 Signal Shifter, hardly used, $35; ART-13 transmitter with dynamotor and mike, $50; Webster model 178-1 wire recorder, unused, $45; BC-645 transceiver, new with tubes, $12. W9BTS, 4509 Guilford Rd., Rockford, Ill.

SELL: Hallicrafters SX-101, $300; DX-100, $150. Both in like-new condx. W. J. Suffich, 55 So. Carlen St., Mobile, Alabama.

WANTED: Ontario Division, SX99 or SX42 receiver with spkr. Garry Helferty, RR 1, Hampton, Ont. Box 56. Tel. RA 8-6081.

FOR Sale: Valiant xmtr, HQ-160 with spkr, Mosley Tribander, crank-up tower, rotator, 80 M vertical, presentation bug, monitor, mike, key. Good to perfect condition. $625 total. K5VTL, 703 Charles Pl., N. W. Albuquerque, New Mexico.

WANTED: 6M rcvr and xmtr. Carl Metzler, R. D. 1, Manheim, Penna.

PE103 dynamotor 6-12 volts inp., 500 volts 200 Ma DC outp., $10; Tecraft 6 meter concerter broadcast 1. F., $15; National SW54 rcvr, $35; 2 battery charges 6-12 volts, $12; 12 volts $8.00. Bud transmitter calibrator 90A, $14.00. Chris, WA2CGL, 64 Prospect Ave., D-7, Hackensack, N. J.

NEW Toro 115V 60 cycle 1200 watt generator with 3 HP B&S gas engine; FB for Field Day work; $125. Will be willing to deliver within 50 miles. H. A. Ausin, W1AZF, Windmill Dr., Sudbury, Mass.

GLOBE DSB-100 xlnt condx, $100. Shipped anywhere. Want: Gud Viking Ranger, will trade or ?? K7GRB, Smithfield, Utah.

SELL: Vertical antenna, $15; 15W. xmtr, $15; Knight VTVOM, $24, other parts. Gerry Ladd, K4KAZ, 2283 Fairway Circle, Atlanta, Ga.

EICO 425 5" oscilloscope for sale. Excellent condx. Best offer. K2QDM, 108-14 65 Road, Forest Hills 75, N. Y.

PE103, new, in original sealed container, $20. Ellis, 303 N. 13th, Richmond, Ind.

SELL: Viking Navigator, perfect, $110. William Trancig, K9-MYZ, Beecher, Ill.

THUNDERBOLT Factory-wired, one month; $500 or neat desk-top GO pair 813s, $100. K9ECA, Barry, 306 Nichols Rd, Madison, Wis.

AR88 for sale with S meter, perfect condx, 2 ATR inverters 6 & 12 volts inpt., 100 watts, Gonset Tribander converter, RCA 5" 'scope 160-B. WA2DCA, 9 W. Cedar Ave., Merchantville 8, N. J.

FOR Sale: Collins receivers, 75A1 and 75A2, both in exc. condx. $250 and $300. Will be willing to ship. Earl Reeve, W90NM, Oregon, Wisconsin.

FOR Sale! Parts, transformers, tubes, etc. Write for complete list. W5SYX, R 5, Box 208, Springdale, Ark.

SONAR SRT-120P 100w. fone/c.w. rig with VR tube keyer, 75w pwr supply, Heath VF-1, spare 829B, $65 or swap for photo enlarger. K6QKR, 5209 Manila Ave., Oakland 18, Calif.

HC-10, $90; Webster 80-1 wire recorder, $20; pair 220 PRI, 3KVCT 1/2 amp. vfrmrs $50; Masco PA 6L6s, $12.50. Joe Gillson, 109 Mullin Road, Wilmington 3, Del.

COLLEGE Student must sacrifice Waterman 3EP1 CR tubes. Still in factory sealed boxes. Ideal for 'scopes/monitors. Only $4.50. John Walker, W6WHR, 1887 Russell Pl., Pomona, Calif.

SSBERS! Keep up with SSB news and views! Join the Single Sideband Amateur Radio Association, dedicated to furthering good SSB operating; promoting advancement of SSB equipment; and disseminating SSB technical information. Read "The Sidebander", official publication of the SSBARA. Dues $3.00 yearly. Write for membership application, sample "Sidebander", to SSBARA, 12 Elm St., Lynbrook, N. Y.

FOR Sale: One used KWS-1 new PTO, just installed by Collins, $1100. Will deliver within 100 miles of Hartford. Corkey's of Hartford, 203 Ann St., Hartford 3, Conn. Tel. CHapel 6-5691.

FOR Sale: Harvey-Wells TBS50D with APS50 power supply. $75. Both in excellent condition. Fred N. Mertin, 417 S. Hill, Fayetteville, Ark.

MOBILE Station for sale. All Heath. Transmitter, used two months, fixed with excellent results. Receiver and power supply never used. $249.00, complete or will divide. Dennis McNichols, K9BIZ, 209 N. Goodwin, Urbana, Ill.

SURPLUS R-45/ARR-7 Hallicrafters receiver .55 thru 43 Mc. 6 bands $60.00; Precise #630 signal generator, new, $25; 4-65A, $5.00; 3BP1, $5.00; three 845 tubes, $2.00 each. Make an offer! Don O'Hallaron, WØIET, 13 N. Gore, Webster Groves, Mo.

NEATLY Wired, carefully adjusted SB-10 and Apache. Manuals. $90 and $235 respectively. L. H. Riney, K5OMR, 5934 S. Alameda St., Corpus Christi, Texas.

WANTED To Buy: RCA receiver AR-88 or Hallicrafters SX-28A. P. O. Box 106, Wethersfield 9, Conn.

FOR Sale: Barker & Williamson 5100B, like new, and 51SB-B, never used, with instruction books. Both $495. Robert B. Hupper, K2PLD, 47 Willits Rd., Glen Cove, L. I., N. Y.

CLEANING House! Sacrificing immense ten-year collection. Need space. Transmitters, receivers, test equipment, parts. Write "Radio Amateur", Box 351, Woodside, N. Y. for list.

SELL: C. E. 20A factory built with QT-1, 3 kc low pass filter and all-band VFO, $180; Hallicrafters SP-44 Panadaptor, $40. Excellent opportunity. Will ship F.o.b. New York City. Ed Piller, W2KPQ, 157-32 20th Ave., Whitestone 57, L. I., N. Y. Tel. IN 3-6834.

SX-101 Mark III-A receiver, in perfect condition. $295. C. Clement, Abbott Hill Rd., Wilton, New Hampshire.

SELL: B&W 51SB G. E. Sideband Jr., mfg. by Eldico. Tubes: 832, 829, 416B. No reasonable offer refused. Paul Hess, 800 Old Kensico Rd., Thornwood, N. Y.

VESTO 44 ft. tower, Johnson rotator, 20M beam. Take down, cart away. Best offer. V2FXE, Union, N. J., 456 Colonial Ave.

WANT: Viking Valiant, 500 or Globe King. Henry Oles, K8-MSX, 700 Coitsville Rd., Campbell, Ohio.

SELL: Hallicrafters SX100 with R46B spkr., $225. New, purchased in December 1959. In orig. carton. John R. Ottinger, 814 62nd St., Brooklyn, N. Y.

DX20, excellent mechanical and electrical condx, $30. WA2-BWS, Andrew Faber, 22 Carlton Rd., Great Neck, L. I., N. Y.

WANTED: 3.1 Kc mechanical filter for Collins 51J-4 receiver. For sale: DB23 Preselector, $35; FCC90A, 100 Kc freq. calibr., $12.50, 6 meter coil set for HR060, $25. All in like-new condx. M. W. Roscoe, 1880 18th St., East Moline, Ill.

COLLINS Mechanical filter for 75A4, 3.1 kc., $25; 80 meter HDVL coil, $3.00; Mercury power relay, 30 amp. contacts, $5.00. 416B tubes, 2, $4.00 each. W6IMC, 210 Alden Rd., Hayward, Calif.

FOR Sale: DX-100 with VX-1, $170; Gonset 2M Communicator with mike, beam xtal, $170; K2MEM, Tel. EM 3-6517. Herb Champlin, Jr., 15 Pine, Blue Point, L. I., N. Y.

HAVE New wood lathe. Will trade for receiver. Glen Phillips, Rte, 1, Hart, Texas.

SELL: QSTs, complete 1946-1958 run, in excellent condx, $35.00. Express collect. W2BJR, East Williston, N. Y.

HQ-140X with Navy LM 1000 kc. calibrator, A-1, $140; HQ-129X, A-1 $100. You pay shipping. K3EKO, Rt. 1, Box 176, Accokeek, Md.

HQ-129X looks and works like new; 15 meter dial, matching speaker: $130. W4GCR, 431 1st Ave., Eau Gallie, Fla.

SELL: DX-100, NC-98. Both in FB condx. Make offer for either or both. W3ZXR, 2106 Wharton Rd., Glenside, Penna.

FOR Sale: Hallicrafters SX101 receiver, in brand new condx: $275. Shipped prepaid. Philip Antokal, 6050 N. Whipple, Chicago, Ill.

SELL: 522 transmitter-receiver, 2-meter 5-element Telrex beam, $35. W4HXE, Bill Rosenberger, New Market, Va.

SELL: IRE Proceedings, bound yearly in buckram, 1940 thru 1954. Run in A-1 shape. Write to K4CA, 432 3rd Ave., Naples, Fla.

FOR Sale: HQ-110, $199.50; HQ-110C, $209.50; RME 4350 w/spkr., $185.00; P & H LA-400, $145.00; C. E. 20A, $200.00; PMR-6A w/12V. pwr. sup. (new), $150.00; Viking Mobile Xmtr., $65.00; Gonset G-77, $185.00; G-66B, with 3 way pwr. sup. & spkr., $175.00; RME DB-20, $19.95; SX-101 (very clean), $265.00; HRO-7, $169.50; Heathkit "Seneca", $145.00; Viking "500", $699.50; NC-173, $125.00; Globe Scout 680A, $85.00; Globe Chief 90A, $55.00; Heathkit AT-1, $25.00; Meissner Signal Shifter, $26.50; Gonset 6 meter linear, $122.50; Lysco VFO cw Xmtr., $49.95; SX-24, $59.95; SX-99, $105.00; Viking Valiant, $325.00; Heathkit DX-35, $45.00; Morrow Conclead Monitor, $29.00; DX-100 w/P.T.T. & TR Sw., $165.00; HQ-160, $265.00. Write Art Brown, W9IHZ, Brown Electronics Inc., 1032 Broadway, Fort Wayne, Indiana.

CHICAGOLAND Amateurs! Factory authorized service for Hallicrafters, Hammarlund, National, Globe. Service all amateur equipment to factory standards. Heights Electronics, Inc., 1145 Halsted St., Chicago Heights, Ill. Tel. SKyline 5-4056.

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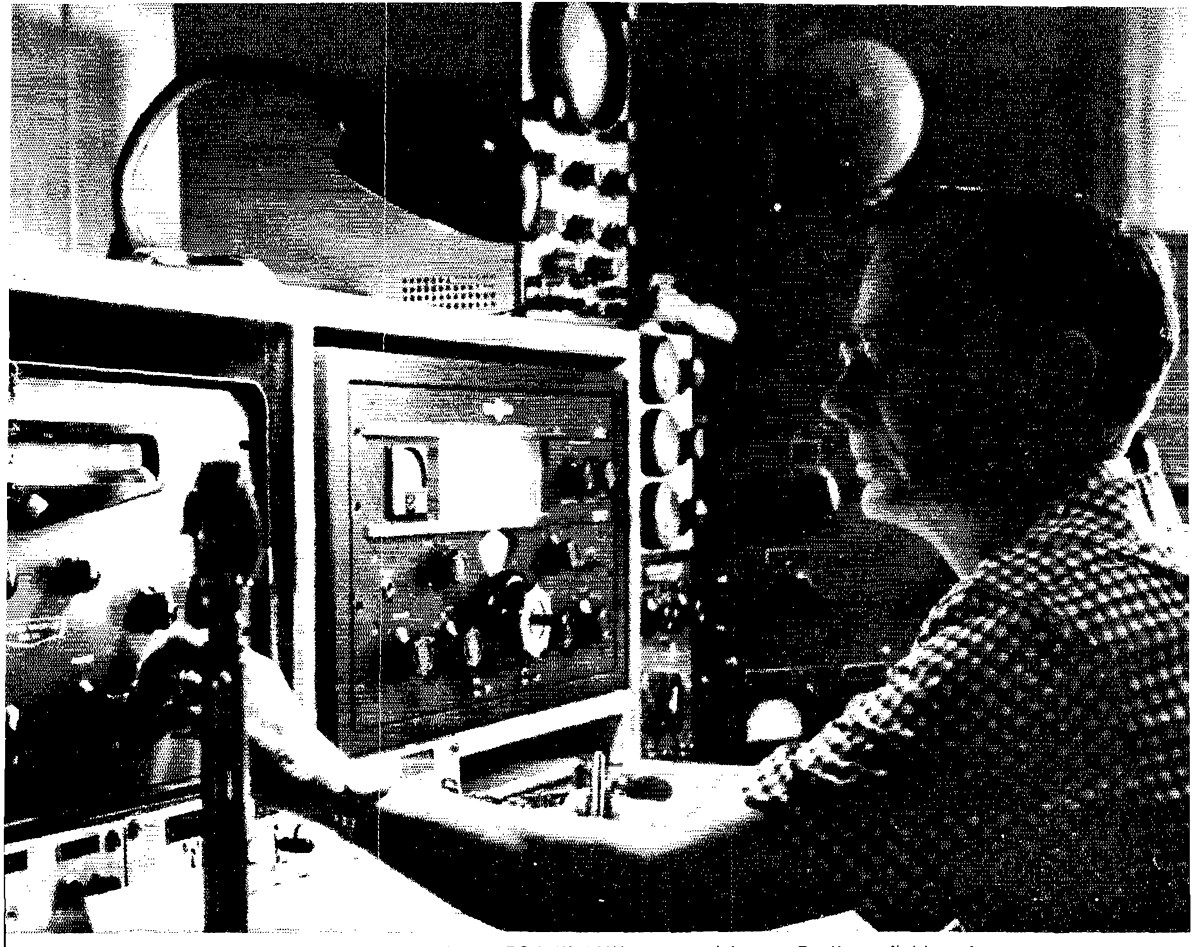

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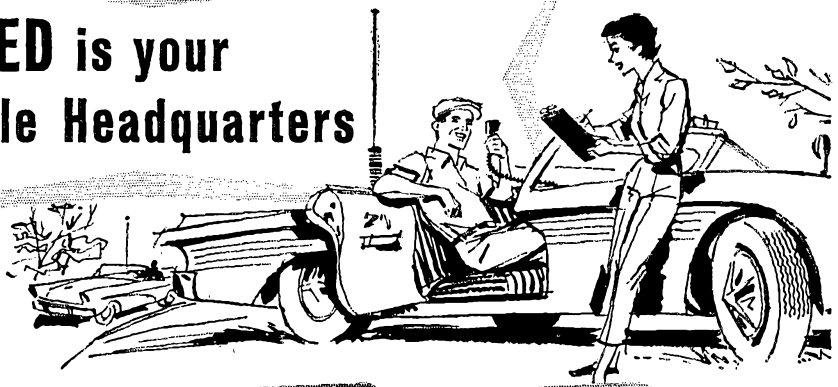

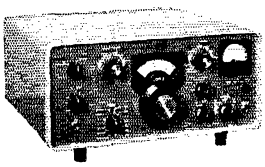

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KWM-2 Transceiver.$1095.00
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Power Supply..... 283.25

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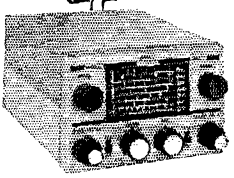
Power Supply..... 69.50



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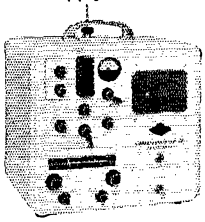

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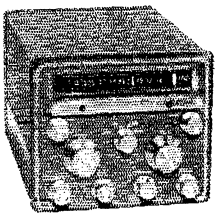
6 Meter Transceiver $299.50



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KE-93 Receiver.....$249.00
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Power Supply..... 49.50

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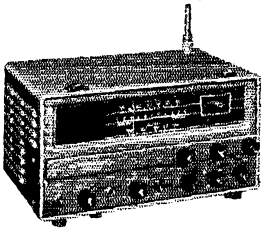
the most complete selections of mobile antennas, mounts, power supplies—everything for your mobile application.



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Transmitter Receiver,
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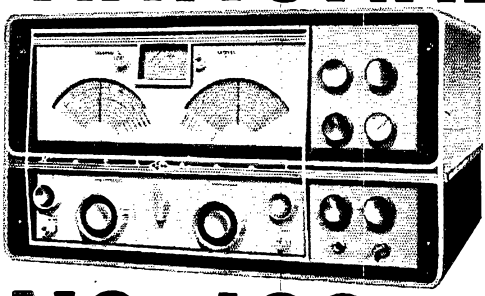

NC-400

The Most Versatile Communications Receiver Ever Designed

The NC-400 is a modern, multiple purpose, general coverage receiver. Tuning range is 540 kc to 31 mc in 7 bands, with dual conversion on all frequencies above 7 mc. Its unique design provides maximum flexibility of operation to satisfy a wide variety of communications requirements.

The NC-400 may be used as a self-contained unit, either manually tuned or crystal controlled on pre-selected frequencies. In addition, external master oscillator provisions make possible use of modern synthesizer techniques for applications where extreme frequency stability is required. It may be operated in space or frequency diversity applications. Provisions are made for interconnection of any required outputs or for feed to external loads or combiners. All frequency determining circuits may be internally or externally controlled. The NC-400 also provides optimum versatility of bandwidth, either through the use of internal IF circuits or the use of optional mechanical filters.

FREQUENCY RANGE:	GENERAL COVERAGE
Band 1	.54— 1.1 MC
Band 2	1.1 — 2.1 MC
Band 3	2.1 — 4.1 MC
Band 4	4.1 — 7.0 MC
Band 5	6.9 —12.2 MC
Band 6	11.8 —20.4 MC
Band 7	19.6 —31.0 MC

NOTE: Bandspread dial provided with 0-100 logging scale and calibrated for 80, 40, 20, 15 and 10 meter amateur bands.

FREQUENCY STABILITY: Long term stability after warm-up —.002%.

SENSITIVITY: 1 microvolt for 10 db signal/noise ratio

SELECTIVITY: 4, 8 and 16 kc positions provided with 6 tuned circuits. 3.5 kc wide upper and lower sideband positions provided with 14 tuned circuits. 3.5 kc sharp position activates plug-in crystal filter providing 5 additional degrees of selectivity below 3 kc plus phasing notch. Plug-in accessory available which will provide front panel selection of three mechanical filters without modification of receiver. Proper choice of filters will enable selection of bandwidths from 500 cycles to 16 kc, or will enable filter type of sideband selection from front panel.

SSB PROVISIONS: Separate SSB heterodyne detector uses pentagrid converter and separate beat oscillator. Beat oscillator may be crystal controlled. Special "fast-attack-slow release" AGC circuit. Sideband selection accomplished by exclusive, new National passband switching techniques. In the event of commercial-type SSB reception, single sideband mechanical filters may be installed and switched from front panel.

FIXED CHANNEL OPERATION: HF oscillator has 5 crystal sockets for use in fixed channel operation. Channels may be selected by front panel switch. In addition, HF oscillator may be controlled from external master oscillator selected by front panel switch. "S" meter "Tune" position permits rapid tuning of receiver to crystal controlled channel.

DIVERSITY PROVISIONS: Basic receiver may be operated from master oscillator as noted above. An accessory Diversity Modification Kit (NC-400 DMK) allows choice of internal or external control of all oscillators. Rear panel selector provisions make possible use of any receiver either as master control, or slave fed from other oscillator sources. IF, detector and AGC outputs available for feed to external loads or combiners.

POWER REQUIREMENTS: 110-220 volts, 50-60 cycles AC

MANUFACTURER'S SUGGESTED LIST PRICE: $895.*

OPTIONAL ACCESSORIES:

1. XCU-400 crystal calibrator. Output frequencies of 100 kc and 1 mc.
2. NTS-2 matching speaker
3. NC-400 DMK diversity modification kit
4. NC-400 FH mechanical filter housing

*Manufacturer's suggested list price. Sold only by National Co. Franchised Distributors

In Canada by Canadian Marconi Inc., 830 Bayview Ave., Toronto, Ontario

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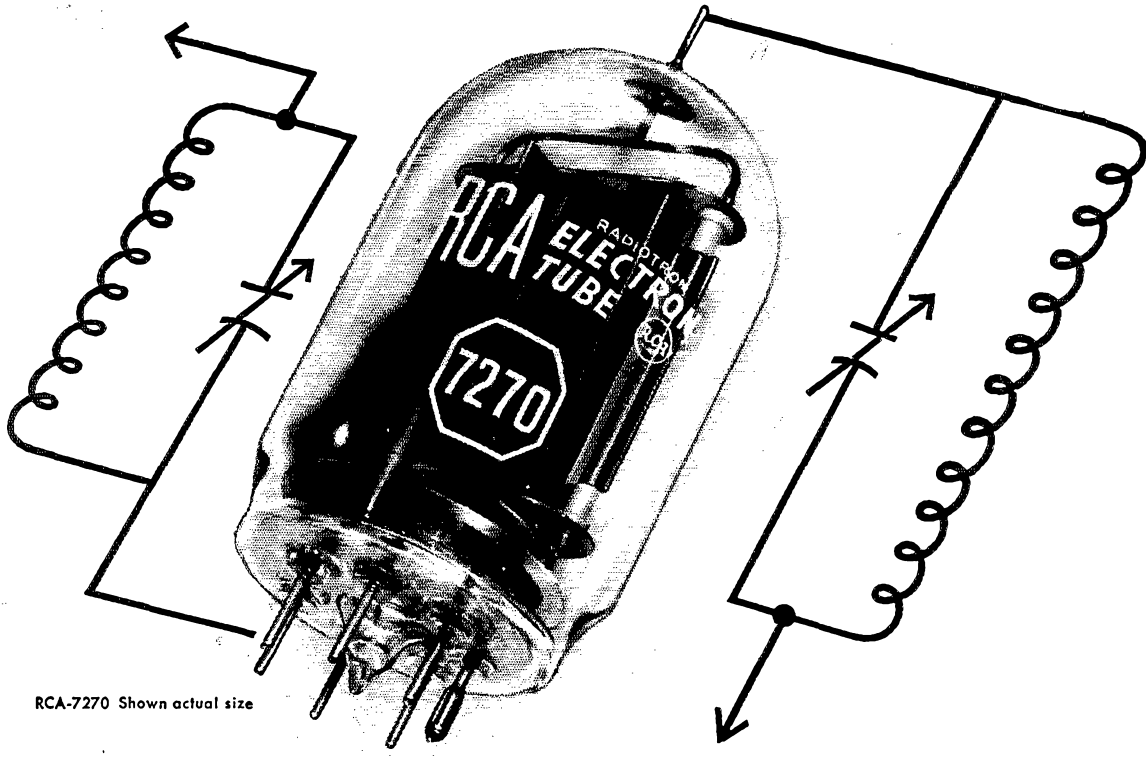

RCA-7270 Shown actual size

The FIRST High-Perveance "300-WATT" Input Beam Power Tube ...ever designed for Amateurs

• 315 watts CW input up to 60 Mc • 235 watts CW input up to 175 Mc

Fix your eyes on this—one of the sweetest little beam power tubes ever designed and built for an amateur medium-power transmitter.

Here, in a compact unit no bigger than a child's fist, is an all-new tube that takes over *a quarter KW input to 2 meters.* High-perveance design—an original RCA development—enables you to get maximum power with a plate voltage of only 1350 volts. High power gain makes it easy to drive one RCA-7270 (or two in push-pull or parallel) with a single RCA-2E26 or -5763 through 10 meters—or a single 2E26 for 6- and 2-meter operation.

Check the chart for a quick appraisal of the RCA-7270's capabilities. For a complete technical bulletin on SSB, AM and CW use, qsl, RCA Commercial Engineering, Sec. D-37-M, Harrison, N. J.

Typical Operation in Amateur Service to 54 M

Type of Service	CW	AM	SSB (AB1)▲
Heater Volts	6.3	6.3	6.3
DC Plate Volts	1250	1000	1250
DC Grid No. 2 Volts	300	400	400
DC Grid No. 1 Volts	—80	—107	—50
DC Plate Ma	250	190	185*
Required Driver Power Output Watts (approx.)	4	4	4.5*
Useful Output Watts (approx.)●	225	130	135*

*Max. Signal Value ▲With Single-Tone Modulation
●Measured at load of output circuit having 90% efficiency

RADIO CORPORATION OF AMERICA
Electron Tube Division **Harrison, N. J.**

Another Example of RCA's Contribution to Amateur Rad