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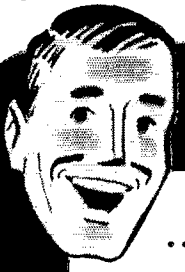

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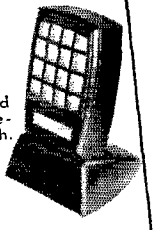

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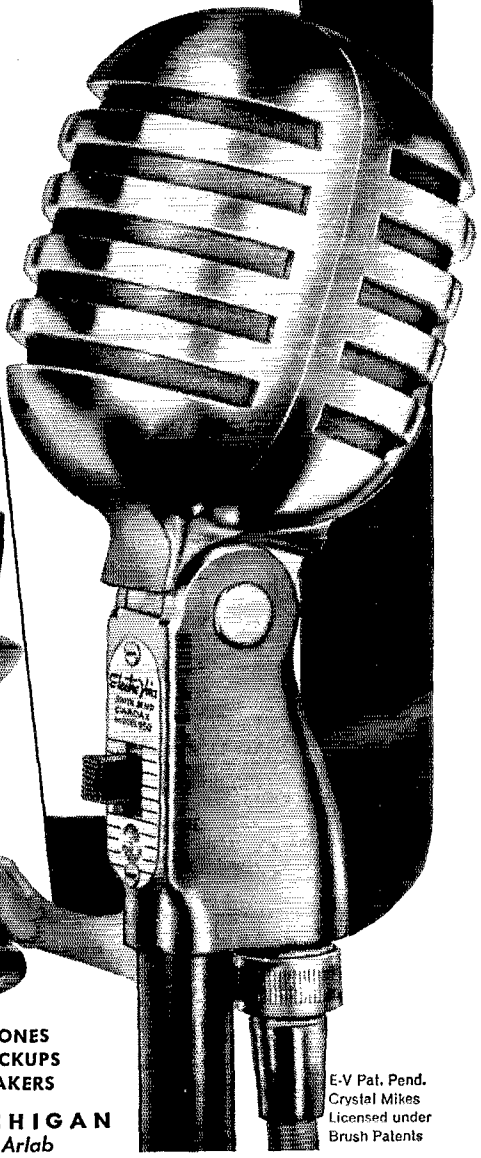

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AUGUST 1950

VOLUME XXXIV • NUMBER 8

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

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West Hartford 7, Connecticut

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Reports Invited. All amateurs, especially League members, are invited to report station activities on the first of each month (for preceding month) direct to the SCM, the administrative ARRL official elected by members in each Section. Radio Club reports are also desired by SCMs for inclusion in *QST*. **All ARRL Field Organization appointments** are now available to League members. These include ORS, OES, OPS, OO and OBS. Also, where vacancies exist SCMs desire applications for SEC, EC, RM, and PAM. In addition to station and leadership appointments for Members, *all amateurs* in the United States and Canada are invited to join the ARRL Emergency Corps (ask for Form 7).

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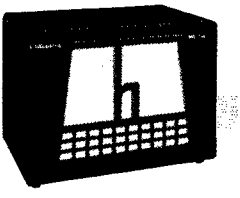

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It is an incorporated association without capital stock, chartered under the laws of Connecticut. Its affairs are governed by a Board of Directors, elected every two years by the general membership. The officers are elected or appointed by the Directors. 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.

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

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

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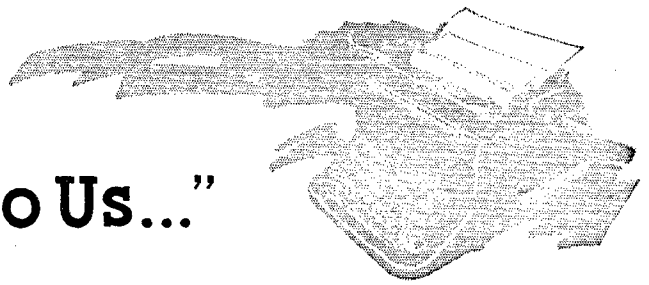

"It Seems to Us..."

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On a swing around the country not long ago we met several fellows who told us they thought the price of the *ARRL Antenna Book* was too low. Nobody, they said, expects to get much for a dollar these days, and unless they've actually seen the book they aren't likely to have even an inkling of the immense amount of good solid meat there is in it. A two-dollar price, they asserted, would probably increase the sale by a large factor.

Could be. There are people who figure they can't possibly get their money's worth unless they pay a high price. Of course, we aren't seriously considering raising the ante on the *Antenna Book* so long as costs stay at their present level. But the suggestion did start us thinking a bit about the value you get in League publications. Not just the value of the contents as they help you solve your technical and operating problems — it would be pretty hard to put a figure on that — but simply their prices in relation to the prices of other things we customarily buy.

It costs more to live in 1950 than it has in any other year in this half-century. It costs a lot more today than it did in 1926, when the League produced its first *Handbook*. We were pretty proud of that first *Handbook;* proud, too, of the fact that in that day it represented an outstanding money value among technical books. The price? One dollar. The size? One hundred seventy-six text pages. Now, in 1950, we have an *Antenna Book* also priced at one dollar. But it has nearly a hundred more pages than that original *Handbook*.

Or take the *Handbook* itself. The 1950 edition has over 600 pages, a veritable Montgomery-Ward catalog alongside that first edition. In its early days, revising the *Handbook* for a new edition was a pretty simple task, taking a few days' time on the part of two or three people. Now it's a year-round job occupying half the time of nearly a dozen members of the Headquarters staff. That, plus the fact that printing costs have risen at an unbelievable rate during the past few years, makes it simply impossible to produce such a book any longer at its original price. Still, at two dollars it's a real bargain even when compared with that first *Handbook*.

In ARRL publications your dollar buys much more, in 1950, than it did in 1926. Wish we could say the same about bread, butter, and bacon!

DIRECTOR ELECTIONS

This issue of *QST* carries, as it does each year, a call for nominations for candidates for director and alternate director in half of ARRL's divisions.

It is a notice which should be read by every League member, because it illustrates the means by which this thirty-six-year-old ARRL of ours gets its grass-roots democratic control. It should be read especially by members in the divisions concerned, since it is notice of their opportunity to place direction of the affairs of the League in the hands of men of their own choosing.

For many years, and especially in recent ones, the League has been "big business" both in the magnitude of its business operations and its activities in Washington and international agencies in regulatory matters. The successful operation of the League over these thirty-six years has required that our Board of Directors be composed of experienced, conscientious and hard-working men to assume the policy responsibilities. The League continues to need such men in its service.

The men you select, by nomination and vote, will guide the destiny of ARRL — and amateur radio. That privilege of election is both your right and your responsibility.

ARE YOU LICENSED?

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

The purpose of this column is to report schedules and operating times of active single-sideband stations, describe operating experiences and sometimes the gear in use, and possibly discuss some of the practical operating problems and suggested solutions. Contributions from active single-sideband stations will be welcomed.

THERE are amateur s.s.b. rigs in at least eleven different countries currently, with **PAØPVP** in The Hague now representing the Netherlands. A phasing rig patterned after the "basic 'phone exciter" is used, followed by a 6L7-p.p. 6AG7s-p.p. 807s broad-banded amplifier combination. Work so far has been on 80, but by the time you read this he may be on 20 and giving the gang a crack at PAØ.

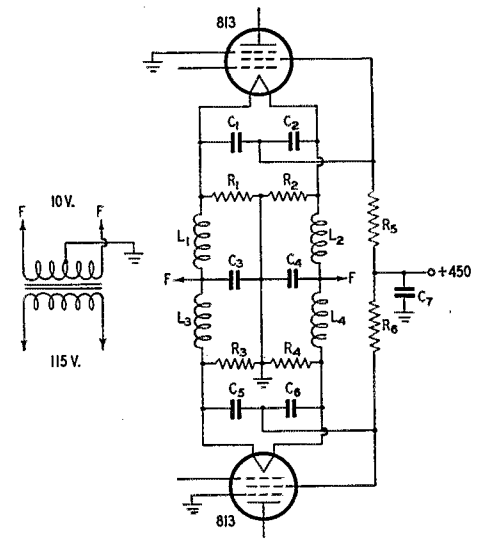
Dr. Joseph Dobry, **VE6DR**, of Cardston, Alberta, has long been interested in single sideband, and is now on with a National filter and a rig ending up with a 4-125A. Present operating frequencies are 3750 and 3984 kc. VE6DR has been all for s.s.b. since before the war, and relates how back in 1936 he placed an order through a large radio dealer for a single-sideband receiver, only to have his sanity questioned, just because the dealer had never heard of such a thing!

Hugo Romander, ex-W2NB, needs no introduction to anyone who was ever interested in the extended double-Zepp antenna. Now **W6CH** at San Carlos, he has a filter job on 75 ending up with a pair of HF-300s. The first CQ on 3999 brought a reply from **W2AZW**, at an early hour in the evening when it was hardly likely that the Middle West would be worked! Since then Hugo has been giving a lot of the s.s.b. gang their first W6 QSO on 75.

Mark at **W2ALJ** moved his phasing rig from 10 to 20 and worked **VK2CP** for his first VK contact by any means. The VK runs 100 watts to a filter job on 14,375 kc. and Mark has a kilowatt to four 5514s in the final. Mark also worked **VE7VP** (14,190). The nearest TV antenna is six feet away, but the Class B 5514s required only a low-pass and a high-pass filter to eliminate TVI.

W2AZW uses negative feed-back in his p.p. 813s final, and it has helped quite a bit on both stability and harmonic reduction. He sends along the circuit for those who haven't doped out how to get negative feed-back with filament-type tubes. The screen is returned to the filament, and both are kept above r.f. ground by the resistors.

— *B. G.*



Negative-feed-back circuit used at W2AZW for improving stability and reducing harmonics.
C_1, C_2, C_5, C_6, C_7 — 0.006-μfd. mica.
C_3, C_4 — 0.03-μfd. mica.
R_1, R_2, R_3, R_4 — 270-ohm 2-watt carbon.
R_5, R_6 — 300-ohm 1-watt carbon.
L_1, L_2, L_3, L_4 — 2-μh. choke, 16 turns No. 14 ⅞-inch diameter and 2-inch winding length.

August 1925

. . . The Chicago Radio Traffic Association is playing host this month to the ARRL Third National Convention.

. . . Tennessee has been moved from the Fifth Inspection District to the Fourth.

. . . Improved methods of plug-in coil construction are detailed by John M. Clayton, assistant technical editor.

. . . Three radio-equipped aircraft are accompanying this year's MacMillan-Navy Expedition to the North.

. . . Amateur radio has been providing a communications lifeline to the Hamilton Rice Expedition, engaged in exploration of the upper Amazon River.

. . . The U.S.S. *Seattle*, with Lieut. F. H. Schnell of ARRL Hq. aboard as an operator, is now en route from Hawaii to Australia. Amateurs are urged to log and work the *Seattle*, paying special attention to the 20-meter wave.

. . . The effects of electrical appliances and utilities in adding to the "noise level" in broadcast reception are considered by W. J. Williams.

. . . Practical smoothing circuits for use with S tubes are described by F. S. Dellenbaugh, jr., of M.I.T.

. . . The newest in antennas — a 20-meter beam with rotary reflector — has been installed at 9EK, the Burgess Laboratories station.

. . . General Radio Co. will furnish quartz crystals ground to wavelengths above 140 meters for $50 each.

. . . u1CMX has worked OK1 for the first amateur communication between the United States and Czechoslovakia.

. . . Noted stations described this month are g2OD, Bucks, England, operated by E. J. Simmonds, 6LJ-6CFT-6XP, Los Angeles, operated jointly by H. W. Leighton and M. E. McCreery, and 8ASE, Elm Gove, W. Va., operated by Edward Pence.

OUR COVER

W2ABS's tuned 75-meter mobile antenna makes a fitting accessory for his new Plymouth. See page 19 of this issue for complete design and how-to-build it data.

Better Results on 420 Mc.

Receiver and Transmitter Ideas for the U.H.F. Experimenter

BY EDWARD P. TILTON,* W1HDQ

As AMATEURS have moved higher in the radio-frequency spectrum our history has tended to repeat itself. The initial work in each higher assignment has been done with the simplest sort of gear, and one- or two-tube transmitters and receivers have been the order of the day. As the band in question filled with signals the search for better equipment soon started of necessity. In bands of four megacycles width it took only a few strong signals to tie things up in a given locality, and we had to go to something better than the modulated oscillator and superregen in order to progress.

Unfortunately, however, every move in the direction of narrow-band techniques resulted in a reduction of occupancy; there were always a good many fellows who were interested in a v.h.f. band only so long as they could use the simplest form of equipment. If forced to use multistage gear, whether by legislation or practical necessity, they moved back to some lower band where the employment of such gear would permit them to do DX work. Thus, today, we find 50, 144 and even 220 Mc. used by relatively small numbers compared to the occupancy that such assignments are capable of accommodating.

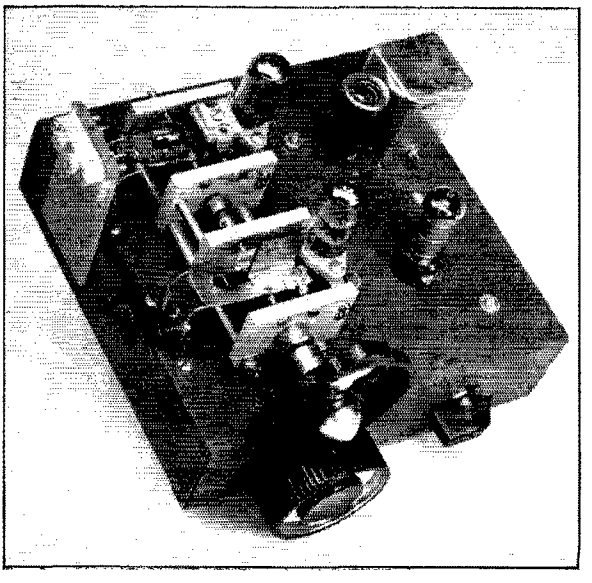
What, then, is in store on 420 Mc.? Not a few times we've heard some caustic comment when 420-Mc. crystal control and superhet receivers are mentioned. "Are we going to be kicked out of this band eventually, too?" the simple-equipment boys ask. The answer, we feel, lies in the width of the bands in question. The 4-Mc.-wide 50- and 144-Mc. bands require narrow-band techniques, and stabilization seems highly desirable for 220 Mc., but with 30 megacycles to roam around in there is little likelihood that we will soon fill the 420-Mc. band. Keeping within its confines should present no problem, either, so there is no apparent reason for anyone to agitate for the elimination of simple equipment from this band. At this stage of the game occupancy of any sort is perhaps more important than standardization on the most advanced methods, so our practice should be aimed at developing interest in 420 Mc. at all levels, leaving it to those who are sufficiently skilled to point the way to better results.

Receiver Techniques

Fortunately it appears practical to build receivers that will do a creditable job on the crystal-controlled signals, and yet be tolerant enough to permit communication with the modulated-oscillator stations. An approach for the fellow who wants the best, yet recognizes the activity value of the modest station, is described herewith.

We may as well face it: the superregenerative receiver is not the best way to receive weak signals on 420 Mc. These are harsh words from one who once regarded the "shush" of the superregen as only slightly removed from beautiful music, but experience has shown that the superregen is outmoded, except where utter simplicity and low power consumption are of paramount importance. This applies, though to a somewhat lesser degree, to superhets with superregenerative second detectors. You just don't get something for nothing.

Another hard fact we must acknowledge is that the selectivity of a receiver is a direct measure of its effectiveness. All other things being equal, the



An experimental model of a converter for 420 Mc. The oscillator section is in back of the vernier dial, with the mixer at the rear. Both use 6J6s with push-pull circuits. Note the oscillator padder capacitance made by soldering two parallel plates to the top of the U-shaped tank circuit. The tubes at the right are the 30-Mc. i.f. amplifier and the voltage regulator.

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

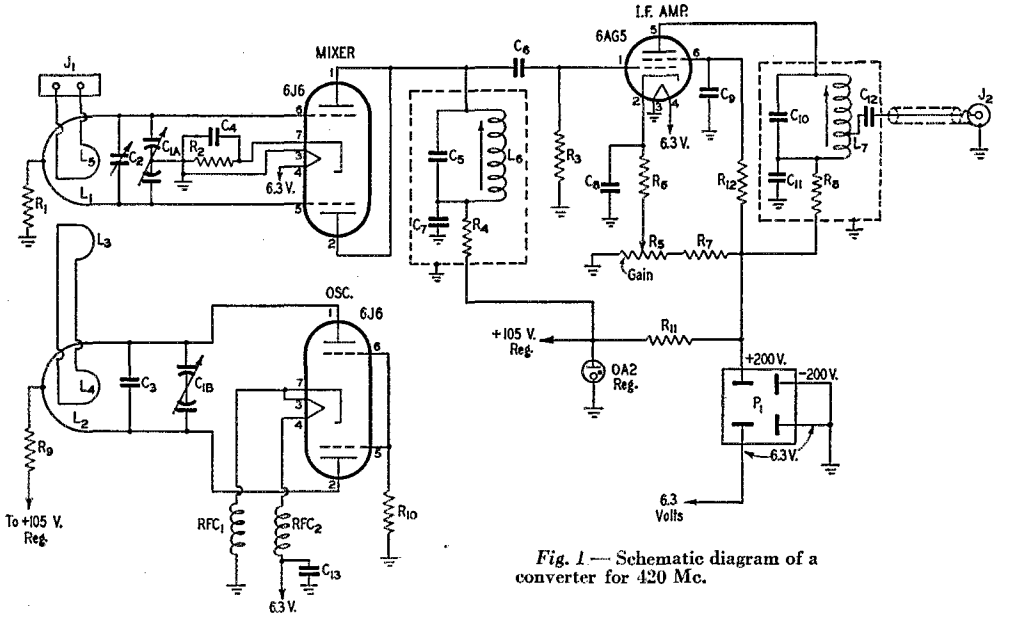


Fig. 1 — Schematic diagram of a converter for 420 Mc.

C_1 — Two-section ganged split-stator variable, 6.75-$\mu\mu$fd.-per-section stator to stator (National VHF-2D). One plate may be removed from each section to increase bandspread, if desired.
C_2 — 3–30 $\mu\mu$fd. mica trimmer.
C_3 — Padder capacitance made from two copper plates, $\frac{7}{8}$ by 1 inch in size, soldered across terminals of L_2 and C_1. Adjust spacing for band-setting purposes.
C_4, C_7, C_8, C_9, C_{11} — 0.005-μfd. disc ceramic.
C_5, C_{10} — 15-$\mu\mu$fd. ceramic.
C_6 — 50-$\mu\mu$fd. ceramic.
C_{12} — 500-$\mu\mu$fd. ceramic.
C_{13} — 100-$\mu\mu$fd. button by-pass.
R_1 — 470 ohms, $\frac{1}{2}$ watt.
R_2 — 1000 ohms, $\frac{1}{2}$ watt.
R_3 — 1 megohm, $\frac{1}{2}$ watt.
R_4, R_8 — 1000 ohms, $\frac{1}{2}$ watt.
R_5 — 10,000-ohm potentiometer.
R_6 — 68 ohms, $\frac{1}{2}$ watt.
R_7 — 33,000 ohms, 1 watt.
R_9 — 100 ohms, $\frac{1}{2}$ watt.
R_{10} — 3300 ohms, $\frac{1}{2}$ watt.
R_{11} — 2500 ohms, 10 watts.
R_{12} — 33,000 ohms, $\frac{1}{2}$ watt.
L_1, L_2 — U-shaped inductances cut from sheet copper, $\frac{7}{8}$ by $1\frac{7}{8}$ inches over all. Cut-out portion is $\frac{1}{4}$ inch wide. Solder directly to flat plates on the tuning-condenser stators, adjusting position of L_2 for proper tracking.
L_3, L_4 — Injection coupling loops of stiff wire, width of L_1 and L_2, and mounted closely under them.
L_5 — Antenna coupling loop of stiff wire $1\frac{3}{4}$ inches long, coupled closely to L_1.
L_6 — 10 turns No. 24 d.s.c. spaced to fill National XR-50 form.
L_7 — Same as L_6, but tapped at second turn from cold end.
J_1 — Antenna terminal — Millen 33102 crystal socket.
J_2 — Coaxial fitting (Jones S-201).
P_1 — 4-prong power fitting.
RFC_1, RFC_2 — 10 turns No. 22 enameled wire, close-wound on 1-watt resistor.

sharper the receiver the better will be its performance in weak-signal work. This tends to rule out the war-surplus altimeter and radar units having bandwidths of two to five megacycles. They are fine for reception of the broadest oscillator signals, but they are not apt to approach the performance of receivers having sharper i.f. systems.

On the other hand, unless we take extraordinary precautions in the matter of receiver oscillator design, it is going to be difficult to hold even a crystal-controlled signal in tune, with a receiver having the selectivity normally used in work on 50 and 144 Mc. A crystal-controlled source of injection voltage or a coaxial-line oscillator of rigid construction will do the trick, but use of an ordinary tank circuit in a tunable converter oscillator will require more tolerance than the ordinary communications receiver with a 455-kc. i.f. provides, even when the received signals are completely stable.

The bandwidth used in f.m. broadcasting provides a practical compromise. A receiver having an i.f. bandwidth of 200 kc. or so, and provision for f.m. and a.m. detection is fine for use with a 420-Mc. converter. With such a set-up most of the modulated-oscillator signals on 420 Mc. can be copied. They don't have "broadcast quality" to be sure, but if the rig is working properly and the operator can be talked into reducing his modulation percentage (actually it amounts to "deviation") the signal of the average modulated oscillator becomes quite readable. When a crystal-controlled signal is available, a.m. detection is used. The i.f. bandwidth is adequate to prevent trouble with critical tuning. Of course, if the multistage transmitters in the area have provision for wideband f.m. you can receive signals that will be the closest approach to broadcast quality that you're apt to find in amateur radio.

This is an opportune time to shop around for

an f.m. receiver to be used in this way. There are lots of them doing nothing, as a result of the shift in f.m. assignments. Receivers for the old band are useless to their owners and they may be willing to part with them at a very reasonable figure. The better f.m. receivers do an excellent job when used with a 420-Mc. converter, and even if the performance is none too good, the gain can be built up by using a preamplifier operating at the desired intermediate frequency in the converter.

There are several communications receivers that give excellent wideband f.m. performance at various frequencies from 27 Mc. up. These include the S-27 and S-36 (27 to 145 Mc. continuous), the SX-42 and SX-62 (27 to 110 Mc. continuous), and the SX-43 (44 to 55 and 86 to 109 Mc.). Any of these receivers is a natural for use with a 420-Mc. converter, since a.m. or f.m. detection is selectable from the front panel. The SX-42 and SX-62 have the added advantage that a choice of seven different bandwidths is available, when an i.f. of 30 Mc. is used in the converter.

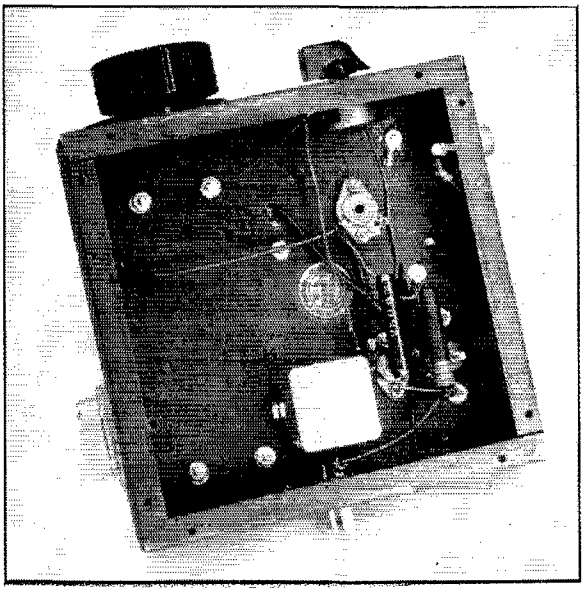
The writer has been using a simple converter working into an SX-62 in a series of radio club demonstrations of this receiving technique, and running extensive tests with it at W1HDQ. So far it has been possible to copy every 420-Mc. oscillator signal that has come on the air within receiving range, and some of them sound surprisingly good. In addition to its 10.7-Mc. i.f. for a.m. or f.m. the SX-62 has a high-fidelity a.m. position on the bandwidth selector switch that provides a somewhat broader passband than the usual communications receiver with a 455-kc. i.f. With this position it is possible to receive crystal-controlled signals without appreciable trouble from the instability of the converter oscillator. When the i.f. bandwidth is reduced to communications receiver proportions, tuning of the converter becomes too fussy to be entirely practical, no matter how stable the received signal may be. With a stable signal from the transmitter, this 420–30–0.455-Mc. arrangement gives better signal-to-noise ratio and sensitivity on amplitude-modulated signals than is the case when the 420–30–10.7-Mc. combination is used.

The converter boasts no particular novelty. It is a straight adaptation of techniques used for lower frequencies, as may be seen from the photographs and the schematic diagram, Fig. 1. Better results could be obtained by going to lighthouse tubes and special tank circuits but this very simple version does quite well. There is nothing about the principles involved to scare off any but the most inexperienced constructor. The oscillator and mixer are both 6J6s, these having been found to do the job at this frequency better than any other readily-available tubes.

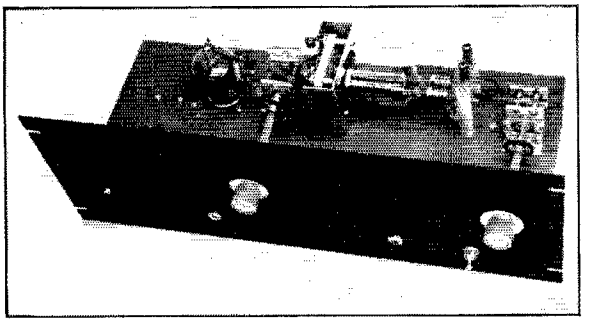
The inductances in these circuits were cut from flashing copper, in U shape. They are soldered to the flat surfaces attached to the tuning condenser stators, the exact position being adjusted to give the desired bandspread on the oscillator and tracking on the mixer. The tuning condenser is a type especially designed for v.h.f. and u.h.f. converter service, with brackets for mounting miniature tube sockets as an integral part of each section. It is thus possible to solder the tube-socket lugs directly to the tank circuits, eliminating leads of any sort.

A 30-Mc. i.f. amplifier stage using a 6AG5 follows the mixer. The intermediate frequency, 30 Mc., was selected to permit use of the converter with either of the i.f. channels available in the SX-42 and SX-62. With a low-band f.m. receiver the i.f. would, of course, lie between 42 and 50 Mc. No great change in performance results if the i.f. is made 88 Mc., in order to work the converter into f.m. receivers designed for the new band. The i.f. amplifier might well incorporate the cascode circuit when the higher i.f. is used. The amplifier stage is important; don't try to do without it. The output of a 420-Mc. mixer is low, and so is the front-end performance of most receivers at 30 Mc. and higher. In the rare instance that the gain of the extra stage is not needed, the amplifier is still a convenient means of controlling the gain of the system.

Where only a.m. detection of stable signals is desired, a good i.f. channel is available in the form of the BC-455 surplus receiver. The 2830-kc. i.f. in this job is tolerant enough to compensate for the slight oscillator instability that is characteristic of even the best converters at 420 Mc. This approach is being used effectively by G5BY



Bottom view of the 420-Mc. converter.



A tripler-amplifier for 420 Mc. Using two dual tetrodes, one as a tripler from 144 Mc. and the second as a straight-through amplifier, this unit delivers 25 watts output on 432 Mc. It can be driven by any 144-Mc. exciter having an output of 8 watts or more.

in two-way work over distances up to 160 miles, c.w. and 'phone. In the interest of improving oscillator stability Hilton uses a 6J6 oscillator-tripler combination to provide his injection voltage.

How about r.f. amplifier stages? Much of the progress in v.h.f. reception has come about since amateurs began to employ low-noise r.f. amplifier techniques. We will want to make use of r.f. amplifiers of advanced design on 420 Mc., too, but there is much to be done with relatively-simple converter designs first. If the over-all gain of a 420-Mc. receiving system is low, it is much easier to build it up after the mixer than before. Developing adequate gain *after* the mixer is more important in the 420-Mc. converter than in designs for lower frequencies, because of this difficulty in attaining satisfactory performance in r.f. amplifiers at the signal frequency. It is unlikely that any r.f. stage can be built with standard low-cost tubes and conventional tank circuits that will add appreciably to the performance of a 420-Mc. converter. Lighthouse tubes or the new "pencil" triodes will do the trick, when provided with suitable tank circuits. This means coaxial or trough-line construction; there does not appear to be any other way out of it.

Stabilized Transmitters

The generation of stable r.f. power at 420 Mc. is not particularly difficult so long as we are satisfied with a few watts of output, and we are not too concerned with the amount of power we pull off the a.c. line to get it. Most of the stations now on the air with crystal control are using 832A triplers, and some have added straight-through amplifiers using the same tube. The average power output of such layouts is one to two watts for the tripler, and five or six watts for the amplifier.

Experiments with the various u.h.f. triodes operated as triplers have been generally disappointing. The 24G, 316A, 15E, 8012 and 8025 will all triple to 420 Mc. with varying degrees of efficiency, but with certain disadvantages that have led most workers to concentrate on the tetrode types. Triode triplers to 420 Mc. must be run with extremely high bias, and with an almost prohibitive amount of grid drive at 140 Mc., in order to operate with any efficiency. The high grid-drive factor results in a strong signal being radiated on the driving frequency, unless elaborate shielding precautions are taken. Even then, there is usually enough fundamental output from the tripler stage to make the 140-Mc. signal about as strong as the 420-Mc. one.

Exhaustive tests run by G5BY with 8012s indicate about what can be expected of triode triplers at 420 Mc. With a 144-Mc. driver stage capable of delivering up to 100 watts output, Hilton checked the performance of push-pull triplers using 8012s. At moderate values of grid drive, almost no 432-Mc. output was obtained, but when the drive was increased to 25 ma. or more, through a 20,000-ohm grid resistor, things started to happen. Better than 30 per cent efficiency could be obtained at plate voltages from 250 to 660 volts and inputs from 21 to 105 watts. At plate voltages from 400 up, a considerable increase in output was obtained when the grid drive was increased to 30 ma.

It should be pointed out that these were laboratory tests only. Inputs above 25 watts are not permitted for communication purposes in England, but even at such low power levels the 8012 triplers provided slightly better output than did an 832A tripler. The excitation requirement of the latter was only a small fraction of that of the triodes, however.

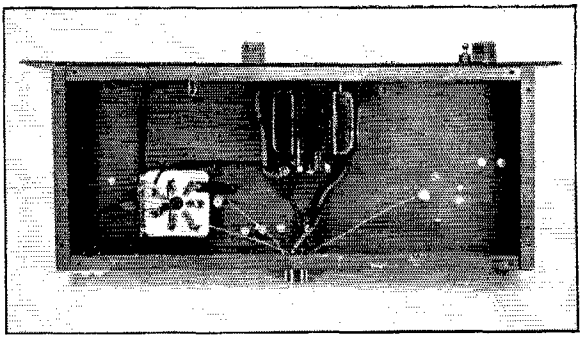
A new tube type recently introduced in the United States by Amperex shows about as much promise as any tube yet tried in conventional circuits at 420 Mc. This dual tetrode, known as the AX-9903, has tube capacitances approximately the same as the 832A, but the plate dissipation rating of an 829B. An experimental tripler-amplifier unit using these tubes is shown in an accompanying photograph, with the circuit diagram in Fig. 2.

This set-up is suitable for use with an SCR-522 or similar source of 144-Mc. power as a driver stage. With a 400-volt plate supply it is capable of delivering up to 25 watts output on 432 Mc.,

TABLE I

Operating Conditions for the 420-Mc. tripler-amplifier shown in Fig. 2.

	Plate Ma.	*Screen Ma.*	*Grid Ma.*	*Output*
Tripler	135	6	3.5	10 watts
Amplifier	190	10	5	25 watts



Bottom view of the tripler-amplifier. The socket at the left is the tripler with its self-resonant grid circuit mounted directly on the socket lugs.

without exceeding the plate-dissipation ratings of the 9903s. The plate circuits of the tripler and amplifier stages are similar, incorporating half-wave lines, tuned with small split-stator condensers at the open ends. The interstage coupling is capacitive, small strips of stiff copper being soldered to the grid terminals of the amplifier socket and then run closely parallel to the tripler plate line. Antenna coupling, for feeding a balanced line, is a U-shaped loop coupled to the amplifier plate line. Operating conditions for the tripler-amplifier are given in Table I.

Considerably higher efficiency can be obtained if shielded assemblies are employed. It is reported that 32 watts measured output has been obtained with an AX-9903 in a completely-enclosed assembly with forced-air cooling. The shielding is not required to prevent self-oscillation, however, with either the tripler or the amplifier, and the same seems to be true of the 832As.

It should be emphasized that the arrangement shown is an experimental layout, put together hurriedly to try the tube's potentialities. It should not be regarded as an example of the best techniques. It is probable that a more effective tank circuit could be made by eliminating the tuning condensers, making the line longer, and substituting a movable piece of high-quality dielectric material between the open ends of the line, as a tuning device.

As with receiver circuits, the most effective arrangements are the coaxial or trough-line devices, designed for use with lighthouse tubes, or other coaxial-electrode types. With the exception of some that were available for a while on the surplus market, these tubes are all pretty expensive, but that hasn't kept a good many hams from using them to good advantage. And perhaps we should not always be scared off by high initial cost of a new tube type. Often when we examine all the factors that enter into the picture, we find that the total cost of a complete rig may not be more when the higher-priced but more effective

(*Continued on page 80*)

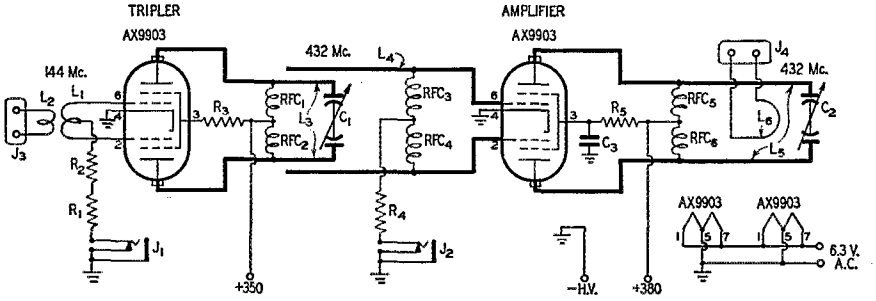


Fig. 2 — Schematic diagram of the tripler-amplifier for 432 Mc.

C_1, C_2 — Midget split-stator variable, about 4 $\mu\mu$fd. per section (Millen 21912D).
C_3 — 250-$\mu\mu$fd. ceramic.
R_1 — 50,000 ohms, 2 watts.
R_2 — 100 ohms, ½ watt, at center tap of L_1.
R_3 — 25,000 ohms, 10 watts.
R_4 — 6800 ohms, 1 watt.
R_5 — 20,000 ohms, 10 watts.
L_1 — 2 turns No. 14 enamel, 9/16-inch diameter, spaced twice wire diameter.
L_2 — 2 turns No. 20 enamel, 9/16-inch diameter, between turns of L_1.
L_3 — Flexible copper or silver ribbon, ¼ inch wide and 3⅜ inches long. Average spacing about ¼ inch.
L_4 — Stiff copper strips 1⅞ inches long. Adjust spacing between L_3 and L_4 for maximum grid current, as read in J_2.
L_5 — Flexible copper or silver ribbon, ¼ inch wide and 3¼ inches long, including ¼ inch bent over for fastening to heat-dissipating connectors. Average spacing of line is about ⅝ inch. The connectors must be filed down to provide a spacing of at least ¼ inch between their inside edges.
L_6 — Coupling loop of No. 14 enameled wire. U-shaped portion is about 1 inch long. Adjust spacing between loop and L_5 carefully for maximum output.
J_1, J_2 — Closed-circuit jack.
J_3 — Crystal socket (Millen 33102).
J_4 — Antenna terminal (National FWG).
RFC_1, RFC_2, RFC_5, RFC_6 — U.h.f. choke (Ohmite Z-235). Attach to plate lines at point of lowest r.f. voltage.
RFC_3, RFC_4 — 11 turns No. 22 enamel, 9/16-inch diameter, 1 inch long. Attach directly to socket tabs.

{Continuing the ARRL Series on Amateur Operating}

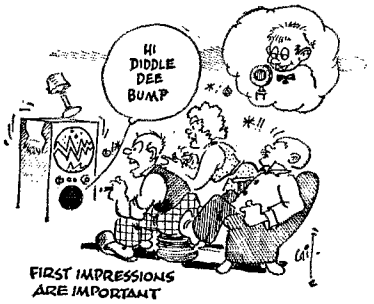
Basic Operating Procedure

Part II — Radiotelephony*

BY EDWARD P. TILTON, W1HDQ

THE introductory paragraphs of Part I of this article* apply equally to voice or code work, and many of the basic principles outlined may be used in 'phone operation. In fact, an early tendency in voice work was to adapt nearly all c.w. operating procedures and signals to vocal form, sometimes with rather foolish-sounding results. Thus, we still hear voice operators saying "kay," "dah-dee-dah," or worse, in vocal imitation of the c.w. form, when actually straight English would do the job better and with a more sensible sound to everyone.

Impressions of amateur radio on the part of the general public are largely the result of reception of amateur 'phone conversations. This may occur under conditions such as TVI or BCI, when the



interfering amateur will need every advantage he can gain in keeping peace. Obviously, it will do no harm in such instances to be using operating practices that create a favorable impression. More important, we want to operate at maximum efficiency for our own purposes, so it behooves us to study our voice-operating technique carefully, making sure that we are using the most effective, as well as the strictly-legal forms.

Calling

There is some difference of opinion regarding the voice version of the general call, and here is an instance where good sense and personal preference may apply. Many operators use the word form:

> CALLING ANY STATION — or CALLING ANY TEN-METER STATION — THIS IS (or FROM) W1ABC

Others prefer the older form:

> CALLING CQ, CQ TWENTY, CALLING CQ TWENTY-METER 'PHONE — THIS IS (or FROM) W1ABC

Use of THIS IS or FROM is specified in the regulations.

In either case the call length, preceding identification, should be about the same as for c.w. No apparent purpose is served by repeating the general call more than five times without signing, and three is better, especially after the first signature. Many like the 5-and-3 followed by two repeats of 3-and-3: five calls, three signs; three calls, three signs; three calls, three signs. This seems to be a good average, to be altered either way, as occasions may require. Some operators prefer to sign their own calls once, or at the most twice, the first and second times, leaving the phonetics and station location until just before the conclusion of the call, but everyone likes to know the identity of the calling station early in the call. The often-expressed disgust for the long-winded CQ, especially when unaccompanied by a signature until the very end (at long last!), makes one wonder why some operators still do it. The directional CQ may be made as long as the occasion requires, so long as the directional information is repeated frequently, so that nobody outside the territory being sought then feels constrained to listen.

It is frequently helpful to the listener if the calling operator indicates where he expects to start tuning for replies. This is particularly important in the wide bands (28 Mc. and higher) and it should be standard procedure in 'phone DX work, where the foreign stations are usually in a different part of the band from those in this country. The general call should be concluded with COME IN SOMEONE, PLEASE or just OVER — never "kay, please," "doe-dee-doe," or other oral imitation of the c.w. form.

In calling a specific station (to establish contact) the c.w. form may be followed, substituting suitable words for the c.w. signals:

> W2DEF W2DEF W2DEF — THIS IS (or FROM) W3GHI, W3 G-GEORGE, H-HENRY, I-IDA, W3GHI, SMITHVILLE, MARYLAND, COME IN, PLEASE

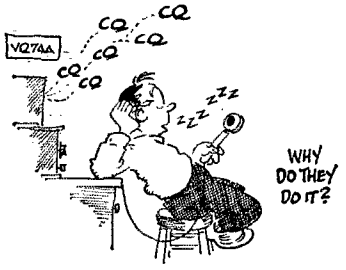
The phonetic identification and station location are optional and are used, as aids to better communication, at the discretion of the calling operator.

There is no generally-accepted practice in voice work to correspond to the $\overline{KN}$ used in c.w. work, though the desire for contact with one station only can be expressed in simple words, should the occasion arise.

The length of the call and the method of signing vary with different bands and different types of operation. Good sense and a knowledge of current conditions should provide the answer. If in doubt, always sign more frequently, rather than less so. Probably there is nothing so annoy-

* Part I, entitled "Radiotelegraphy," appeared in July, 1950, *QST*.

ing to the fellow at the other end as to be forced to listen to seemingly endless repetition of CQ or his own call, so the shortest call that will do the trick should be used. On bands where operation is largely with stations near one's own frequency there is little point in anything but a short snappy call; probably not more than five repetitions of CQ or the call of the station one is attempting to



raise. In DX work on 10 or 20 meters where the DX and the Ws are in different parts of the band, a longer call may be required, but even here there is nothing lost in adhering to the 5-and-3 technique:

VK4JK VK4JK VK4JK VK4JK
VK4JK — THIS IS W5LMN (followed by 3-and-3 repeats, as required) — OVER

While in Contact . . .

Calling-and-signing procedure, once contact is established, is the same for voice or code, so far as the regulations are concerned. Voice-controlled break-in (as now practiced by some single-sideband stations) or push-to-talk operation may be carried on in the manner outlined in Part I, so long as calls are signed at least once in ten minutes, and no single transmission exceeds three minutes. On a good circuit no beginning or ending signals may be needed, but if there is any doubt about the reliability of the circuit it is usually desirable to finish one's words with BREAK or OVER. If in doubt of compliance with the three-minute or ten-minute rules, signing in the standard manner is best, to play safe. Duplex operation (both transmitters and receivers operating continuously) may be employed, on bands where such operation is permitted, by observing the ten-minute rule.

Terminations

Probably more incorrect and misleading procedure is used in bringing contacts to a close than in any other facet of voice operation. Here, again, let's keep in mind that we want to obey the law, and let other operators know our intentions. If we call and sign in the proper order we have complied with the regulations, but we may leave listeners completely confused if we adopt the procedure currently popular with some voice operators. If you have said all you intend to say, but require a reply from the other fellow, something like this is in order:

W6OPQ — THIS IS W7RST SIGNING OFF AND OVER or SIGNING AND BY FOR YOUR FINAL

The former is preferable; brief but adequate. If we stop and try to analyze what it means we will throw the now-too-popular "over-off-and-in-the-clear-and-by-for-your-final" routine out for good. It would be hard to think of anything more contradictory or confusing.

If the other fellow has made his concluding remarks, and the "final" is up to you, finish it off with:

W6OPQ — THIS IS W7RST SIGNING CLEAR

That's all that is required, unless you wish to indicate whether you are in the market for further business, in which case:

W6OPQ — THIS IS W7RST SIGNING CLEAR AND STANDING BY ON TWO METERS or SIGNING CLEAR AND LEAVING THE AIR (or CLOSING DOWN)

It is important that the operator follow through with his announced intentions. If W7RST says that he will look over the band he is duty bound to do so. If W6OPQ decides that more comments are required (he didn't plan things right if they are) W7RST should still look for other calls. If another station is heard calling, W7RST should reply and ask him to stand by for a moment. He may even get in a quick acknowledgment to W6OPQ while the new fellow is calling. In any event, the primary obligation is to the new station; "final-finals" with W6OPQ should be treated as secondary, and handled as briefly as possible.

Special Signals and Phonetics

Q signals and the like were developed to save time in code operation; ordinarily they are excess baggage in 'phone work. There is little need for "— and W8UVW is QRZ on the band," for example. "PLEASE STAND BY" is as easily recognized as "QRX" and it makes more sense when spoken into a microphone. The same applies to most of the special signals used in c.w. work. Exceptions are the important attention-getters: CQ, QST, and QRRR.

The use of phonetics for identification has come in for a tremendous amount of abuse in amateur voice operation, particularly since the war, when thousands of operators were trained in the constant use of the armed forces word list. We were issued calls, consisting of three or four letters and a number, by FCC. If they had intended us to use words they would have issued us words in the first place. Phonetics, properly used, can be very helpful in 'phone work, but let's keep them in their proper place by signing with the letters first, then following with the phonetics. The point is to avoid using the phonetics more often than they are required. Using them on the other fellow's call, for instance, serves no useful purpose, unless a check on the call is asked for.

Use of phonetics in calling and signing:

W1ABC W1ABC (no phonetics) — THIS IS W2DEF, W2 D-DAVID, E-EDWARD, F-FRANK; W2DEF OVER

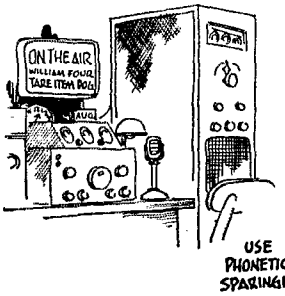
Some operators prefer direct substitution, as in:

THIS IS W2DEF, W2 DAVID EDWARD FRANK, W2DEF OVER

Either is correct, the important angle being to avoid using phonetics *exclusively*. Use of phonetics in spelling out place names is much more effective when the letters are pronounced first, followed by the phonetics:

UTICA — U-UNION T-THOMAS
I-IDA C-CHARLIE A-ADAM

has it all over "union thomas ida charlie adam" because the former registers a series of letters in the other fellow's mind, not a series of words that requires translation into letters.



What words? There are many word lists, each carefully worked out to suit a special purpose. The armed forces word list concentrates on very simple words, intended to be used as direct *substitutes* for letters. Not all of them are words that provide maximum intelligibility in amateur work, however. The ARRL Word List uses medium-length words, largely proper names, chosen for their distinctive characteristics. It can be shown that two syllables help, in providing a "clue" in case one syllable is missed through fading or interference. Place names were avoided, as they tend to cause confusion.

Amateurs, individualists all, are prone to invent their own phonetics, coming up with humorous slogans, and bringing in the Chamber of Commerce angle by using place names. Some of these tend to be mildly amusing the first time we run across them, but they usually wear pretty thin on repetition. Other operators, fortunately a small minority, have cooked up phonetics that are positively odious; combinations that cannot fail to create a bad impression. It's better to play safe, and use the standard word list or reasonable facsimile. It will make sense to everyone, and improve our operating efficiency. After all, we are in the game to communicate with one another, not to entertain the listening public, if any.

ARRL Word List for Radiotelephony

ADAM	JOHN	SUSAN
BAKER	KING	THOMAS
CHARLIE	LEWIS	UNION
DAVID	MARY	VICTOR
EDWARD	NANCY	WILLIAM
FRANK	OTTO	X-RAY
GEORGE	PETER	YOUNG
HENRY	QUEEN	ZEBRA
IDA	ROBERT	

Portable and Mobile Operation

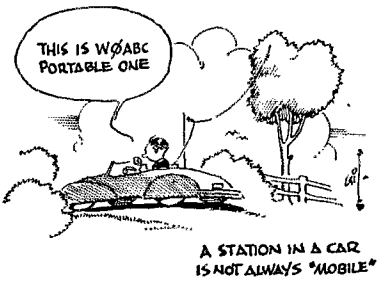
Best operating practice for portable and mobile stations using voice is, like what has gone before, a matter of complying with FCC regulations first, and then making the status of the station clear to other amateurs. Regulations require that the operator of a portable or mobile station give his call and the approximate geographical location at the end of each contact. This makes no distinction between the truly portable station and one that is being operated at a location other than the licensed location, but is otherwise a "fixed" station in the usual sense. It is of interest, and sometimes helpful, to know the status of a portable station, so the term "fixed-portable" is usually applied to the station in a new location, awaiting license modification. Thus, we have the following accepted (and legal) practice:

W9XYZ — THIS IS WØABC MOBILE IN THE FIRST CALL AREA NEAR WORCESTER, MASSACHUSETTS. (Mobile station, actually in motion.)

W9XYZ — FROM WØABC FIXED-PORTABLE ONE, WORCESTER, MASSACHUSETTS. (WØABC has moved to Worcester and is awaiting license modification.)

W9XYZ — THIS IS WØABC PORTABLE ONE, ASNEBUMSKIT HILL, NEAR WORCESTER, MASSACHUSETTS. (WØABC is operating a portable rig, as in Field Day work, from a temporary location. A station in a *parked* car is a "portable," not a "mobile.")

The portable designation need not be used by W9XYZ in replying to WØABC/1, unless he wishes to do so.



Though some mobile operators still use the term, there is no such thing as a "portable-mobile" station.

An amateur station operating aboard ship signs off as follows:

W1WVU — FROM W2TSR MARITIME MOBILE ABOARD THE TANKER GULF DAWN 29 NORTH 95 WEST. Or 15 MILES SOUTH OF GALVESTON TEXAS (land reference optional).

In the absence of a ship name, the ship's number may be used. Operation aboard aircraft follows the same form, substituting AERONAUTICAL MOBILE, and giving the aircraft number and approximate geographical location.

A Tunable 75-Meter Mobile Antenna

Slug Tuning for Accurate Antenna Adjustment

BY C. BUFF,* W2ABS

SINCE mobile work on 75 means that the antenna isn't going to get out as well as a fixed antenna, the main objective is to build a radiator that will perform at least as well as the best of the mobile installations. In our case there was another requirement: a minimum number of unsightly cut-outs in the new car! The antenna to be described mounts on the bumper flange with two bolts, satisfying the second requirement. Running 10 to 16 watts input to the 6L6 final, the best DX while in motion has been about 450 miles with an R5 S8-9 report, with many contacts well over 200 miles, which comes close to satisfying the major requirement.

There is nothing special about the transmitter — it uses a 6J5 Pierce crystal oscillator to drive the 6L6 final, and the modulator is a 6L6. The whole thing is mounted on a 9 by 6½ by 4½ aluminum chassis. The receiver is a 6SA7 crystal-controlled converter, using a 5-Mc. crystal and working into the car's b.c. receiver. Thus, tuning the b.c. receiver from 1000 to 1200 kc. covers signals from 4.0 to 3.8 Mc. The converter was designed along lines previously described in *QST*.[1]

There is no real need for a broad-band antenna for crystal-controlled mobile work, so no effort was made to find a broad-band system. Instead, we wanted something that would give high efficiency, and it wouldn't matter very much if it turned out to be a narrow-band affair. However, we did want something with a simple coupling system, something that was insensitive to snow and rain, and a rugged installation that called for a minimum amount of modification of the car body. While no claim is made that the antenna to be described is the ultimate in efficiency, results obtained with it during the past winter and spring have been very satisfactory and all of the original requirements have been satisfied.

Most 75-meter mobile antennas boil down to top-, center- or bottom-loaded affairs. Although top-loaded antennas have the best radiation efficiency, mechanical considerations usually narrow the practical choice to center or bottom loading. Of the two, we prefer center loading because it raises the high-current portion of the antenna, the coil itself is in the clear away from the car body, and the trunk cover can be opened and closed with less detuning than when the loading coil is at the base near the trunk-cover seal.

In calculating the capacity to the car body of a typical 8-foot whip of, say, ½-inch diameter, one comes up with a figure of about 20 to 25 $\mu\mu$fd. The exact value isn't important, of course, but it is obviously a low value that will require a large loading inductance. If the Q of the inductance runs around 200 — we want the Q high to minimize losses — then pruning the inductance for exact resonance to some frequency can become a critical adjustment, to within a half turn or less. To facilitate adjustment of the loading coil, a small brass slug was included inside the coil, and it acts as a small capacitor connected across the coil. The coil is made several turns smaller than required for resonance, and it is brought to exact resonance with the brass slug. The losses in the slug are low and the high coil Q is maintained. A piece of RG-8/U cable runs from the base of the antenna to a 4-turn coupling coil at the transmitter. The schematic diagram is shown in Fig. 1.

One nice feature of this antenna system is the way it tunes and loads the transmitter. As the slug is tuned (C_1 of Fig. 1), the final plate current rises from a minimum to a maximum and, still turning in the same direction, goes down to a minimum again. The antenna coupling coil, L_2, must, of course, be coupled properly to give this effect. Tuning this way gives a nice indication of the proper adjustment.

A high-efficiency antenna for 75-meter mobile work. The center-loading coil is tuned precisely with a built-in adjustable condenser.

* R.F.D. 2, Howell Ave., Babylon, L. I., N. Y.

[1] Stewart, "A Crystal-Controlled Plug-In Converter for the Q5-er," *QST*, Oct., 1949.

Construction

The detail drawings in Fig. 2 and the photographs should answer most of the questions about construction. The small metal parts require some lathe work that may make necessary a small outlay of cold cash at a local machine shop if there is no way of getting them made gratis!

The coil form should be of the best grade of tubing available. The form used in this particular

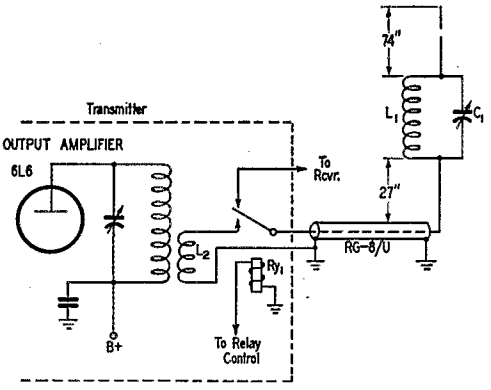


Fig. 1 — Electrical diagram of the slug-tuned mobile antenna.
C_1 — Tunable brass slug. See text and Fig. 2.
L_1 — 73 turns No. 12 enameled, close-wound on 2-inch diameter bakelite form.
L_2 — 4-turn coupling coil. See text.
Ry_1 — Antenna changeover relay.

unit was an old piece of bakelite tubing from the junk box, but we hope some day to replace it with a better grade of tubing, such as Teflon. Detuning caused by water absorption was somewhat alleviated, however, by boiling the form in household paraffin before winding and dipping it in hot paraffin several times after winding. It now takes a steady downpour of about a day's duration to detune the antenna seriously. And when it does detune, the final current always drops, unlike some other antenna and coupling systems.

The coil as wound has a total inductance of about 80 μh. Different lengths of RG-8/U — ours was 7 feet long — and different diameters of coils will, of course, require a different number of turns. In our particular arrangement, the antenna will tune properly anywhere between 3.9 and 4.0 Mc. So far we haven't tried anything lower.

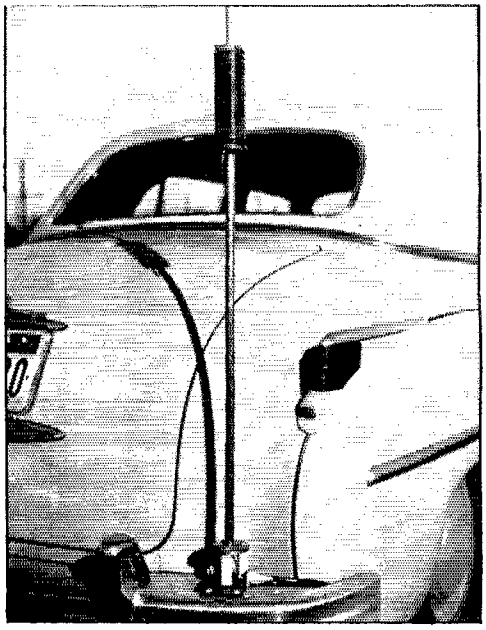
The antenna section from the base to the bottom of the coil is a 27-inch length of ½-inch i.d. rigid copper tubing bought at a local plumbing supply store. Brass inserts tapped for 5/16-18 machine screws are soldered into each end for easy mounting and disassembling. The whip above the loading coil is a 40-inch collapsible whip with a 34-inch length of ⅛-inch brass brazing rod soldered to the top, for an over-all length of 74 inches. Any other sectional whip of the same total length could be used, of course. This arrangement just happened to be handy.

The complete antenna assembly is mounted on the rear bumper flange with two ¼-20 machine screws. This works out very well on all Chrysler models, with the bumper flange providing considerable spring action for the rigid section of the antenna. Some modification of the bumper mounting may be necessary on other makes of cars, but it should be possible to use a similar two-hole mounting in almost every case. These two holes are easily filled when you want to hide the evidence of an antenna having been there.

Adjustment and Operation

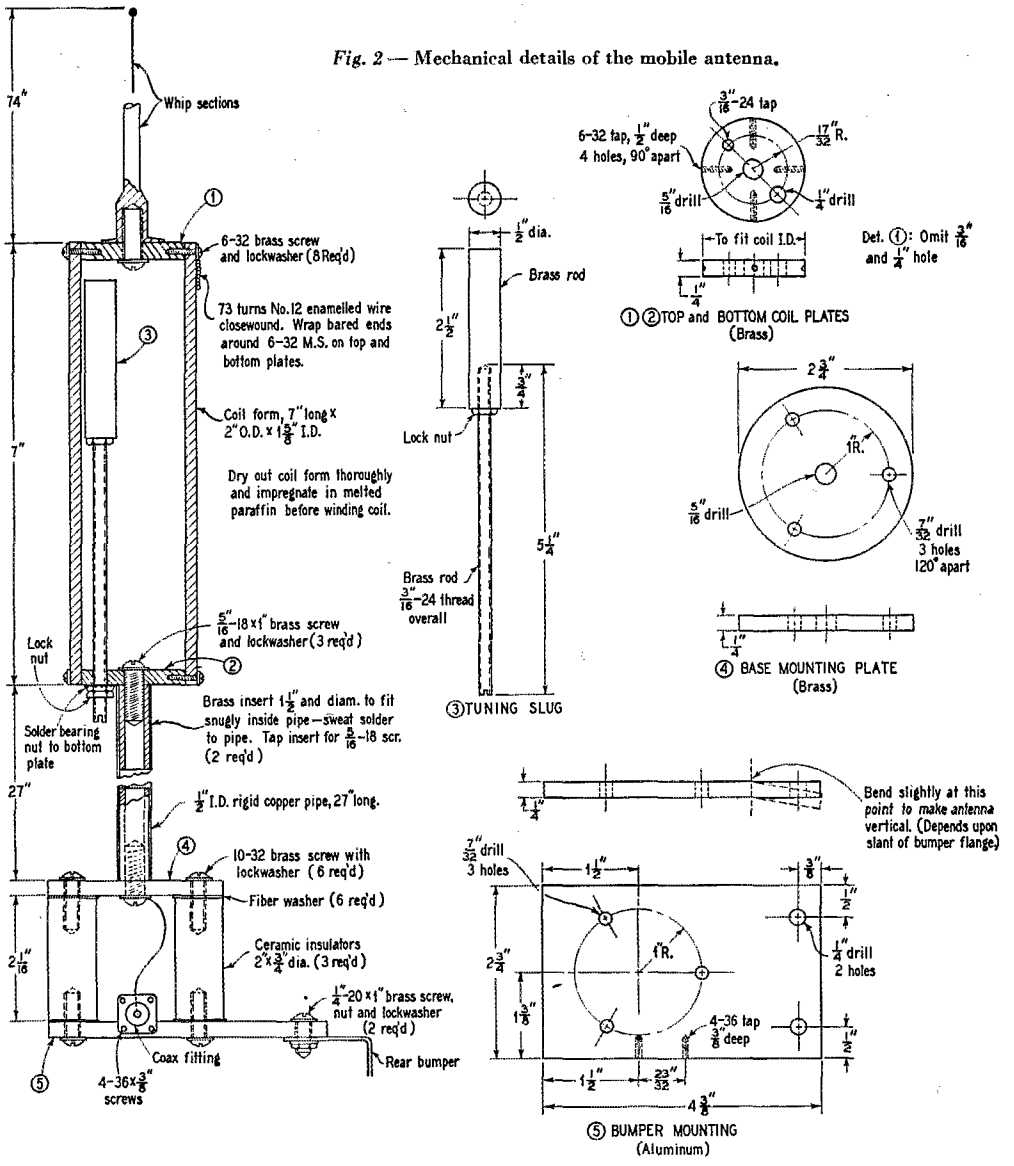
A 4-turn link of No. 20 d.c.c. at the cold end of the output tank coil worked out to provide the proper amount of coupling, and it was permanently connected in the circuit. Originally the antenna loading was checked by using an r.f. ammeter at the base and with neon bulbs placed at various points on the antenna. However, it was found that these checks only confirmed the final plate-current readings, and so now the only indication in use is the plate current. However, it should be pointed out that this is valid only after the coupling to the transmitter has been properly adjusted.

With the trunk cover closed down as far as possible, the final is tuned for the current dip. You then come out from under, leaving the trunk cover open only enough to be able to read the plate meter. This is a bit of a trick the first few times, but most mobile hams sooner or later become quite adept at it! Next the slug is advanced into the coil until the plate current rises and passes through a peak. The object, of course, is to



A close-up view of the bottom section of the antenna, showing the mounting base and the loading coil. The tuning adjustment screw can be seen at the bottom end of the coil.

Fig. 2 — Mechanical details of the mobile antenna.



tune the slug to the loading peak and then tighten the locknut on the slug shaft. If the plate current rises too high on the peak, it indicates that the coupling is too tight. With the 4-turn coupling link used in the author's transmitter, the loading peak was adjusted to the desired 40 ma. This value of peak loading can be obtained anywhere in the 3.9- to 4.0-Mc. band by readjusting the slug. Because this is a relatively high-*Q* antenna, it is necessary to retune the slug for optimum loading any time the frequency is changed by more than 10 kc. Once the slug is locked, however, the tuning holds very closely over months at a time. The only thing that varies the loading to any extent is rain. The antenna can be repeaked while wet, but it must be changed again when the antenna dries. However, it takes a day of steady downpour to affect the antenna tuning appreciably, with the present paraffin coating. Better coil-form material and possibly a thin film of a silicone compound should improve the all-weather performance.

Results

During the seven months the antenna has been in use, it has proved to be an effective radiator and quite reliable and sturdy mechanically. About half a dozen excellent 400–450 mile nonscheduled contacts have been made while in motion.

All things considered, the results have been quite consistent for the 10 to 16 watts in use, which makes us wonder sometimes if the same power at home on the big antenna could do much better!

Happenings of the Month

ELECTION NOTICE

To All Full Members of the American Radio Relay League Residing in the Central, Hudson, New England, Northwestern, Roanoke, Rocky Mountain, Southwestern and West Gulf Divisions:

An election is about to be held in each of the above-mentioned divisions to choose both a director and an alternate director for the 1951–1952 term. (In the case of the alternate director, West Gulf Division, the winning candidate will take office immediately to fill the present vacancy.) These elections constitute an important part of the machinery of self-government of ARRL. They provide the constitutional opportunity for members to put the direction of their association in the hands of representatives of their own choosing. The election procedures are specified in the By-Laws. A copy of the Constitution & By-Laws will be mailed to any member upon request.

Nomination is by petition, which must reach the Headquarters by noon of September 20th. Nominating petitions are hereby solicited. Ten or more Full Members of the League residing in any one of the above-named divisions may join in nominating any eligible Full Member residing in that division as a candidate for director therefrom, or as a candidate for alternate director therefrom. No person may simultaneously be a candidate for both offices. Inasmuch as all the powers of the director are transferred to the alternate in the event of the director's death or inability to perform his duties, it is of as great importance to name a candidate for alternate as it is for director. The following form for nomination is suggested: (West Gulf nominators of *alternate* director candidates should paraphrase the example to read "*for the unexpired remainder of the 1949–1950 term and the 1951–1952 term.*")

Executive Committee
The American Radio Relay League
West Hartford 7, Conn.

We, the undersigned Full Members of the ARRL residing in the ..... Division, hereby nominate ....., of ....., as a candidate for director; and we also nominate ....., of ....., as a candidate for alternate director; from this division for the 1951–1952 term.
(*Signatures and addresses*)

The signers must be Full Members in good standing. The nominee must be a Full Member and must have been both a member of the League and a licensed radio amateur operator for a continuous term of at least four years immediately preceding receipt by the Secretary of his petition of nomination, except that a lapse of not to exceed ninety days in the renewal of the operator's license and a lapse of not to exceed thirty days in the renewal of membership in the League, at any expiration of either during the four-year period, will not disqualify the candidate; provided that if a candidate's membership was interrupted by reason of service in the armed forces of the United States or Canada between September 1, 1939, and May 3, 1947, he shall not be deemed to be disqualified so far as concerns continuity of membership if within those dates he resumed his League membership within the 90 days following his release from active military duty. He must be without commercial radio connections: he may not be commercially engaged in the manufacture, selling or renting of radio apparatus normally capable of being used in radio communication or experimentation, nor commercially engaged in the publication of radio literature intended, in whole or part, for consumption by licensed radio amateurs. Further details concerning the eligibility are given in By-Law 12. His complete name and address should be stated. The same requirements obtain for alternate as for director. All such petitions must be filed at the headquarters office of the League in West Hartford, Conn., by noon EDST of the 20th day of September, 1950. There is no limit to the number of petitions that may be filed on behalf of a given candidate but no member shall append his signature to more than one petition for the office of director and one petition for the office of alternate. To be valid, a petition must have the signature of at least ten Full Members in good standing; that is to say, ten or more Full Members must join in executing a single document; a candidate is not nominated by one petition bearing six valid signatures and another bearing four. Petitioners are urged to have an ample number of signatures, since nominators are occasionally found not to be Full Members in good standing. It is not necessary that a petition name candidates both for director and for alternate but members are urged to interest themselves equally in the two offices.

League members are classified as Full Members and Associate Members. Only those possessing Full Membership may nominate candidates or stand as candidates; members holding Associate Membership are not eligible to either function.

Voting by ballots mailed to each Full Member will take place between October 1st and November 20th, except that if on September 20th only one eligible candidate has been nominated, he will be declared elected.

Present directors and alternates for these divisions are as follows: *Central Division:* director, John G. Doyle, W9GPI; alternate, Wesley E. Marriner, W9AND. *Hudson Division:* director, Joseph M. Johnston, W2SOX; alternate, Gay E. Milius, jr., W2NJF. *New England Division:* director, Percy C. Noble, W1BVR; alternate, Clayton C. Gordon, W1HRC. *Northwestern Division:* director, R. Rex Roberts, W7CPY; alternate, Allan D. Gunston, W7GP. *Roanoke Division:* director, J. Frank Key, W4ZA; alternate, Gus M. Browning, W4BPD. *Rocky Mountain Division:* director, Franklin K. Matejka, WØDD; alternate, William R. White, WØPDA. *Southwestern Division:* director, John R. Griggs, W6KW; alternate, John E. Bickel, W6NY. *West Gulf Division:*

Robert A. Kimber, WØBLK

We are saddened to have to report the untimely passing of Dakota Division Alternate Director Robert A. Kimber, WØBLK, who was accidentally electrocuted on June 23rd while at work. He was a member of the engineering staff of the Black Hills Power & Light Co.

A past president and treasurer of the Black Hills Amateur Radio Club, Bob was serving his second term as alternate director. During the war he was associated with the Radio Intelligence Division of the FCC.

An enthusiastic, all-around ham, WØBLK will be missed by a host of friends on all bands — 80 through 10.

director, David H. Calk, W5BHO; alternate, none.

Full Members are urged to take the initiative and to file nomination petitions immediately.

For the Board of Directors:

A. L. BUDLONG
Secretary

July 1, 1950

SPECIAL ELECTION NOTICE

To All Full Members of the American Radio Relay League Residing in the Dakota Division:

A special election is about to be held in the Dakota Division to choose an alternate director to fill the vacancy occasioned by the unfortunate death of Robert A. Kimber, WØBLK. Election procedures are generally as described above. Nominating petitions are hereby solicited; they must reach the Headquarters office by noon of September 20th. The term to be filled expires January 1, 1952.

For the Board of Directors:

A. L. BUDLONG
Secretary

July 1, 1950

THIRD-PARTY TRAFFIC AGREEMENT SIGNED WITH ECUADOR

The Department of State has announced that an agreement has been concluded with the Government of Ecuador permitting amateurs of both countries to exchange third-party message traffic. Thus Ecuador is added to Canada, Chile, and Peru as countries with whose amateurs we may handle such traffic.

The agreement provides, of course, that traffic must be of the type which would not normally go by established means of telecommunications; this is primarily to prevent the setting up of amateur networks or routes for the handling of quasi-commercial traffic. There is a provision that in time of disaster when normal circuits are disrupted, amateurs may handle any type of traffic. The agreement applies to territories and possessions of the United States and Ecuador, and to U.S.-licensed personnel overseas (such as in occupied Germany and Japan).

As *QST* has reported,[1] the Fourth Inter-American Radio Conference last year adopted a provision that amateurs throughout the Americas could exchange third-party traffic without the necessity of individual country agreements, but as yet there have been no ratifications of the conference results so that this broader traffic privilege is not yet imminent.

STERLING REAPPOINTED TO F.C.C.

We are happy to record that George E. Sterling, W3DF, the first and only amateur to become a member of the Federal Communications Commission, was nominated by the President and confirmed by the Senate to serve a full term of seven years as Commissioner, starting June 30th. In 1948, when Chief Engineer, W3DF was appointed to fill out the remainder of another term which was due to expire in June.

[1] P. 36, September, 1949.

UNCLAIMED QSLs TO BE DESTROYED

Unclaimed DX cards are a mounting problem with the ARRL's district QSL managers. One QSL manager alone has some 30,000 unclaimed cards taking up valuable space. Cognizant of this problem, the League's Board of Directors at its annual meeting in May authorized district QSL managers to destroy cards which have been unclaimed for over one year.

Have *you* sent in an envelope to your district QSL manager? If not, you'd better do so right now, or there may be some of yours in that first batch to be destroyed. See p. 32, July, 1950, *QST*.

CALL SIGN LICENSE PLATES

In three states motor vehicles registered by licensed radio amateurs will soon be displaying call letters on their license plates instead of the conventional numerals. Florida, which has been issuing 1950 plates with call letters impressed, started something: Mississippi followed suit earlier this year, where primarily through the efforts of the eight-member Hattiesburg Amateur Club a bill was introduced and unanimously passed by the State Legislature. In Louisiana, the Baton Rouge Radio Amateurs' Club was instrumental in getting a resolution passed by the legislative bodies of the state.

Each of the states require an additional fee of $1.00 for the special tags. At this writing a number of amateur groups in other states are actively engaged in agitating for the passage of a bill providing for the special tags. It must also be reported that attempts to get such a bill passed in several states have met with failure. ARRL will be glad to supply information and advice to any interested group.

EXECUTIVE COMMITTEE MEETINGS

The following is an abstract of the Minutes of the Executive Committee of the League during the past year between Board Meetings, as ratified by the Board at its recent meeting, here published for your information by order of the Board:

Meeting No. 205, September 30, 1949. Examined nominations in regular autumn elections, determined eligibility of candidates; in cases where there was only one eligible candidate, declared him elected without ballot; ordered ballots sent on others.

Meeting No. 206, November 28, 1949. Ratified affiliation of 80 clubs, and affiliated one additional club. Opened and counted ballots in regular autumn elections, certifying winning candidates.

Meeting No. 207, January 31, 1950. Examined nominations in a special Roanoke Division alternate director election and ordered ballots sent.

Meeting No. 208, March 20, 1950. Ratified affiliation of 24 clubs, and affiliated two additional clubs. Opened and counted ballots in the special Roanoke Division alternate director election and certified the winning candidate.

A Two-Control VFO Rig with Bandpass Exciter

120 Watts—F.M. or C.W.—80 to 10—with Fewer Controls

BY C. VERNON CHAMBERS,* W1JEQ

• Rapid band changing — almost of the communications-receiver type — plus n.f.m. and marker-frequency circuits make this transmitter a contest man's delight. The general design starts a fight against TVI right at the front end of the rig and carries the scrap straight through to the antenna feeders. Yes, the antenna coupler hops from band to band just as quickly as does the transmitter.

PART I

PREVIOUS MATERIAL [1, 2] has discussed the numerous advantages gained by the use of bandpass circuits in the design of a transmitter. A brief résumé of the earlier information shows that the use of couplers of this type results in the following:

1) Rapid frequency adjustment with fewer controls.

2) The operating convenience of gang tuning without the attendant mechanical problems.

3) Discrimination against out-of-band and TV-range harmonics generated in the low-frequency stages.

Although an earlier transmitter built by the author made only limited use of the bandpass principle, the over-all result was so gratifying as to excite interest in a new transmitter in which the idea might be expanded to cover all bands. This 120-watt transmitter has a built-in VFO followed by bandpass stages that serve as drivers for an 829-B amplifier at frequencies from 3.5 to 30 Mc. It has only two tuning controls — those for the VFO and the amplifier plate circuit. The bandpass couplers are permanent parts of the unit and the amplifier plate circuit employs a novel and inexpensive multiband tank.[3] Thus, there are no plug-in coils to bother with. Changing bands requires only the snap of a bandswitch and the tuning of the amplifier plate circuit to resonance. It is amazing how simple the bandswitching system becomes when the couplers are used.

Other desirable features of the transmitter are the inclusion of n.f.m. and a standard-frequency-marker oscillator. Either or both of these two sections may be left out without affecting the r.f. section. A series-tuned output-coupling circuit [4] permits accurate adjustment of the loading.

The transmitter is not only a quick band-changer but is also a fast mover inside of any band. Nearly constant excitation over a band of frequencies is supplied to the amplifier by the driver stages. As a result, shifting frequency over a wide range may require nothing more than an adjustment of the VFO dial. For instance, with the final tank peaked at 3.7 Mc., it is possible to

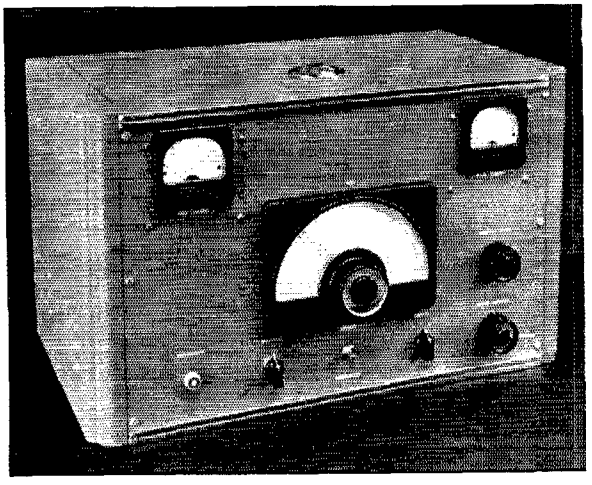
* Technical Assistant, *QST*.

[1] Silver, "A Pretuned Bandpass Frequency Multiplier," *QST*, October, 1947.

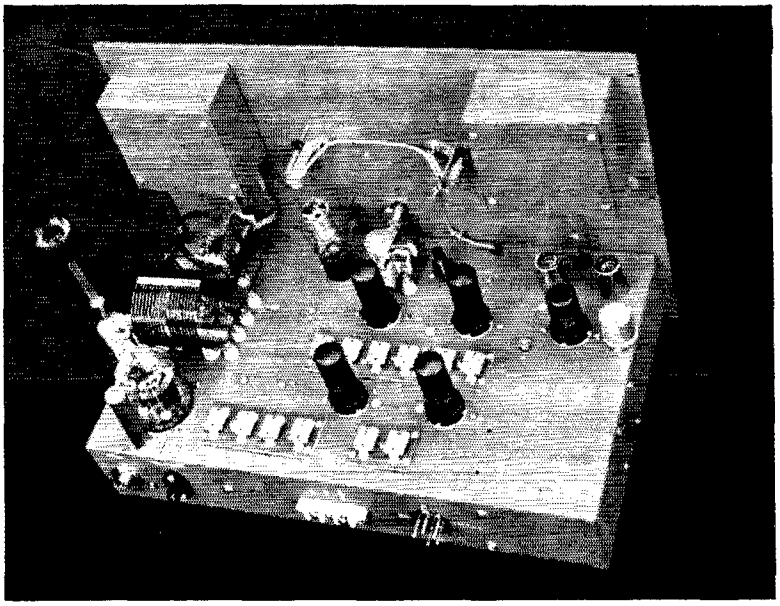
[2] Chambers, "Bandpass Circuits in a Multiband Transmitter," *QST*, May, 1949.

[3] Leiner, "All-Band Tank Circuit," *CQ*, May, 1949.

[4] Grammer, "Eliminating TVI with Low-Pass Filters," *QST*, February, 1950.



Operating controls have been cut to a minimum in this bandswitching transmitter. Only the VFO dial need be tuned for coverage of a large portion of any one band. The grid and plate meters are to the left and right of the main tuning dial. The microphone jack, gain control, crystal-modulator switch, bandswitch and the amplifier control knob are in line across the bottom of the panel. The output-link tuning control is just below the plate meter.



A rear view of the bandpass transmitter. Rectangular holes, cut in the chassis, provide clearance for the coupler coils. The coupler capacitors are readily accessible for adjustment.

swing the operating frequency between 3.5 and 3.9 Mc. without retuning the final and without causing any appreciable change in the d.c. input or the r.f. output of the transmitter, provided the load remains reasonably constant.

Because the business of quick band changing does not end at the output circuit of a transmitter, the description of a suitable bandswitching antenna coupler also is included. The tuner is simple to construct and is easy to operate and will permit making a proper impedance match between the amplifier and most of the feed-line impedances encountered with conventional amateur-type antenna systems.

The Transmitter Circuit

The circuit diagram of the transmitter is given in Fig. 1. A 1.685- to 2.0-Mc. series-tuned VFO, using a Type 6AG7 tube, doubles frequency in the plate circuit and is followed by a 6AG7 buffer amplifier. The first bandpass coupler appears between the VFO and the 6AG7 amplifier. It is adjusted to pass the band of 3.37 to 4.0 Mc.

A second 3.37- to 4.0-Mc. coupler is used between the 6AG7 amplifier and the 829B stage when operating in the 80-meter band. The secondary of this coupler is switched to the grid of a 6N7 frequency doubler for 7-Mc. drive to the final. To help broaden the frequency response of the 6AG7 amplifier, the circuit is made slightly degenerative by omission of the customary cathode by-pass capacitor. At certain frequencies within the 3.5-Mc. band it was not possible to prevent a tuned-grid tune-plate oscillation that started within the 6AG7 stage and, as a result, the cathode of this tube is keyed in parallel with that of the VFO tube.

The four frequency doublers are nearly identical in design. The two triode sections of a Type 6N7 are used separately for 7 and 14 Mc. A second 6N7 serves similarly in the 27- and 28-Mc. circuits. In each case, the doubler output is fed through a bandpass coupler to either the 829-B amplifier or to the grid of the following frequency multiplier. The 6N7 tubes are cathode-biased well below the safe plate-dissipation rating whenever they are switched out of the active circuit, Each doubler has a compensating capacitor, C_1. C_{10}, C_{19} and C_{28} respectively, to permit adjustment of the input capacitance to match that of the 829-B, so that the coupler secondaries will not be detuned in switching from the doubler to the 829-B. Excitation to the amplifier on each band is adjusted individually to the desired level by proper selection of the doubler grid-leak resistance.

The 829-B amplifier tube is operated with the two tetrode sections connected in parallel. No neutralization of the circuit is required and the protective bias for the tube is furnished by an external 45-volt supply. V.h.f. parasitic oscillation in the amplifier is prevented by the combination of C_{52} and $C_{53}L_{14}$ in the plate circuit. C_{52} also helps in reducing TVI harmonics and the parallel-tuned trap is an effective parasitic suppressor even when tuned to TVI harmonics between 54 and 88 Mc.

The multiband tank circuit in the amplifier output was first described by W4NKQ.[3] At 3.5 and 7 Mc. $C_{54}L_{16}L_{17}$ act as a parallel-tuned circuit with the two sections of C_{54} connected across L_{17}. L_{16} may be considered as a jumper connection between the stator sections of the capacitor at frequencies below 7 Mc. However, the reactance of L_{16} becomes appreciable at 14 Mc. and above. At these frequencies the circuit becomes rather complex, consisting of the resultant of L_{16} and L_{17} partially in parallel, tuned by the resultant of the two sections of the tank capacitor in series. Two output-coupling links, both series-tuned by

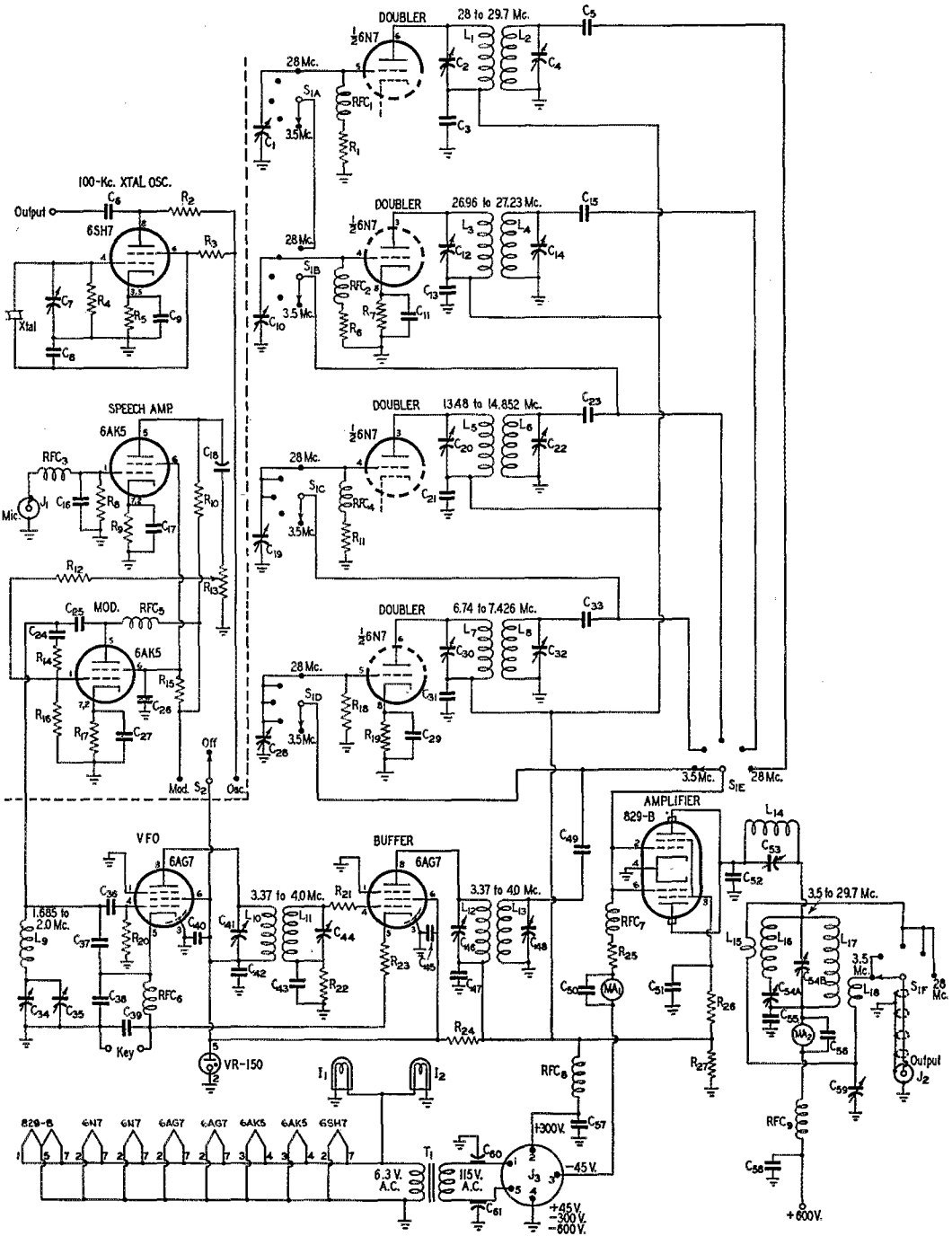


Fig. 1 — Circuit diagram of the bandpass transmitter.

C_1, C_2, C_4, C_{10}, C_{12}, C_{14}, C_{19}, C_{20}, C_{22}, C_{28}, C_{30}, C_{32}, C_{41}, C_{44}, C_{46}, C_{48} — 30-$\mu\mu$fd. ceramic trimmer (National M30).
C_3, C_{11}, C_{13}, C_{21}, C_{26}, C_{29}, C_{31}, C_{39}, C_{40}, C_{42}, C_{43}, C_{45}, C_{47}, C_{50}, C_{56} — 0.01-μfd. disc-type ceramic (Sprague 36C1).
C_5, C_{15}, C_{24}, C_{25} — 47-$\mu\mu$fd. mica.
C_6 — 22-$\mu\mu$fd. mica.
C_7 — 50-$\mu\mu$fd. variable (Millen 26050).
C_8 — 150-$\mu\mu$fd. mica.
C_9 — 0.0022-μfd. mica.
C_{16}, C_{23}, C_{33}, C_{36}, C_{49} — 100-$\mu\mu$fd. mica.
C_{17} — 10-μfd. 25-volt electrolytic.
C_{18} — 0.01-μfd. 400-volt paper.
C_{27} — 0.025-μfd. 400-volt paper.
C_{34} — 50-$\mu\mu$fd. variable (Millen 19050).
C_{35} — 100-$\mu\mu$fd. variable (Millen 20100).
C_{37}, C_{38} — 670-$\mu\mu$fd. silver mica.
C_{51} — 0.005-μfd. ceramic (Sprague 29C1).
C_{52} — 12-$\mu\mu$fd. tubular air condenser (see text).
C_{53} — 75-$\mu\mu$fd. variable (National PSE-75).
C_{54} — 125-$\mu\mu$fd.-per-section variable (National TMS-125-D).
C_{55} — 0.001-μfd. 2500-volt mica.
C_{57} — 470-$\mu\mu$fd. mica.
C_{58} — 470-$\mu\mu$fd. 2500-volt mica.
C_{59} — 300-$\mu\mu$fd. variable (National STH-300).
C_{60}, C_{61} — 0.1 μfd., 250 volts (Sprague Hypass).
R_1, R_6 — 22,000 ohms, 1 watt.
R_2 — 0.15 megohm, ½ watt.
R_3, R_{12} — 0.1 megohm, ½ watt.
R_4, R_{16} — 0.47 megohm, ½ watt.
R_5, R_9 — 1000 ohms, ½ watt.
R_7, R_{19} — 470 ohms, 1 watt.
R_8 — 1 megohm, ½ watt.
R_{10}, R_{15} — 0.22 megohm, ½ watt.
R_{11} — 12,000 ohms, 1 watt.
R_{13} — 0.5-megohm potentiometer.
R_{14} — 10,000 ohms, ½ watt.
R_{17} — 390 ohms, ½ watt.
R_{18}, R_{20} — 47,000 ohms, ½ watt.
R_{21} — 47 ohms, ½ watt.
R_{22} — 22,000 ohms, ½ watt.
R_{23} — 330 ohms, 1 watt.
R_{24} — 5000 ohms, 10 watts.
R_{25} — 1500 ohms, 1 watt.
R_{26} — 2000 ohms, 10 watts.
R_{27} — 15,000 ohms, 10 watts.
L_1 through L_{18} — (Coil table will appear in Part II.)
I_1, I_2 — Panel lamp.
J_1, J_2 — Coaxial-cable connector.
J_3 — 5-prong male plug.
MA_1 — 0–25 d.c. milliammeter.
MA_2 — 0–300 d.c. milliammeter.
RFC_1, RFC_2, RFC_4, RFC_5, RFC_6, RFC_7 — 2.5-mh. r.f. choke.
RFC_3 — 300-μh. r.f. choke (Millen 34300).
RFC_8, RFC_9 — 7-μh. r.f. choke (Ohmite Z-50).
S_1 — 6-pole 3-section 5-position selector switch (Centralab 2525).
S_2 — S.p.d.t. center-off toggle switch.
T_1 — 6.3-volt 6-amp. filament transformer (Thordarson T-21FI1).

C_{59}, are terminated at one of the wafers on the bandswitch. L_{18} is the low-frequency link and L_{15} operates at 14 Mc. and above.

Harmonic filters are installed in the power-wiring leads of the transmitter and the entire unit is housed in a metal cabinet. An additional preventative step against TVI is the individual shielding of the grid and the plate meters by covering the backs with metal utility boxes.

One interesting point in connection with the bandswitching system deserves mention. The switch contacts handle r.f. only — no d.c. Therefore, it is unnecessary to throw power switches when a change of bands is made. It is merely necessary to open the key, rotate the bandswitch, close the key and then tune up.

The Audio Section

The f.m. speech-amplifier and modulator circuits are similar to those discussed in recent editions of the ARRL *Handbook*. The speech stage is designed for crystal-microphone input and the gain or frequency deviation is controlled by the gain control, R_{13}. Output from the modulator is connected to the grid end of the VFO coil, L_9.

Type 6BA6 tubes were used originally in the audio circuits. These tubes did not provide adequate frequency swing at 3.5 Mc. Changing over to Type 6AK5 resulted in sufficient deviation to assure a well-rounded-out signal on all bands.

The 100-Kc. Oscillator

The 100-kc. oscillator circuit uses a 6SH7 tube as recommended by Bliley Co. for their Type KV3 crystal. The circuit has only one variable component — C_7 — and this capacitor permits adjustment of the crystal frequency to zero beat with WWV. An output coupling capacitor, C_6, is provided so that a small antenna may be coupled to the oscillator should the need arise.

The Bandpass Couplers

Much has been written [1, 2, 5] about the theory and operation of bandpass circuits and, at this time, it is necessary to say only that the filters for this transmitter each consist of two closely-coupled parallel-resonant circuits. The combination has a fairly flat response across a band of frequencies as shown by the grid voltage *vs.* frequency curves of Fig. 2, for the first bandpass coupler. Similar performance is obtained with the higher-frequency couplers. Each of the couplers indicated in Fig. 1 is labeled with the required passband. Each coupler can be adjusted to bracket the appropriate band limits. To either side of these limits, the frequency response is greatly attenuated, as indicated in Fig. 2.

Transmitter Construction

The chassis for the transmitter measures 3 by 10 by 17 inches and the whole unit is housed in a No. CA-304 Par-Metal cabinet. The rear view shows the meter shields mounted on the front panel to the left and right of the dial lamps and the output-link tuning condenser at the lower left-hand corner of the panel. The 829-B tube socket is submounted at the left end of the chassis in between the homemade tubular condenser [6] and the amplifier plate coils. A stand-off insulator supports the plate trap to the left of the 829-B. Feed-through insulators (four are shown in the photograph but only two are needed) to the right of the plate coils allow connections to be made between the output links and the bandswitch underneath. L_{15} is the 3-turn winding located

[5] For further description of the operation of coupled resonant circuits see Chapter 2 of *The Radio Amateur's Handbook*, 26th and 27th editions, p. 52.

[6] Commercial condensers of this type are now available. For constructional details see Chapter 6 of *The Radio Amateur's Handbook*, 27th edition, p. 186.

closest to the panel and L_{18} is the coil in front of the 829-B.

To the right of the amplifier components, in the line nearest the panel, are the VR-150, C_{34}, the control knob for C_{35}, and the modulator and the speech-amplifier tubes. The second line of parts starts at the left with the 7- and 14-Mc. doubler tube and continues to the right with the VFO tube, the 6SH7, and the 100-kc. crystal. To the rear of the two tubes are the 14- and 7-Mc. couplers and the coupler in the output of the VFO. From left to right are C_{22}, C_{20}, C_{32}, C_{36}, C_{41} and C_{44}. The two tubes to the rear are the 10- and 11-meter doubler to the left and the 6AG7 buffer to the right. Behind these tubes are the 10- and 11-meter couplers and the coupler in the output of the 6AG7. Left to right are C_{14}, C_{12}, C_4, C_2, C_{48} and C_{46}.

Input and output connectors are mounted on the rear edge of the chassis. The h.v. connector is located between the coaxial-cable output connector and the 3-terminal strip used for the keying and 100-kc. oscillator antenna connections. J_3, the low-voltage power plug, is at the right end of the wall.

The bottom view of the transmitter shows the amplifier tank condenser and the plate by-pass capacitor, C_{55}, lined up to the right in front of the 829-B tube socket. The tank capacitor, C_{54}, is insulated from ground (for d.c.) by means of National XP-6 polystyrene buttons and an insulated shaft coupling protects the operator from accidental contact with the "hot" control shaft. Screen-grid resistors, R_{26} and R_{27}, are mounted directly on the tube socket and the 829-B grid r.f. choke is located on the rear wall.

Aluminum brackets support the bandswitch at the right center of the chassis. The rear wafer of this switch accommodates the wiring for the 27- and 28-Mc. doubler tube, the center section takes care of the 14-Mc. 6N7 output circuit and

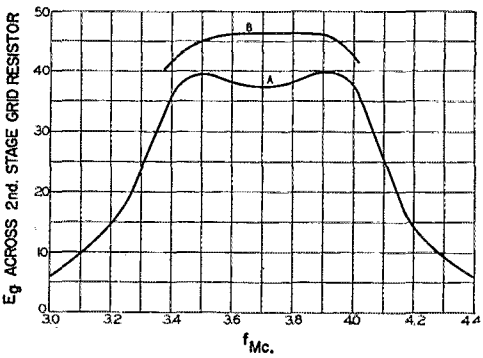


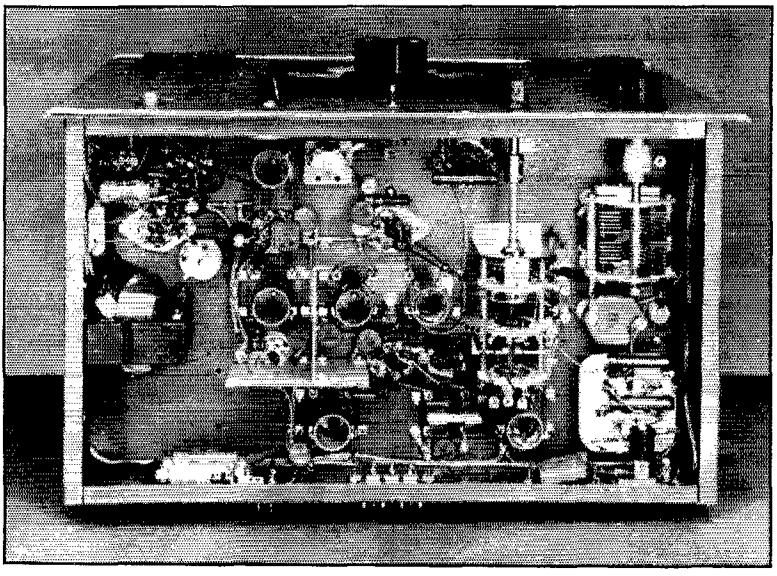
Fig. 2 — Output voltage *vs.* frequency, first bandpass filter. *A* shows the frequency response of the filter with a 1-volt signal applied to the oscillator-tube grid. *B* shows the voltage at the grid of the 6AG7 amplifier tube with the VFO operating.

the 829-B grid circuit, while the front wafer handles switching for the 7-Mc. doubler and the output links. Compensating capacitors for the doubler grid circuits are mounted between the switch sections and ground.

Rectangular cut-outs in the chassis are required for the bandpass couplers. The couplers in the output of the 6AG7 and those for 28 and 27 Mc. are mounted from left to right at the rear of the chassis. The filter for 14 Mc. is to the left of the switch, and bandpass circuits for the VFO tube and the 7-Mc. doubler are to the left and right of the aluminum partition. This aluminum shield prevents instability caused by coupling between the low-frequency circuits. L_9, the VFO coil, is mounted on a ¼-inch pillar at the front of the chassis.

The audio and the 100-kc. oscillator circuits are closely grouped at the upper left-hand corner of the chassis and the filament transformer is

(Continued on page 80)



Well-spaced-out parts and the absence of bulky interstage variable capacitors make the wiring of the transmitter a simple matter.

Results — Armed Forces Day Competition

THE first Armed Forces Day (May 20, 1950) QSO-Message Relay Contest and Receiving Competition are now history. One hundred and forty-five stations (213 operators) submitted logs in the QSO Contest; 232 persons made perfect copy of the "Greeting to Amateurs" broadcast at 25 w.p.m. over 13 military frequencies and have received a Certificate of Merit signed by the Secretary of Defense, the Honorable Louis Johnson. A total of 481 operators submitted copies of the Secretary's message.

QSO-Message Relay Contest

In scoring the QSO-Message Relay Contest, judges graded the "special calls" separately. These are the amateur stations at military activities — Army, Navy, and Air Force — granted special "K" call signs by the FCC. Both the special-call stations and the regular-call stations were split into single-operator and multioperator categories. Special mention goes to KG6DI, operated by KG6DI and KG6GC. This station specializes in traffic relay for the Pacific area and amassed a score of 9371 with 2313 messages and only two contacts (W7CZY and KG6HF). In view of this unique situation, KG6DI is considered in a class by itself for scoring purposes.

W4KFC topped the single-operator regular-call stations with a score of 239; Vic worked 43 stations, handling 94 messages. He was followed by W2BPV, who scored 162 points on 43 contacts operating aeronautical mobile, and W4IA, 132 points on 84 contacts using commercial power.

The regular-call (multioperator) class was won by W6ZZM — score 142, worked 64 stations, handled 35 messages. Operators were W5OQY, W6HVE, and W8FHF.

Raritan Valley Radio Club of New Jersey, W2QW, scored 139 points working 67 stations, handling seven messages. Operators were W2CUI, CWK, CRV, and LFI.

Leading the pack in the special-call multioperator stations was K4WBG, Fort Knox, Ky. The Fort Knox Radio Club observed its formal opening on Armed Forces Day and had a mobile unit and portable units in operation on the post as part of an Armed Forces Day program. K4WBG was operated by W4LEI and PUE, using emergency power throughout. Four hundred and nineteen messages were handled, 11 stations worked. Other amateurs participating in activities at Fort Knox were W4QDK, NFH, PVR, RHT, QBC, NOK, PBX, and ORC.

Special-call single-operator honors go to station W3USA, Fort George G. Meade, Md. W3HCE was the operator and scored 268 points, using emergency power, working 72 stations and handling 35 messages.

All call areas were represented in the contest, and most of the participants sent in some comment or observation to aid the contest judges in improving the contest next year.

Highest Single-Band Scores

High scores in single-band operation, by bands:

3.5-Mc. c.w. — W8DAE, 53.

7-Mc. c.w. — K4NBF (W4MKO, opr.), 104; W8YEG, 93.

14-Mc. c.w. — W6ZB, 97.

3.85-Mc. 'phone — W4MCM, 32.

28-Mc. 'phone — KH6WAA (Cpl. D. L. Lynch, opr.), 47.

144-Mc. 'phone — W2BPV (aero-mobile), 162.

SCORES

Listings are by classes. A single asterisk indicates that emergency power was used exclusively, a double asterisk that emergency power was used part time. Example of listings: K4WBG 1688–11–419, or final score 1688, stations worked 11, messages handled 419.

Special Call, Multioperator

K4WBG*[1] 1688– 11–419
K2WAR[2] 351– 19–166
K6FNG*[3] 286– 62– 37
K6NRA[4] 234– 54– 84
K6AIR**[5] 232–100– 46
K4FAG*[6] 194– 83– 3
K9NAC*[7] 172–30–24
KH6USA[8] 147–97–21
KG6FAA*[9] 142–41–11
KØNRY*[10] 138–47– 7
K9NRD**[11] 128–76– 3
K8USN**[12] 114–39– 7
K9NAG**[13] 80–30– 2
K8NRL*[14] 80–30– 1
K8NR**[15] 77–32–18
W3USN[16] 74–54– 6
K3WAL**[17] 54–27– 2
KØNAI[18] 29–19– 1
K8WAF**[19] 26–11– 1
K4USA[20] 23–16– 1
K9NAT**[21] 17–10– 0
K1NRS[22] 12– 6– 3
K2NRG[23] 5– 5– 0

Special Call, Single Operator

W3USA*[24] 268–72–35
K5AIR*[25] 248–46–35
K5NRJ*[26] 212–41–28
K4WAL**[27] 177–53–26
K3NR[28] 145–36–21
K9NR[29] 128–48–40
W5USN*[30] 124–50– 2
K4NBF*[31] 104–36– 4
W4USA[32] 102–12–45
K1NRE[33] 84–46–15
K5NRS** 83–44– 2
K5NRG[34] 73–18–24
KØNRS[35] 55–27–14
KH6WAA[36] 47–31– 4
KØWAD*[37] 46– 7–8
K6NAA**[38] 44–14–5
K5NBL[39] 40–30–1
W5USN[40] 35–35–0
K8NRP[41] 35–21–3
K5NRW* 30– 6–1
K8NRW[42] 29–17–2
K9NRM[43] 27–27–0
K2NRY[44] 24–24–0
K9NAI*[45] 20–10–0
K9NAL[46] 16–10–3
K3NRM[47] 7– 7–0
K8NRS[48] 5– 5–0
K1NRW[49] 5– 3–1

Regular Call, Multioperator

W6ZZM[50] 142–64–35
W2QW**[51] 139–67– 7
WØLHT*[52] 38–36–4

Regular Call, One Operator

W4KFC 239–43–94
W2BPV* 162–43–15
W4IA 132–84–20
W1SOT 111–51–26
KH6ACS 109–87– 7
W6ZB 97–29–30
W8YEG 93–38–23
WØDYX 92–40–22
KH6AAY 92–54–15
W5RHA* 88–20– 8
W4CYC 87–25–27
W9BVG 87–33–23
W6DTY 84–30–23
W1YBV 83–27–23
WØELT 80–34–19
W5OZI 71–37–13
W3OFU 70–30–20
JA2HQ*[53] 70–23– 2
KL7WC* 68–16– 5
W4ILP 66–20–19
W2PQG* 66–21– 2
W2CDJ 64–34–11
K2CC 63–43– 6
W1BDI** 60–17–11
W1RDD 60–20–16
WØKRV 55–15–20
W9FXA 55–27–10
W7DXY* 54– 9– 5
W8DAE 53–13–16
W1JYH 52–50– 1
W8ZWM 51–33– 5
W9EBX** 51– 8–16
W5OM 50–32– 5
W2GFG** 50–38– 2
W6ZG 48–34– 3
W6GYH 47– 9–19
W3IJ* 42–21– 0
W3OCU 40–18– 7
W8UJN 38–18–10
W7DP 38–28– 1
KH6FX 32–12– 6
W4MCM 32– 6– 9
W3EAN 32–18– 7
W3ECP** 31– 7– 5
WØGVW 29–11– 5
W5ZU 29–13– 4
WØASO 28–16– 2
W4PEC 28–18– 1
W2AUF 27–11– 5
W6CIS 27– 7– 6
W5CA 27–17– 1
W2RSE 25–11– 3
W1LYL 25–15– 1
W4PRL 25– 7– 5

(*Continued on page 80*)

Operators: [1] W4LEI PUE. [2] W2EWZ HSA UPI ZXL. [3] W6AWU DAR DHO DKE EGO JKW KLB MJM MOM TDK ZHW. [4] W6GYJ TWT VGJ YCO YLD ZIL ZSM. [5] W6CFQ FAK WET. [6] W4PYU RDY YET. [7] W8SWH W9CGY IDY OSV TEG VUD. [8] KH6AAQ ACB. [9] W2BUZ W4MXU W5QWU. [10] WØDJE SKF TFW. [11] W9ACC BUH PQU PWM QWT RPG VSR. [12] W8CDB CHT LZO SHI. [13] W9DWD IRO PK. [14] W8CNC DJN W9BNK. [15] W8BEZ DSD NEC. [16] W3EC HGY KIP PGB. [17] W3OEK QAD. [18] WØAEX DKJ. [19] W8EXZ TZC. [20] WØYPA W4RGF. [21] W9FJT HKB JUI. [22] W1DFS OGW W2UEI. [23] W2DV ZYO. [24] W3HCE. [25] W5QQR. [26] W5PCL. [27] W4MSJ. [28] W3NFO. [29] W9AKP. [30] W5RCZ. [31] W4MKO. [32] Sgt. B. J. DeCecco. [33] W1QJM. [34] W5UPC. [35] WØRKS. [36] Cpl. D. L. Lynch. [37] WØMFX. [38] W6FCX. [39] W5PYU. [40] K9AAD. [41] W8EJW. [42] W8DLM. [43] W9HCR. [44] W2BPJ. [45] W9AMT. [46] E. J. Sack. [47] W3OOL. [48] W8TCO. [49] W1IIC. [50] W5OQY W6HVE W8FHF. [51] W2CUI CWK DRV GPV LFI. [52] WØLHT MCY TQT. [53] Cpl. R. E. Thomas. [54] W1RUP. [55] W4PJM.

A Two-Tube Crystal-Controlled Converter for 10 Meters

And Some Notes on Revamping the BC-454 Receiver

BY CHARLES L. FAULKNER,* W6FPV

HERE is a simple but excellent little crystal-controlled converter for 10-meter fixed-station or mobile work. As shown in the photograph, it is used in conjunction with a BC-454 receiver, but it can also be used working into any receiver that will tune around 4 Mc. By selecting the proper crystal frequency, it could be made to work into practically any receiver. Good performance is insured through the use of an r.f. stage and a triode mixer.

The crystal-oscillator circuit is the one described by W1HDQ for transmitter use,[1] and it has the advantages of simplicity and the fact that the 8-Mc. crystal is made to oscillate on the third harmonic and thus no frequency multipliers are required. The converter circuit is shown in Fig. 1, and it requires a 6AK5 r.f. amplifier stage and a 6J6 mixer/oscillator. The input circuit of the r.f. stage can be tuned from the front panel by adjusting C_1, but the interstage coupling circuit (L_3 and the distributed circuit capacitances) is adjusted once for the center of the 10-meter band and then ignored. The input circuit of the receiver into which the converter operates furnishes the load for the mixer, so no tuned circuit is used in the mixer plate.

*8804 Cedros Ave., Van Nuys, Calif.

[1] Tilton, "So It's Hard To Get on V.H.F.!" *QST*, Nov., 1948.

As can be seen from the photograph, the converter was built on a small aluminum chassis that is bolted to the side of the BC-454 receiver used for the tunable i.f. amplifier. The only knob control on the converter is the input tuning, although the adjustable slug of L_3 is brought out the side and the oscillator condenser, C_6, can be adjusted from the top with a screwdriver. An extra tube socket can be seen in the photograph — this was intended for a voltage-regulator tube that was found to be unnecessary with the crystal-controlled oscillator. The crystal is mounted at the rear of the converter chassis, and the antenna input coaxial fitting mounts on the side.

Although any receiver can be used with the converter, there may be some interest in the revamp job that was done on the BC-454. The selectivity was increased by making a double-conversion superhet out of the little receiver. This was done by first removing the third i.f. transformer and the second i.f. tube. A 6SA7 was put in the i.f. tube socket, and a standard broadcast oscillator coil, padded with a 100-$\mu\mu$fd. fixed and a 75-$\mu\mu$fd. adjustable, was mounted in the 1415-kc. i.f. can that had been removed. Suitable wiring changes were made, of course, and the new oscillator circuit was tuned to 1240 kc. A stage of 175-kc. i.f. was added at the rear of the BC-454 and fed back to a 6H6 detector/

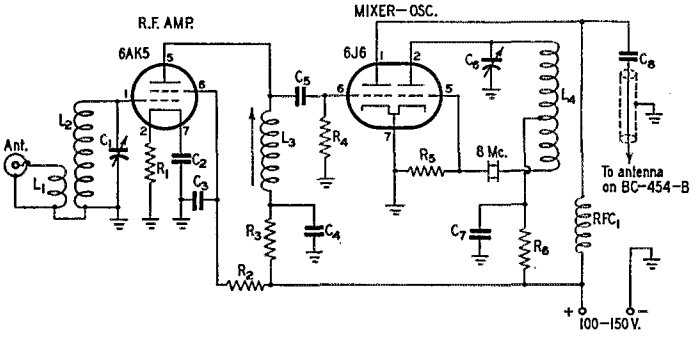
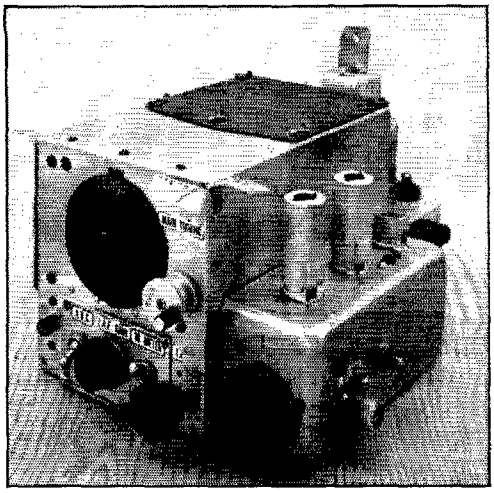


Fig. 1 — Wiring diagram of the crystal-controlled converter.

C_1 — 25-$\mu\mu$fd. midget variable.
C_2, C_3 — 680-$\mu\mu$fd. mica or ceramic.
C_4 — 1000-$\mu\mu$fd. mica or ceramic.
C_5, C_8 — 100-$\mu\mu$fd. mica or ceramic.
C_6 — 50-$\mu\mu$fd. air-spaced trimmer.
C_7 — 470-$\mu\mu$fd. mica or ceramic.
R_1 — 270 ohms.
R_2, R_3 — 470 ohms.
R_4 — 0.1 megohm.
R_5, R_6 — 4700 ohms.
All resistors ½ watt.
L_1 — 3 turns No. 24 d.c.c., wound at ground end of L_2.
L_2 — 9 turns No. 24 d.c.c., on ½-inch diameter form.
L_3 — 12 turns No. 26 d.c.c., wound on ⅜-inch diam. ceramic slug-tuned form.
L_4 — 15 turns No. 24 d.c.c., ½-inch diameter, 1 inch long. Tapped 4½ turns from grid end.
RFC_1 — 2.5-mh. r.f. choke.



The 10-meter converter mounted on the side of a BC-454 makes an excellent receiving system for both 10 and 75 meters. The front tube on the converter is the r.f. amplifier.

The BC-454 has been revised considerably, as described in the text. The left-hand toggle switch is for automatic or manual r.f. gain, and the other toggle turns off the converter during 75-meter reception. The right-hand knob on the BC-454 is the i.f. gain control, the other is the audio volume control. Another switch, on the left-hand side of the BC-454, switches the receiver input to an antenna or the converter output. Aluminum angles mount the unit in the automobile, and the strap in the upper right-hand corner supports a dial lamp.

a.v.c./noise-limiter stage at the rewired 12SR7 socket. The 12A6 audio stage was replaced by a 6J5 audio stage, followed by another 6J5 audio stage on the rear shelf. The triode output stage holds down the power demand, but a 6V6 would give more audio output in fixed-station service. The other original 12-volt heater tubes were replaced by their 6.3-volt equivalents.

The output transformer and the b.f.o. transformer in the BC-454 were removed, since the 'speaker has its own transformer and there is no provision for c.w. reception in the finished conversion. The 'speaker connection is made to a crystal socket at the rear of the receiver, and the power connections are made through a 5-prong socket.

The vibrator supply has its own filter, but additional filtering was furnished by an r.f. choke in the positive lead (mounted right at the socket) and the filter already in the receiver. Another choke, made of 15 turns of No. 14 enameled wound on a ½-inch diameter form, was used in the "hot" heater lead and by-passed to ground with a 0.2-μfd. condenser. The total drain from the battery is just under 7 amperes.

The converter plus the reworked receiver makes a convenient arrangement for mobile operation on 10 and 75 meters. A switch in series with the heater lead to the converter — the right-hand toggle switch in the photograph — turns off the converter during 75-meter operation. Another switch, not shown in the photograph because it is on the left-hand side of the BC-454, switches the input circuit of the BC-454 to a receiving antenna or the output of the converter.

Using the converter on 10 meters, all tuning is done with the tuning knob of the BC-454, although the antenna circuit of the converter may require touching up at the ends of the band.

HAMFEST CALENDAR

CALIFORNIA — Labor Day week end, September 2nd, 3rd, and 4th — fourth annual Hamfest sponsored by the Mt. Shasta Amateur Radio Club. For further information and preregistrations write Mt. Shasta Amateur Radio Club, Box 805, Mt. Shasta, Calif.

GEORGIA — Sunday, August 27th, at Grant Park, Atlanta. Auspices Atlanta Radio Club, Inc. ARRL National Emergency Coördinator George Hart, W1NJM, will speak on "Your Stake in Amateur Radio." Also programmed are a showing of the ARRL TVI film, a barbecue, and contests. Admission $1.50. Tickets or additional information available from Russ Law, W4FKN, 342 Lamon Ave., SE, Atlanta, Ga.

MARYLAND — Sunday, August 13th, at Triton Beach, Mayo — Third Annual Hamfest Picnic sponsored by the Baltimore Amateur Radio Communications Society. Tickets $1.00 per person at the gate (children 6 to 12, 50¢). Admission includes bathing, bath locker, picnic table, pavilion, parking lot and ball field privileges. Pack a picnic basket and enjoy the gala program. Beer and soft drinks will be on sale. The club station, W3PSG, will be in operation on 10-meter 'phone for the benefit of mobile hams, and a special prize will be awarded to the best mobile installation. To reach Triton Beach from Washington take Route 214 through Capital Heights to Route 2. From Baltimore take Route 2 through Annapolis, then follow the hamfest signs. For information write Chairman Kenneth S. Teeple, W3PSP, 718 East 33rd, Baltimore, Md.

MONTANA–IDAHO — Saturday and Sunday, September 23rd and 24th, at southern end of Flathead Lake, Polson, Montana, sponsored by the Hellgate Radio Club. A special banquet will be held Sunday afternoon. Amateurs from the western Montana and northern Idaho regions are cordially invited to attend.

OHIO — Sunday, August 6th, at the Hollow, Piqua — Annual Miami Valley Ham Picnic sponsored by the Piqua Radio Club. A well-rounded program will be presented, including eats, refreshments, contests, rag chewing. Plan to attend — rain or shine. Further particulars available from Don Harshbarger, 415½ N. Main St., Piqua, Ohio.

OHIO — Sunday, July 30th, at Harmony Ranch, 2½ miles east of Chagrin Falls on Route 422 — Annual Picnic of the Cleveland Area Council of Amateur Radio Clubs. Bring the family and a picnic basket (or buy your lunch at the Ranch). Free entertainment and dancing. Everybody gets a log book. Special contests have been arranged for the kiddies. Pony rides, rifle range, kiddie rides and games also available at the 44-acre site. Festivities to continue, rain or shine. Admission at gate: adults 50¢, children 25¢.

Silent Keys

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

W1AEC, Kenneth E. Dyer, Fairhaven, Mass.
W1DGV, Ralph E. Rollins, Farmington, N. H.
W2UBW, ex-W8EUN, J. P. Thomas, Baldwin, N. Y.
W5BBR, Frank S. Libbe, Port Isabel, Texas
W6DWH, Robert W. Milligan, Tracy, Calif.
W6NBR, Harrison E. Fisher, Felton, Calif.
W6RH, William B. Overstreet, Chico, Calif.
W9FLJ, Russell J. Wetteland, Aurora, Ill.
W9JAK, Roy Cavins, Raritan, Ill.
WØBLK, Alternate Director Robert A. Kimber, Dakota Division, Rapid City, S. D.
EI6B, Howard Duncan, Sandycove, Co. Dublin

QRRR Winnipeg

Canadian Amateurs Assist in Rendering Emergency Communication to Flood-Stricken City

THE Red River of the North, which rises at a lake forming part of the border between South Dakota and Minnesota, flows northward on the Minnesota border and finally empties into Lake Winnipeg. Each year it has overflowed its banks in places, flooding some lowlands, but this year it really went on a rampage. From the town of Emerson on the international boundary right on up through Winnipeg and its environs — encompassing a population of some 350,000 people — the swollen stream overflowed into the streets and surrounding countryside, rendering some 10,000 homes uninhabitable and 30,000 to 40,000 people homeless. As the waters mounted, telephone circuits were deluged with calls from worried friends and relatives out of town, and power stations were threatened. For over two weeks the waters continued to rise, and when the crest was reached and the river began to recede toward its normal level, Winnipeg was surveying the results of what has been called "the worst flood on this Continent, where a large city was involved."

In such a catastrophe as this, it was inevitable that amateurs and amateur radio would play a leading rôle. As it happened, no part of the city which remained inhabitable was left without power, and in general telephone lines continued to function; but the needs for official communications facilities were so great that personal calls were refused, and amateurs assisted to take care of the overflow of official communication and the flood of personal-inquiry messages which resulted.

As the Red River continued its rise, accompanied by wind, snow, sleet and rain, "CQ Winnipeg" became bedlam on 75, and the amateurs in the Winnipeg area found themselves with a job to do. VE4AM, the SCM, was in the throes of rebuilding, so VE4RO, who was high and dry out of town, was pressed into service, and soon traffic was rolling. VE41W relieved in the early morning of May 6th, and VE4AM, who by that time had assembled a station, was able to take a shift that evening, and this cycle was repeated over the week end. On May 8th, it became apparent that one channel could not handle all the traffic. ARRL Canadian General Manager Reid, VE2BE, was requested to approach the Department of Transport for clear frequencies from 3550 to 3570, and the local radio inspector, upon instructions from Ottawa, notified the SCM that he would clear the frequencies whenever requested. As it turned out, voluntary coöperation made any official action unnecessary, and only three stations were asked to QSY. In addition, W1AW carried a bulletin asking amateurs to refrain from using these frequencies for anything but emergency traffic.

When it became apparent that one station could not handle the work, VE4IW and VE4AM were set up on 3755 and 3765 and traffic piped to both stations by VE4CI, VE4GE, and VE4FA. VE4LC copied crossband to 20 meters. VE4GY and VE4JL were on hand to provide relief when necessary.

Art Morley, VE4AM, was so busy handling emergency traffic that he paid little heed to his immediate surroundings. Thus he was much surprised when local officials knocked at his door in the early morning hours of May 10th to tell him

Hospitals and homes felt the impact of the rampaging Red River. (*Photo by Harold White Studio.*)

VE4ML and VE4RM, who stayed behind in the former's home, come out on the roof to direct a couple of Red Cross officials. A public-address 'speaker was mounted on the beam platform to direct boats in the vicinity. VE4ML (at left on roof) handled considerable emergency traffic on 20 meters. (*Photo courtesy New York Daily News.*)

♦

he must vacate the house in a hurry, because of rapidly rising flood waters. He left the net and started lifting furniture up on tables, not neglecting his heavy power supplies which were on the floor. There was no time to unfasten the terminal strips, which were all neatly cabled, so a pair of cutters was put to work. VE4AM went off the air for the duration of the emergency. That day the entire community of St. Vital, about 20,000 people, was evacuated and in less than 24 hours the entire area was under water. Such was the rate at which the swirling waters arose.

VE4AM, out of action from his own station, got VE4RO back on the air again, this time on a 24-hour basis, with Art and VE4LC maintaining watches in addition to the OM himself. VE4GY occupied the other channel when the going got too tough for VE4IW's seven-watter. Much traffic was handled for the Red Cross, Navy, Air Force, and local government agencies.

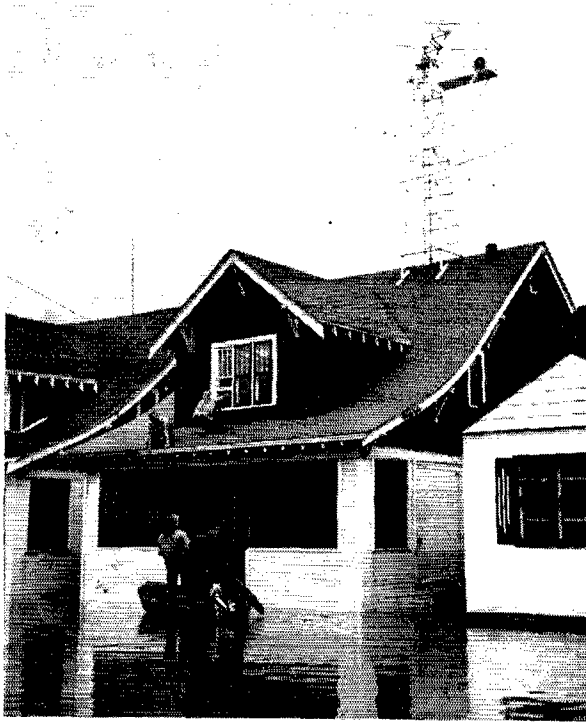
In Brandon VE4GE and VE4CI and in Rivers VE4FA maintained a 24-hour shuttle service on 75. Every member of the Manitoba 'Phone Net monitored and it was only necessary to call a station once to get an immediate reply.

The emergency work was not confined to 75 meters. On 20, several amateurs were busy evening and noon hours handling traffic. Among them were VE4AJ, VE4BM, VE4ML, VE4NI, VE4SR, and VE4TJ. VE4SR, who turned in a tremendous job, began operation in his basement shack. It was soon evident, however, that a swimming suit would be necessary if he were to remain there, so the equipment was laboriously moved upstairs to the kitchen, where it remained in operation for ten days or more, looking just as though it belonged there. Many schedules were kept with VE2s and VE3s who worked into the Quebec and Ontario 'phone nets. VE4MP and VE4NX assisted in operating VE4SR at its new location. VE4AD was also active on 20 keeping outside stations informed and easing the minds of many VEs who had relatives in Winnipeg.

ARRL Trunk Line 1, under the guidance of VE5HR, the Saskatchewan anchor man, moved to 7052 kc. from their regular frequency of 3690. VE4HP was their contact man in Winnipeg, and much traffic flowed over the western end of the line with VE6KS, VE7ARS, VE7EH, and VE7XA participating.

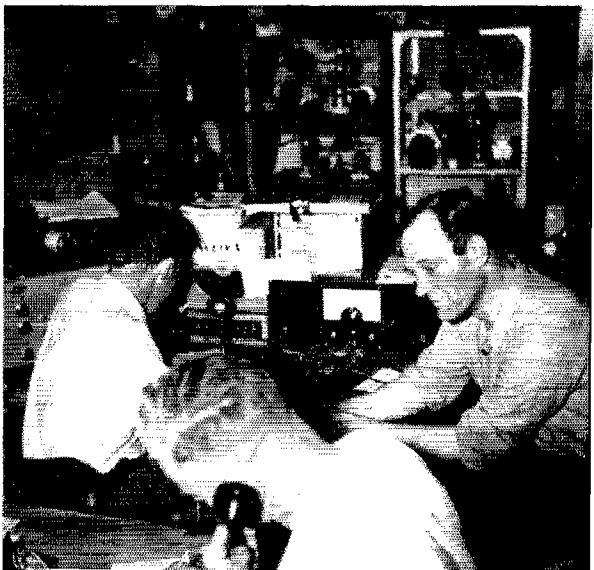
♦

A busy moment at VE4RO. This station, high and dry outside the city, with beam antennas and high power, was invaluable as a control point for emergency traffic, and maintained operation 24 hours per day throughout most of the emergency. Operators shown are, left to right, VE4AM, VE4LC, and VE4RO.



The scene of activity, while centering around Winnipeg, was not all *in* Winnipeg, by any means. The Manitoba, Saskatchewan, Alberta, and British Columbia 'phone and emergency nets were all active, as well as many stations from the eastern provinces, either to stand by until they were needed, for monitoring or policing, or to try to get traffic into the emergency area. In VE5, the Saskatchewan 'Phone Net became swamped with traffic for the flood area. PAM VE5IC turned the net over to VE5SE, who with the aid of members of the net, some members of the Alberta 'Phone Net, and other amateurs, set up a traffic route into Winnipeg. The Saskatoon Amateur Radio Club activated its club station, VE5AA, operating 18 to 20 hours per day for this purpose. VE5MA and VE5JI (with VE5IJ assisting) also played a major rôle in this operating.

(*Continued on page 82*)



Correspondence From Members-

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

"OF, BY AND FOR"

95 Malden St., Everett, Mass.

Editor, *QST:*

The recent editorial describing how our League is run should go a long way to clear up a lot of unjust criticism. We have a truly democratic organization, conscientious officers, and an able employed staff to carry out the policies of "of, by and for the amateur."

I have just reread "Rocking the Boat," May 1929 *QST*, and "Bucking," August 1929 *QST*, by our late President, Hiram Percy Maxim, in "The President's Corner," and those articles are just as appropriate today.

I would like to see "The President's Corner" again have its place in *QST*. We need to get set right every so often.

— *H. V. MacMillan, W1HWR*

FULL QTH, PLEASE

846 Campbell Ave., S.W., Roanoke, Va.

Editor, *QST:*

Frequently we see a great upheaval in *QST* about the inability of some of the fraternity to receive QSL cards. I have wondered just why for a long time. To satisfy my own curiosity, I requested the local post office delivery clerk to send to my address any QSL cards for this immediate location that they were unable to deliver. I would make an effort to deliver, return to them, or return to the sender.

In the several months that I have been looking after this delivery I have handled some twenty-five or thirty cards. It develops that improper address is the sole reason for non-delivery. Most of the cards only had the name "John, W-XYZ, Podunk Center, Conn." or some similar address that would prevent any reasonable chance for delivery by the post office folks.

Within reason these cards would never have been delivered and would have found their way into the wastebasket as the Post Office Department does not return cards bearing penny stamps.

All cards should have full and complete address and if you do not have a late call book simply ask the station with whom you wish to exchange cards for his complete address; otherwise your card will not be delivered. The Post Office Department has no call books and if they did I doubt if they would even find the time to look up the necessary information for delivery — that is the responsibility of the sender.

We know from experience that the Post Office Department is a very efficient organization. In more than thirty-five years *QST* magazine has been delivered without a single miscarriage, and my QTH has been changed some twenty or more times in that space of time — but the address on the wrapper of *QST* was correct at all times!

— *J. F. Wohlford, W4CA*

EMERGENCIES

2310 Monroe Ave., Rochester 10, N. Y.

Editor, *QST:*

The morning paper told of more snow, winds of high velocity, sleet, power lines down and the worst storm some sections had had this winter . . . of an airlines plane that had been flying blind in a swirling snowstorm and had crashed into a home, setting it on fire and killing two children who were watching TV.

Tuning the 75-meter band one hears of an emergency net trying to organize, to help where and when they can, as so many amateurs have done in the past. Close by this frequency we hear, "Why do they operate an emergency net up here? Thought it should be 10 kc. from the low end or 10 kc. from the high end? Blah-blah-blah."

Another night on listening in, an emergency net op was asking another W8 to please cease operating or QSY and the reply from this W8 was "Why don't you get a decent receiver? I'm not operating where you say I am."

When an emergency net exists, certainly courtesy on the air must be first, even though so many other times it comes last.

— *John H. Zeilman*

PLUG

Western Radio Institute, Inc.
1010 17th St., Denver 2, Colo.

Editor, *QST:*

I very much appreciate your taking the time and trouble to aid me in my understanding of the data on page 103 of the *A.R.R.L. Antenna Book*. It is continually surprising to me how important each little word is in the book. I finally figured it out and your letter confirmed the results.

It's really amazing, you know, when one starts to try to find information of this type, to realize that there is so little knowledge on antennas and transmission lines among radio men and engineers. I checked with a few other IRE men and engineers from a couple of large broadcast stations here and they had little specific knowledge of this phase of the subject and could not help me. I got several answers to the effect that I should "cut and try" but this, naturally, does not suffice in teaching. It makes me wish that I had paid a lot closer attention to the prof when we took the advanced communications engineering course in college.

Again, thanks. Your *Antenna Book* is by far the most practical source of information I have found when it comes to actual antenna and transmission-line design.

— *Paul H. Wright*

THE SAME EVERYWHERE

Caixa Postal 459, Rio de Janeiro, Brazil

Editor, *QST:*

While on a vacation trip to Buenos Aires, I was sitting one day in a huge bus traveling along the crowded street at rather conservative speed.

Somewhere along the road dozens of schoolboys must have entered the vehicle and I suddenly realized that a pint-sized young man in knee-pants was sitting next to me. He was not much over 3½ feet tall and he was ear-deep in a book which somehow seemed familiar, and — it sure was! You can imagine my surprise when I saw that he was studying the mysteries of single-signal reception from the Spanish-language ARRL *Handbook*. . . .

Ham-bugs seem to start biting prospective LUs at quite an early age!

It is nice to see the ham fraternity expanding, even if one, because of several reasons, has to live in a foreign country and cannot do much about his own license. . . .

— *U. Vilms, ex-ES6E*

CLERGYMEN, PLEASE NOTE

Congregational Parsonage, P.O. Box 14, Anita, Iowa

Editor, *QST:*

During the last few months I have QSOd two members of the clergy. The last QSO with a clergyman made me wonder how many have taken to ham radio as a hobby. I was wondering if we can organize some kind of a net on which we can argue theology or, better still, just rag chew with each other.

If those interested would write me, stating their desire to organize an informal net, and the frequencies they like to use, I will undertake the necessary work to get the deal organized.

— *Rev. Charles M. Orcutt, WØAK*

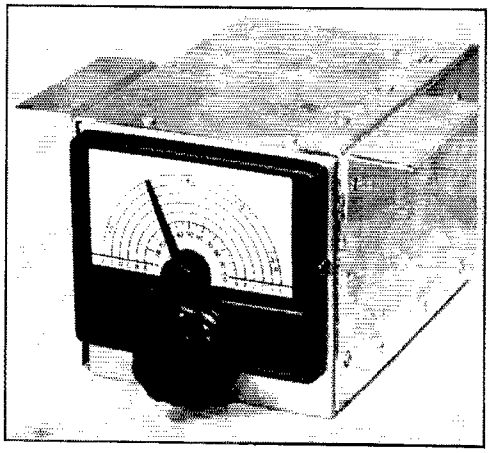
A Mobile Converter for 144 Mc.

Improved 2-Meter Reception for the Mobile Enthusiast

BY PHILIP S. RAND,* W1DBM

TRANSMITTING GEAR for mobile work can be constructed quite readily, either from new parts or by conversion of surplus equipment. However, it seems that most fellows prefer to purchase a converter to handle the receiving end of mobile operation. The receiver problem has worked against greater use of the 144-Mc. band in mobile emergency work, a field for which the band is otherwise admirably suited.

One solution has been to revamp an SCR-522 receiver and install it in the car, but the 522 is large physically, hard on the car battery, and lacking in selectivity and sensitivity. One can build a converter to go ahead of the car receiver, but unless a tricky double-conversion job is undertaken one will be bothered by images and lack of sensitivity. This article describes what we feel is the ideal solution for the ham who already has a mobile installation for lower frequencies: a 2-meter converter to work into the present converter for the other bands.



Mobile converter for 144 Mc. The heavy angle brackets are designed for mounting the converter under the dash.

The following requirements were in mind when the converter shown herewith was designed:

1) It must match a Gonset 10/11 or 3-30 converter in general size and ease of mounting, utilizing this converter as the first i.f. amplifier.

2) The over-all system must have good selectivity and sensitivity.

3) The converter must be switched in and out of the circuit readily.

4) The system must use a minimum of tubes and be simple in design, for low battery drain and ease of construction and adjustment.

Electrical and Mechanical Details

The schematic diagram, Fig. 1, shows that the circuit conforms to accepted design. Two 6AK5s are used, as r.f. and i.f. amplifiers. A 6J6 serves as mixer and oscillator. Self-resonant slug-tuned coils are used in the r.f. and mixer grid circuits for relatively broadband response. The oscillator coil is air-wound and tuned with a small split-stator condenser, a ceramic padder being used for band-setting purposes. The mixer and i.f. amplifier plate coils are slug-tuned, and have fixed ceramic padders. Examination of the photographs and parts list will show that miniature components have been used throughout, providing a compact arrangement. The small disc ceramic condensers are also more effective as by-passes, contributing to the stability of the converter.

By mounting the tube sockets as shown it was possible to use a single shield for both i.f. and r.f. stages. This shield is notched to clear the tube prongs. The various components must be mounted in such a position that it can be dropped into place and screwed down as the final operation. It was found best to mark the chassis with a pencil to show where the shield would have to go, in order to keep this space free of wires or parts.

The dimensions of the front panel, 4 by 4½ inches, were determined by the shape of the small Millen No. 10039 dial. The 6-inch-long chassis was about the smallest that could be used and still mount all the parts without unduly crowding the oscillator coil.

The 0B-2 voltage regulator had to have its socket submounted because of the tube's greater height while the 6AK5s and 6J6 just have clearance above and the slug-tuned coils fit nicely below the 1¾-inch-deep chassis.

Most of the constructional details are shown in the photographs. The front panel and bottom are folded out of a single piece of 1/16-inch aluminum with ⅝-inch flanges turned up along the sides for strength and for attachment to the chassis and cover.

The chassis is also folded out of 1/16-inch aluminum and is 1¾ inches high by 4 inches wide and 5½ inches long. In addition to the holes for mounting the miniature tube sockets, it is also necessary to make a cut-out for the tuning condenser. This condenser is mounted very ruggedly on a heavy angle bracket so that its shaft lines up with the hole on the Millen dial. Coax connectors for antenna and output connections and a small shielded receptacle for a 3-wire shielded

* % Laboratory of Advanced Research, Remington Rand, Inc., So. Norwalk, Conn.

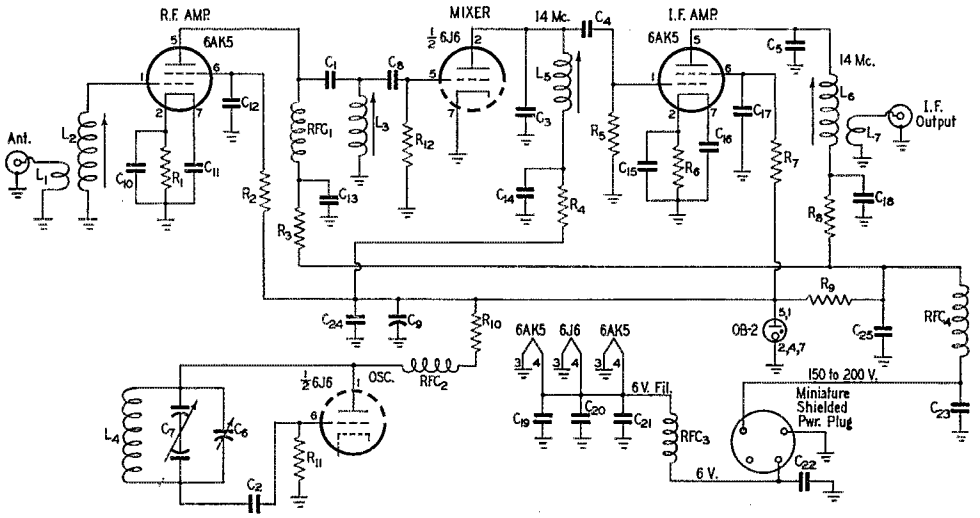


Fig. 1 — Wiring diagram of the 144-Mc. mobile converter.

C_1 — 3-$\mu\mu$fd. ceramic.
C_2, C_3, C_4 — 30-$\mu\mu$fd. ceramic.
C_5, C_8 — 50-$\mu\mu$fd. ceramic.
C_6 — 4–30-$\mu\mu$fd. ceramic padder.
C_7 — Miniature split stator, 2 rotor and 2 stator plates per section, double-spaced, double bearing.
C_9 — 4-μfd. 450-volt electrolytic.
C_{10}–C_{25} — 0.001- or 0.005-μfd. disc ceramic.
R_1, R_2, R_6, R_7, R_8 — 270 ohms, ½ watt.
R_3, R_4, R_{10} — 1000 ohms, ½ watt.
R_5 — 10,000 ohms, ½ watt.
R_9 — 10,000 ohms, 10 watts.
R_{11} — 15,000 ohms, ½ watt.
R_{12} — 1.5 megohms, ½ watt.
L_1 — 2 turns No. 20 enameled wire at cold end of L_2.
L_2 — 5 turns No. 20 enameled wire 5/16 inch long on CTC slug-tuned coil form ⅜-inch diameter, iron slug.
L_3 — 4 turns No. 20 enameled 5/16 inch long on CTC slug-tuned coil form ⅜-inch diameter, brass slug.
L_4 — 3 turns No. 12 tinned wire, ⅜ inch long, ⅜-inch inside diameter, with ¼-inch leads to condenser.
L_5 — 15 turns No. 28 enameled wire ¼ inch long on CTC slug-tuned ⅜-inch diameter coil form, combination iron and brass slug.
L_6 — 15 turns No. 28 enameled wire ¼ inch long on CTC slug-tuned ⅜-inch diameter coil form, combination iron and brass slug.
L_7 — 4 turns No. 28 enameled wire wound at cold end of coil form.
Values of L_5, L_6 and L_7 are for 14-Mc. i.f.
RFC_1, RFC_2, RFC_4 — 1-watt 1-megohm resistor wound full with No. 32 enameled wire.
RFC_3 — 1-watt 1-megohm resistor wound full with No. 18 enameled wire.
CTC coil forms (new ceramic type with high-frequency iron preferred) manufactured by the Cambridge Thermionic Corp., 546 Concord Ave., Cambridge, Mass.

power cable are mounted on the rear edge of the chassis.

The dust cover which completes the metal-working job is also made of 1/16-inch aluminum and has a removable back plate with clearance holes for the coax fittings and power plug on the chassis. Two mounting angles of 3/32-inch aluminum 1 inch wide and 3 inches long are bolted to the top edges of the cover. These must be strong as they are used to bolt the converter under the dash of the car.

The chassis is completely wired and tested before mounting in the combination front panel and bottom cover. A clearance hole in the side of the chassis is provided for the final adjustment of the ceramic band-setting condenser.

Wiring Procedure

In mounting sockets be sure to orient them so that the grid and plate prongs of the 6AK5s are on the proper sides of the partition to go directly to their respective coils. Mount the two cathode, heater, and screen by-pass ceramic disc condensers with as short leads as possible from the socket pin to a ground lug at the socket. Ground the little center tube in the socket and the other heater pin to this same point. Pins 2, 4, 6, and 7 on both 6AK5s are now by-passed while Pin 3 is grounded.

On the 6J6 mixer-oscillator Pins 3 and 7 are grounded, and Pin 4 is by-passed with another disc ceramic. Pin 2, the mixer plate, is by-passed for signal frequency with a 30-$\mu\mu$fd. ceramic which also acts as the fixed tuning condenser of the i.f. coil in its plate circuit. This condenser is soldered with short leads directly between Pins 2 and 7. The 6AK5 i.f. tube has a 50-$\mu\mu$fd. ceramic for the same purpose soldered from Pin 5 to Pin 3, which is ground. All the grid resistors are ¼- or ½-watt and are soldered directly with the shortest possible leads from the respective grid pins to the nearest ground, usually Pin 3 on the 6AK5 i.f. and Pin 7 on the 6J6.

The heater circuit may now be wired. This consists of joining together Pin 4 on each socket, and installing RFC_3. This choke helps to filter the 6-volt heater circuit and tends to prevent undesired signals and interference such as spark-plug noise and spurious beats from feeding into the converter. RFC_4 serves the same purpose in the B-plus line.

The various decoupling resistors and condens-

ers are tucked away in convenient places, leaving as much clear space for the slug-tuned coils as possible and always remembering to leave room for the shield across the 6AK5 sockets.

Winding the Coils

Winding the coils is probably the most dreaded step of all in building a converter, especially one for 2 meters. The other day I was talking to a friend who had tried to build a 2-meter converter. He said he had actually heard a station at one phase of his coil squeezing and pruning; however, he was never able to get the coils back to that same point and so had given up. This would not have happened if my friend had first built or bought a "grid dipper."

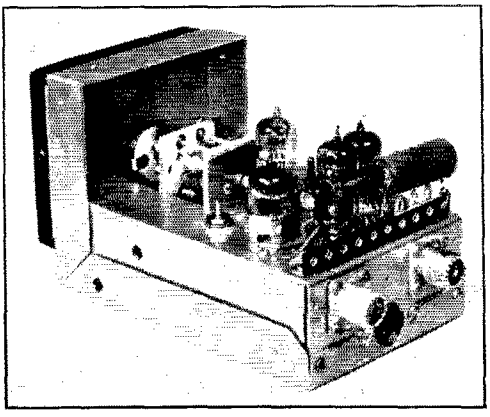
Constructional articles on grid dippers have been published in both *QST* [1] and *CQ*,[2] and they are available both ready-made and in kit form from several manufacturers. The grid-dip oscillator is undoubtedly one of the most useful pieces of amateur test equipment that you can have around the shack. The coils in this converter were lined up with a Millen grid dipper at one of our local radio club meetings to illustrate a talk on the use of the instrument. When the filament and B-plus were connected for the very first time, two-meter signals rolled through. It was only necessary to fire up a BC-221J frequency meter to calibrate the dial accurately. No further adjustment of the coils showed any improvement. Even the bandspread was just right — from 10 to 90 degrees on the dial for 144 to 148 Mc.

Using a Grid Dipper

The first step consists of making a rough approximation of the winding length, number of turns, diameter, etc., of the coil, taking into account the input or output capacity of the tube in question, any added capacity to be used, and the frequency.

After the above facts were established, an ARRL Lightning Calculator was consulted. With the ⅜-inch diameter of a CTC coil form, and selecting approximately ¼ inch for the winding length, a coil to hit 144 Mc. should be somewhere around 20 to 25 turns per inch, or 4 or 5 turns for a coil ¼ inch long. A 5-turn coil of these dimensions was wound with No. 20 enamel wire on a CTC slug-tuned form, and was connected to the grid and cathode pins of a spare miniature tube socket with approximately the same length leads that would be used in the final set-up. The plate, filament, and screen pins were all tied to the cathode, as in Fig. 2A.

After plugging a 6AK5 into the socket, the Millen grid-dip oscillator was fired up and the resonant frequency of the coil was checked. In using a grid-dip oscillator, use fairly tight coupling between the grid-dipper coil and the coil under test until you find the frequency at which a pronounced dip is observed on the meter. The coupling is then loosened until the dip is barely noticeable. This improves the accuracy of the frequency reading. The frequency of this first coi was a bit too high so the brass half of the slug was removed. The remaining powdered iron part of the slug was then adjusted until the dip could be moved to any part of the two-meter band. It was necessary to spread the turns slightly, making a 5-turn coil approximately 5/16 inch long.



Rear view of the 2-meter mobile converter, with dust cover removed.

The mixer grid coil was made up the same way; however, here we had to use two sockets with a 6AK5 in one and a 6J6 in the other, connected as in Fig. 2B. This placed the output capacity of the 6AK5 and the input capacity of the 6J6

[1] Grammer, "The Regenerative Wavemeter," *QST*, Nov., 1949, p. 29.

[2] Scherer, "The Improved Grid Dipper," *CQ*, Jan., 1949, p. 30; Feb., 1949, p. 14.

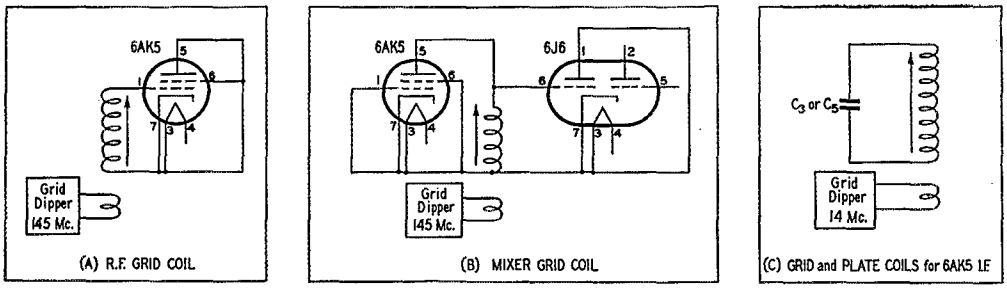
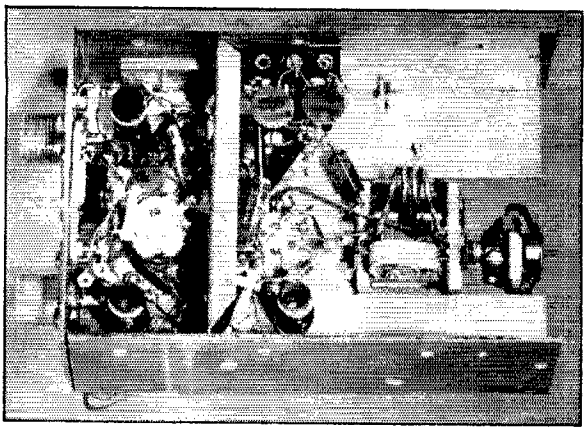


Fig. 2 — Method of connecting coils externally in order to adjust their inductance before wiring them into the converter.



Under-chassis view of the 2-meter converter. The coils at the bottom of the photo are (*left*) r.f. grid and (*right*) mixer grid. At the top, same order, are the i.f. amplifier and mixer plate coils. The latter is partially obscured by the small disc ceramics.

♦

across the coil. The resonant frequency was again checked, and this time was found to be too low. One turn was removed from the coil, making it 4 turns of No. 20 wire, 5/16 inch long. The resonant frequency was closer but still a bit low so the combination slug was removed and this time the powdered-iron half was removed, leaving a brass slug which would lower the inductance a bit more. After reassembling, the frequency range checked fine, more than covering the band.

In winding the high-frequency oscillator coil, which is made of No. 12 tinned copper wire, the ceramic padder and split-stator tuning condenser were soldered together and a 4-turn coil was temporarily attached. This whole assembly was connected in series with the grid condenser between Pins 2 and 5 of a socket holding a 6J6. At this point it becomes necessary to decide on the i.f. out of the converter. I chose 14 Mc. because my 3-30 Mc. Gonset was hottest there, and my "surplus" home receivers also covered that band, but it could have been 27 to 30 Mc. just as well. In my case this meant that the high-frequency oscillator must tune the range of 144 minus 14 to 148 minus 14 or 130 to 134 Mc.

The first check on the bench with the grid dipper showed the range to be 120 to 125 Mc. This, of course, was too low in frequency, but the bandspread was about right. By opening out the ceramic padder, the right frequency could be reached, but the bandspread was too little; therefore, one turn was removed, making the coil 3 turns with a 3/8-inch diameter. Now the grid dipper showed the right frequency, but the bandspread was too great so the coil was squeezed together and the padder opened out to compensate for the slightly increased inductance; and, presto, the band, 130-134 Mc., was covered from 10 to 90 degrees on the dial.

In winding the i.f. coils it was not found necessary to attach them to a tube socket as the input and output capacities are small compared to the fixed ceramics across the coils. Therefore, after winding coils according to the Lightning Calculator and soldering a 50-$\mu\mu$fd. ceramic condenser across them, they were checked with the grid dipper for resonance at 14 or 28 Mc., depending on the i.f. to be used. In winding coils on CTC coil forms with the combination iron-brass slug arrangement for maximum tuning range, the coil should be wound in the center 1/4 inch of the form, so that either half of the slug may be positioned inside the coil. If half of the slug has been removed as in the case of the r.f. stage, it is well to keep the coil in the 1/4-inch area near the open end for maximum range.

We have now wound all our coils without even mounting them on the chassis, to say nothing about not even applying any filament or B-plus to the converter. All this because we have a grid dipper. We have also used this same procedure in building a 2-meter transmitter starting off with an 80-meter VFO. Every coil, including the final plate tank, was adjusted this way, and as a stunt, a flashlight bulb was coupled to the final before applying filament and B-plus for the very first time, and, believe it or not, the bulb nearly burned out when the juice was turned on. All tuned circuits were almost on the nose. Some difference from a few years ago when we wound coils "by guess and by gosh," and grabbed a wavemeter to see if we were amplifying, doubling, or tripling!

Pretesting

After completing the wiring and mounting the coils in place and dropping the shield in position across the r.f. and i.f. sockets, the slugs should be tuned once more to be sure they all hit the right frequency. Of course, all tubes should be in their sockets. If everything checks OK with the grid dipper, it is well at this time to give each coil a coat of liquid polystyrene to hold the windings in place.

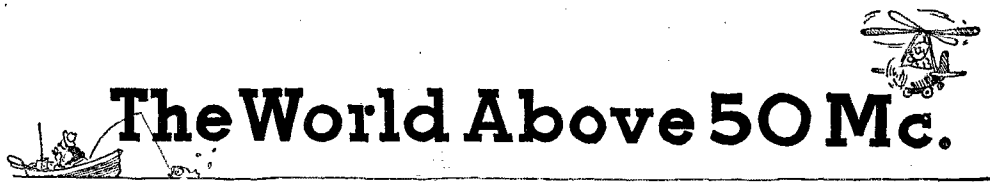
After installation of the chassis in the cabinet it will probably be necessary to touch up the oscillator padder to compensate for slight detuning by the bottom pan. After this is done, the converter may be tried out ahead of the home-station communications receiver and the dial calibrated and marked in India ink.

The slugs in the r.f., mixer and i.f. coils should also be peaked up as a final touch after the converter has been put in operation. In my case, I peaked the r.f. grid coil at 145 Mc. and the mixer grid coil at 147 Mc., as indicated by the home-station S-meter.

Installation

The converter is designed to be bolted under the dash right alongside my 3-30 Gonset by means of the two angles at the top of the cabinet. I

(*Continued on page 84*)



The World Above 50 Mc.

CONDUCTED BY E. P. TILTON,* W1HDQ

"Then, if ever, come perfect days!" — Lowell

AFTER June, 1950, v.h.f. men everywhere feel that Lowell had the world above 50 Mc. in mind when he sang the praises of the month of roses in these immortal terms.

June 24th was such a day. As soon as they came on for their morning programs f.m. broadcast stations were being heard at extraordinary distances all over the South. Occupants of the 2-meter band who keep early-morning schedules were finding the band in excellent shape even earlier. By 9 the 50-Mc. band was hot with sporadic-*E* skip of unusual proportions.

This looked like the day to be bearing down on 144 Mc. so W5VY, San Antonio, Texas, began making transmissions on both 50 and 144 Mc. While in contact with W4CVQ, Fayetteville, N. C., on 50 Mc. Pat announced that he was going to 144 Mc. Up in Shiloh, Ohio, more than 1200 miles to the north, W8WXV was listening to the QSO on 6. No harm to give a listen on 2 — and in came the 2-meter signal of W5VY, S7!

After several calls by W8WXV, complicated by rapid fading and frantic excitement at both ends, contact was established at 10:09 EST, signal reports being exchanged on c.w. Signals built back up and a further exchange was made on voice, with signals peaking around S7. Contact was lost at 10:15, but the signal of W5VY was heard again briefly at 10:30.

Thus, for at least the fourth time in 2-meter history, there is an indication that sporadic-*E* skip may have been responsible for the propagation of a 144-Mc. signal over a path of 1000 miles or more. For the first time, a combination of superlative equipment and alert operating at both ends of the hop made two-way communication possible. W5VY was running a kilowatt to a pair of 4-125As, feeding a 4-over-4 stacked array. W8WXV used 100 watts input to an 829B, a 45-degree corner-reflector array, and a crystal-controlled converter with two 6J4 grounded-grid r.f. stages. Well done, Pat and Al — 2-meter men everywhere salute you!

The 50-Mc. gang, too, had their share of "perfect days" in June, sporadic-*E* skip reaching record proportions after a slow start. During May and the first few days of June openings on 6 were below normal in both number and quality, but the balance of the month saw the band open practically every day or evening. Double hop showed up often, remaining in for hours in some instances.

One of the wildest sessions in the history of v.h.f. skip took place on the 27th. Starting around 7 P.M. EST, the 50-Mc. band was open over practically the entire country simultaneously for more than five hours. Skip was so short at times as to overlap the ground-wave range. In the East, stations as close as Washington, D. C., and Connecticut were working with ease, providing state hunters a rare opportunity for contacts in that hardest of all ranges, 300 to 500 miles. West Virginia, heretofore the Tibet of the 50-Mc. band for New England 6-meter men, was represented by W8TDJ, W8JKN, and W8YPN, and they were kept on the jump by a constant barrage of calls.

Double hop from the West, beginning at 8:45 and lasting until well after midnight (EST) brought in the rare New Mexico, Arizona, Colorado and Wyoming, along with the more often heard Washington and VE7. W5VWU, W7s FGG and QLZ, WØs UEL, ELL and VIK, and W7s JRG and KOP gladdened the hearts of scores of eastern operators, many of whom were getting their first crack at these states on 6. Other sections of the country were building up their totals, too, with W1CGX supplying Vermont contacts at a rapid rate, and W1PWW and W1EIO doing the same for Maine.

No complete report is possible because of the imminence of copy deadline, but a quick check with the 6-meter men at Headquarters shows a total of 37 states heard during this one evening, giving some idea of the extent of the session. Stations were heard working at least three others,

W5AJG Makes 50-Mc. WAS

For more than a year Leroy W. May, jr., W5AJG, had been resting comfortably at the top of the W5s listed in the 50-Mc. WAS box in *QST*. Only Arkansas was needed for his grand slam, but the 295 miles from Dallas to Little Rock, where the 50-Mc. activity was available, seemed just about the toughest possible distance to bridge.

A break finally came in the form of W5LAN/5, working on 50 Mc. from a point 5 miles north of Texarkana, Ark., who made contact with W5AJG on June 30th. Our W5 QSL Manager thus becomes the first operator outside the Middle West to work all 48 states on 50 Mc., and the proud holder of special 50-Mc. WAS Award Number 4.

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

indicating that a 50-Mc. WAS was close to a practical possibility in this one evening! One thing is certain: the standings in the 50-Mc. WAS box are due for a drastic upward revision. Have you posted your latest figure?

Around the World on the V.H.F. Bands

Wiesbaden, Germany — What is believed to be the first 2-meter contact between Germany and England was made on June 9th at 2300, when DL4XS worked G3DIV/A, Eastbourne, south of London. DL4CK reports that he and DL4XS have worked PAØUN, Eindhoven, and PAØPN, Middelburg. DL4XS, DL4CK, and DL3NQ have worked ON4YV, and these stations and DL1DA also work F8YZ, Nancy, France. Intercountry work is developing rapidly with the improved summer conditions and the better antennas and receivers and higher-powered transmitters now being employed. DL4XS leads in this department, with 5 countries worked. Switzerland is being lined up for No. 6.

Alessandria, Italy — It is not far, as present 2-meter records go, from Alessandria to Toulon, but this path of nearly 200 miles traverses the southern Alps at altitudes up to 10,000 feet. It is thus of considerable interest to learn that on May 25th I1ABU worked F9BG on 144 Mc. This is the first known instance of 2-meter communication over this path. Signals were S6-7 for an hour, starting at 2100.

Dallas, Texas — The 2-meter band had been in good shape before, but never anything like the June 24th and 25th session, according to W5AJG. Leroy worked Oklahoma, Louisiana, Arkansas, Mississippi, Alabama, Tennessee, and all of southern Texas. Signals were extremely strong, for the greater part of the 12-hour period beginning at 9 P.M. on the 24th, and even the lowest-powered stations were working plenty of DX. W4KUX and W5OBU/4, Tuscaloosa, Ala., were the first contacts in that state for the Texas stations.

Collierville, Tenn. — The June 24th session on 144 Mc. started as early as 6:48 A.M. for W4HHK, who was working into Beaumont and Baytown, Texas, and Oil City, La., from then until 8:15. Picking up again at 6:45 P.M., Paul worked another string of Texas, Mississippi and Louisiana stations, including W5VY and W5JLY, San Antonio, 650 miles distant. This session lasted until about 2:30 A.M. Sunday, but Paul was at it again at 6 A.M., with another string of DX contacts, including W5HTZ, Cromwell, Okla., for state No. 13.

The band was open again Sunday evening, this time to the north, and W4HHK worked the following W9s: FVJ, Toledo, KH and BOV, W. Frankfort, LIR, Champaign, SUV, Arcola, and EHX, McLean, all Illinois; and UIA, Evansville, JMS, Cory, and HKQ, DeMotte, Indiana. HKQ was the best DX, about 500 miles.

Olmitz, Kan. — Though the 50-Mc. band was open almost daily in the latter half of June, the 18th was a red-letter day for WØIPI. Between 1:24 and 9:55 P.M. Ben worked 41 stations in 23 states and all U. S. call areas, with a total of 31 states heard.

From Pleasant Hill, Mo., WØHVW reports 19 states and VE3 worked, with extremely short skip in evidence at times. W5FAL, Little Rock, Ark., less than 300 miles distant, was worked, and WØIPI was heard briefly.

Lansing, Ontario — More 50-Mc. contacts should be possible on some of the openings. On June 7th VE3AET heard unidentified West Coast stations working W0s, and W7JRG, Sheridan, Wyo., was in solidly for more than three hours. These two fellows worked each other several times, but no other stations could be raised by either party!

Noank, Conn. — A mountain-top location and high power are not always requisites for 50-Mc. DX work. During the Field Day activities W1ELP/1 was using 12 watts from an emergency power supply, and operating at practically sea level — but he had a fine contact with W6TMI when the band broke open to the West Coast late Sunday afternoon. Bill is using a stacked 3-over-3 array (Workshop) with ⅝-wavelength separation.

Los Angeles, Calif. — The Two Meters and Down Club is holding a v.h.f. hamfest and picnic on August 13th at Griffith Park, Vermont Ave. entrance. Time is 10 A.M. to 6 P.M. More than 200 v.h.f. men are expected at this first western v.h.f. round-up.

A California v.h.f. contest to begin Sept. 1st is announced by W6MVK. This will be a marathon affair based on mileage, running for a 4-month period. A trophy will be provided for the winner, with smaller trophies to the top man in each ARRL section in California. Rules will be announced later.

Activity on 50 Mc. in Southern California has picked up greatly this summer, and openings have been frequent during June. W7s and VE7s are heard frequently in the evening. Arizona and W5 states are heard often as early as 8 A.M., with the opening swinging around to the north around noon. There have been numerous double-hop openings to the east in the early afternoon hours.

San Francisco, Calif. — Activity is picking up on 6 around the Bay area, too. W6BUR reports W6s CCY, DYV, CAN, DPF, DQY, GCG, NIO, UOV, VEV, ZHU, BHR, and HZQ among the regulars. W6HZQ left a 47-state total behind him when he moved to California from South Dakota. He is ex-WØUSI.

Silver Spring, Md. — Two regularly-scheduled 50-Mc. net operations are reported by W3OTC. In Washington W3s MPD, OJU, OTC and W4LVA get together each Thursday at 10 P.M., with others joining in on occasion. W3JVI and a group of Baltimore area stations operate each Friday at 11 P.M., the late meeting time being accounted

Standings as of June 27th

WØZJB	48	W5VY	47	W8QYD	44
WØBJV	48	W5JTI	44	W8CMS	39
W0CJS	48	W5JLY	43	W8NQD	39
W5AJG	48	W5ML	42	W8YLS	38
W9ZHB	48	W5VV	42	W8WSE	36
W6WNN	48	W5ONS	41	W8LBH	36
		W5FSC	41		
W1CLS	46	W5GNQ	41	W9HGE	47
W1HDQ	45	W5JME	41	W9ZHL	47
W1CGY	44	W5NHD	41	W9PK	47
W1LLL	44	W5HLD	40	W9ALU	46
W1KHL	41	W5FRD	38	W9JMS	45
W1LSN	41	W5DXB	35	W9QKM	45
W1HMS	39			W9RQM	44
W1GJO	37			W9UIA	43
W1EIO	37	W6UXN	47	W9VZP	43
W1RO	36	W6OVK	40	W9UNS	42
W1ELP	36	W6IWS	40		
W1DJ	36	W6ANN	38	WØQIN	47
W1JLK	35	W6BPT	36	WØDZM	47
		W6AMD	35	WØNFM	47
W2RLV	45	W6NAW	35	WØINI	47
W2BYM	42			WØKYF	44
W2IDZ	40	W7HEA	47	WØJHS	43
W2AMJ	38	W7BQX	45	WØPKD	43
W2QVH	38	W7DYD	45	WØTKX	43
W2FHJ	37	W7ERA	43	W0SV	42
W2GYV	35	W7JRG	40	WØHVW	42
		W7BOC	40	WØHXY	41
W3OJU	44	W7JPA	40	WØIPI	41
W3OR	35	W7FIV	40		
W3JVI	35	W7CAM	40	VE3ANY	38
		W7KFM	40	VE1QZ	32
W4FBH	45	W7FDJ	36	VE1QY	28
W4EQM	44	W7FFE	35	VE3AET	29
W4QN	43	W7KAD	35	HC2OT	26
W4FWH	42			VE4GQ	20
W4GIY	40			XE1GE	19
W4EQR	40			XE2C	14
W4CPZ	39			XE1QE	10
W4DRZ	38				
W4MS	38				
W4KKU	38				

Calls in bold face are holders of special 50-Mc. WAS certificates, listed in order of the award numbers. Others are based on unverified reports. If you have 35 or more states worked on 50 Mc. send in a list for inclusion in this section.

for by Channel 2 activity earlier. W3JVI reports that TVI is not a one-way proposition; WMAR-TV puts pulses all through the 6-meter band, too!

Everett, Ohio — What was probably the first Delaware-Ohio 2-meter contact was made on the morning of June 1st, when W8WJC raised W3ASD, Smyrna, Del., for his state Number 19 on 144 Mc. W8BFQ and W3RUE also caught W3ASD shortly after. All this came about when W3ASD made provision for horizontal as well as vertical polarization.

Clinton, N. C. — North Carolina contacts are being made on 144 Mc. now as a result of the efforts of W4CVQ, Fayetteville, W4DLX, Charlotte, and W4DCQ at Clinton. These fellows all have high-grade set-ups and horizontal beams. The latter are aimed north each evening, and the boys transmit and listen for alternate 5-minute periods from 9:30 to 10:00 EST. They are working out to distances of about 250 miles quite regularly, so they have what it takes. W4DCQ was heard by W2NLY on the night of June 13th.

Arlington, Mass. — There was heavy QRM on 220 Mc., of all bands, June 4th at 8 P.M. The 9 stations of the spot-frequency net in the Boston area took the air as always at this time, but procedure was somewhat more hurried and less orderly than usual. Everyone tried to make his eight 5-point contacts simultaneously!

Overland, Mo. — The 144-Megacyclers Net of the St. Louis area meets every Tuesday night at 7:30 CDST, with WØKYF, University City, as control station. Regular participants are Wøs AOU, AJU, BZN, BZL, IHD, VMY, ZJG, and K9FAE. Following roll call the session is opened for other stations, this procedure bringing in WØPLJ, Jackson, Mo., W9BOV, W. Frankfort, Ill., W9VZM, Dubois, W9FMY, Mt. Vernon, W9FVJ, Toledo, and W9HAB, Centralia, Ill.

The World Above 420 Mc.

The working of appreciable distances on 420 Mc., at first possible only from highly-elevated locations that guaranteed line-of-sight paths, is now being done more often from ordinary home locations. In England, particularly, the working range is being stretched out remarkably. Our friends in G-land, now deprived of v.h.f. activity below 145 Mc., and having nothing between 148 and 420 for amateur territory, are taking to the 420-Mc. band in considerable numbers. The country is ideally adapted to v.h.f. development geographically, and the Gs are making the most of it by using the best gear they can assemble. Perhaps more than in this country, where v.h.f. interest is more diverse, the British are going in for stable transmitters and selective receivers, with results showing the effect of the good gear.

Up to the middle of June, G5BY had made contacts to about 160 miles, the best with G6LK, Cranleigh, Surrey, on June 4th at 2115 GCT. Signals were 599 on c.w. G5TP, Stoke Row, Oxfordshire, 155 miles, was worked at 2115. G2XC, Portsmouth, 132 miles, was worked on May 30th, and these paths were open several other times in early June, though no other two-way contacts were made. In addition, six contacts were made with G3ABH, 90 miles; five with G3EJL, and two with G3RI, both at 119 miles. The antenna system at G5BY now has 24 elements backed up by a screen reflector.

The warm weather was helping the 420-Mc. situation in this country, the inversions providing improved propagation and stimulating activity. On the night of June 13th conditions along the Atlantic Seaboard were excellent. Walloping signals from distances of 200 miles or more on 144 indicated that this would be a good time to try 420. At about 10:15 P.M., W2QED, Seabrook, N. H., and K2AH, East Orange, went to 420 from 144, triggering off a series of 420-Mc. QSOs over the greatest distances yet worked between home stations in this country. W2QED's contacts included W2QKW, Tuckahoe, N. Y., 130 miles, W2BQK, Bergenfield, N. J., 125 miles, and W1PBB, Stratford, Conn., about 160 miles. Vertical polarization was used for all this, but the 32-element array at W2QED can also be used horizontally, and is flopped over for nightly checks with W3OWW, Stewartstown, Penna., 75 miles to the west. This path is worked almost consistently, the only failures being when conditions are below normal on 144 Mc.

The hop across Lake Erie from W2ORI, Lockport, N. Y., to VE3DAN, Toronto, has turned out to be negotiable most of the time in a month-long series of schedules. VE3DAN reports that numerous visitors to his shack have been favorably impressed by the strength and clarity of the 420-Mc. signal from W2ORI, and that at least six other Toronto area hams are getting started as a result.

June V.H.F. Party — Final Scores

Though generally poor conditions over most of the country kept the scores somewhat below the peaks attained in the 1949 party, the June 3rd–4th V.H.F. Contest brought in more reports than any previous v.h.f. operating activity outside of the annual Sweepstakes. Before the mailing deadline was reached more than 160 scores had come in, and several more have arrived since. Adhering strictly to the deadline rule, in order to facilitate prompt reporting of contest activity in *QST*, the scores listed are only those that were mailed before the stated deadline.

Some complaint is heard from one-band operators that they are at a disadvantage in the scoring system used in the spring and fall contests, whereby sections worked on each v.h.f. band add to the multiplier. The predominance of multiband operators in the upper-bracket scores demonstrates that this is true — but is that not just what we are

(*Continued on page 86*)

2-Meter Standings

	States	Call Areas	Miles		States	Call Areas	Miles
W1PIV	13	5	550	W4JFV	11	5	830
W1HDQ	13	5	480	W4MKJ	10	5	475
W1BCN	12	4	500	W4OLK	9	4	500
W1CTW	12	4	500	W4ODG	9	4	500
W1REZ	11	4	—	W4JHC	8	4	500
W1JSM	10	3	—	W4OXC	8	4	470
W1GJO	10	3	—	W4AJA	8	4	—
W1JMU	9	3	—	W4NRB	8	4	—
W1OOP	9	3	—				
W1MBS	9	3	275	W5JTI	13	5	660
W1QXE	9	3	—	W5VY	7	3	1200
				W5AJG	7	2	450
W2BAV	14	5	430	W5CVW	5	2	450
W2NLY	13	5	515	W5ML	5	2	425
W2NGA	13	5	—	W5ERD	5	2	215
W2DFV	13	5	350	W5DXB	5	2	—
W2CET	12	5	405	W5IRP	2	1	365
W2WLS	12	4	—	W5FSC	2	1	250
W2DPB	12	5	500	W5JLY	1	1	1000*
W2QNZ	11	5	—				
W2NPJ	11	5	500	W6ZEM/6	1	1	415
W2FHJ	11	4	—				
W2PJA	10	4	—	W8WJC	19	7	700
W2PIX	9	4	—	W8UKS	18	7	720
W2WGH	9	4	—	W8BFQ	16	6	600
W2BNX	7	4	300	W8WXV	14	7	1200
W2RPO	5	4	—	W8WSE	14	6	620
W2UTH	5	4	—	W8WRN	13	5	500
W2UXP	4	4	—	W8CYE	12	6	—
				W8CPA	12	—	650
W3RUE	16	7	760	W8DIV	8	4	—
W3KBA	13	6	—	W8RDZ	8	4	340
W3OWW	13	6	600	W8BKI	7	4	—
W3GKP	13	5	610				
W3KUX	12	5	575	W9FVJ	13	6	680
W3PGV	12	5	—	W9JMS	13	6	600
W3KWH	11	6	—	W9PK	10	5	—
W3BLF	10	6	—	W9GLY	10	5	525
W3KWL	10	5	—	W9QBW	8	4	—
W3GV	9	5	660	W9NFK	8	4	410
W3HB	9	5	—	W9GJE	6	3	—
W3LMC	9	4	—	W9UIA	6	3	205
W3KWU	8	3	—				
W3VVS	7	4	430	WØNFM	14	7	660
				WØEMS	13	5	830
W4IKZ	13	5	500	WØWGZ	10	4	760
W4HHK	13	5	650	WØDEN	7	4	520
W4CLY	12	5	500	WØIHD	5	3	300
W4FJ	12	5	450				
W4FBJ	11	5	—	VE1QY	9	3	650
W4JDN	11	5	—	VE3AIB	8	5	520
				VE3BPB	6	4	—

* Crossband.

How's DX?

CONDUCTED BY ROD NEWKIRK,* W9BRD

How:

With the heat of the lazing season full upon us, we will dispense with the academic dissertation that usually fills this space and get down to the business at hand. Jeeves, remove your gunboats from the desk and pass over the gist. . . .

What:

On 14-Mc. 'phone, **EA8AA** (14,380) in Ifni has the boys hopping and XE1AC added catches like **EA9AI** (14,305), **FF8PJ** (14,310), **EK1AD** (14,333), **HL1US** (14,319), **KH6KQ/KB6** (14,295), **LX1CD** (14,313), **MI3AB** (14,399), **PK6HA** (14,162), **SP5AB** (14,268), **VP2GG** (14,335), **VK9MR** (14,309), **VS2CJ** (14,320), **ZB1AB** (14,306), **ZB2A** (14,320), **ZK2AA** (14,307) and **ZS3F** (14,307) . . . . Along with **UB5BV** (14,150), W2IXT wrestled with puzzlers **AC9QT** (14,348) and **XA3SC** (14,345) while knocking off a share of the rather new OE-thirteen gang . . . . From W6UZX we have some Indonesian area info in that **PK6FM** (14,180) on Morotai and PK6VK (VFO, low and high ends) on Dutch Timor are reported active almost daily . . . . A few 'phones mentioned in the So. California DX Club *Bulletin* would be worth looking into: **VS5AN** (14,090–125) of Sarawak, **OY3IGO** (14,160), **FK8AC** (14,170), **MD2MD** (14,390), **SP1CM** (14,304), **OE13s AA** (14,320) and **EG** (14,185). **VR1C** (14,190) was given such a rush that his modulation tranny folded. He has probably used up a few others by now! PK7s HR and EE are reported active.

This same organ specifies some nice c.w. trophies: **C8s DD** (14,080), **DA** (14,075), **VK1s AJT** (14,085), **YG** (14,050), **VS5CA** (14,010) on Sarawak, **VQ8s CB** (14,100), **CF** (14,045), **FU8AD** (14,055), **CR5AJ** (14,040), **VS7s NX, SV, KR** (all near 14,070), **UO5s AD** (14,060), **KAA** (14,040), **UM8KAA** (r.a.c. and QRH between 14,030–060), **UP2KBC** (14,105 t7), **LZ1TPI** (14,005 t3 QRH), **AR8AB** (14,040), **C3WW** (14,085), **ZS8MK** (14,130), **EA9BB** (14,003), **F9QV/FC** (14,010) on Corsica and **CT2AD** (14,018). FG8AA and YI2JB entries are heard to be readying for activity . . . . W3QLW's zepp scared up **ST2TC** (14,004), **TF3ZM** (14,012), **VQ2GW** (14,076), **VQ4BB** (14,012), **YU1CAG** (14,000) and an EA9 while W3AFM relays "73 to all Ws" from **ZB1CH** (14,022–082) who intends to inhabit Malta for the next two years . . . . At W8YGR we find **HC2IH** (14,010), **VP3FD** (14,115), **PZ1AL** (14,080) and Jack needs three more KZ5s for the Canal Zone award . . . . W6TI wasn't unhappy about hooking **C8YR** (14,040) who vowed 100% QSL and CR1ØAA's card made it 204 in the W6AM bag . . . . W5FFW and others aren't too hopeful of a recent **FP8AB** session on 14,060 kc. but W3LMM is pretty sure of **VR2AA's** 30-watter (14,098) . . . . A new Premax vertical is giving a good account of itself at W9NN and VE7CE's substitution of an 813 for the old 807 resulted in VS1s AW, BJ, VR1s A, C, DU1s DR, NL, KJ6AJ and JA9CR. The latter two claimed to be the only actives in their respective prefix-areas . . . . When not tinkering with his beam, W4MR works an assortment such as YIs 3DG, 7GJP, MD2PJ, MP4BAO, CR5AC, HZ1AB, PX1A, EA9AA, EK1RO, FF8MM, M1B, UI8KAA, ZB1IH, ZB2A and ZS3Q . . . . W5FXN tarried a bit for **VQ2AB** (14,120), **KW6AP** (14,085), **TA3FAS** (14,078) and **WØBFE/KJ6** (14,100).

Among the ten-meter gang who are at the moment looking forward to better days, W4MKB startles us with a batting average of 131 confirmed among 132 countries worked. Joe has a pair of 4-250As feeding an 8-element stacked array and CR5UP is his one QSL holdout . . . . FM7WE, VP1BOY, PJ5FN, CR4AC, CR6AV and VS2BD broke the summer silence at W2AEB and W2ZVS kept busy with the southern route: VP4TO, VP6s CS, IC, RJ, HC1TM and HP1MM . . . . **LU2CX** is possibly the only U. S. citizen operating ten 'phone from the Argentine and frequents 28,440 and 28,460 kc. with regularity. Second-op Reg Wood was on hand for a coincidence when WØSU happened to chime in during an LU2CX contact with W5SU . . . . W1RGY reassures us that ten c.w. is still there and he had little trouble accumulating a rapid 24 countries with his 807 and half-wave vertical. Of course, the biggest ones got away!

If any of you LF fiends feel up to a big job, G5LF will be operating GM5LF/A in the Scottish Hebrides through early August using a 10-watt 160-meter 'phone-c.w. portable rig. He can't guarantee specific hours of operation as the XYL will be in attendance! . . . . **G8WM/MM** was giving 3555 kc. a whirl while en route San Francisco to Manila according to W6ZOL. Roger also heard from VS2AA that the VS2MI 7-Mc. entry is most probably not good . . . . Eighty countries on eighty meters! That's what HC8GRC clinched for W4BRB. Gene is itching to make the century, when the QRN again abates . . . . Old friend VK9NR, late of Norfolk Island, is reported from many sources as

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Mrs. Louise ten Herkel-Chenevert, PAØZC, Canadian-born XYL of PAØZD, scans the band for 28-Mc. friends. The Herkels have one junior op adding to the background level.

* DX Editor, *QST*. Please mail reports of DX activity to W9BRD's home QTH: 1517 Fargo Ave., Chicago 26, Ill.

QST for

The United Nations gang has been responsible for a good many country rarities on the amateur bands. Here is UN radio man Olle Hagerbrant at the mill of SV5UN at Rhodes. Transmitters in use are a BC-610-E and an RA-600, the receivers an NC-240-D and a pair of BC-342s. Seven dipoles cut for various frequency ranges make up the antennae. Over 60 countries have been worked on 10 and 20 meters with operation time limited because of commercial traffic watches.

♦

working 7015 and 3507 kc. under the call **ZL3OZ**. W9MBN was among the first to grab Noel on forty ._._._. Before tackling final exams up at W1YA, W1QIQ scoured 3.5 Mc. to the tune of **HB1IS** (3506), **HB1FX** (3507–3517), **G8AW/A** (3517) and **MP4KW** (3516). After graduation, Lee will probably continue his DX education from W9.

Where:

W3GHD relays word from QSL Manager PK1LZ that the PARI QSL Bureau address is Postbox 127, Djakarta. The address previously given here turned out to be more properly for PK3 cards alone. Cards for any PK will be accepted by the PARI QTH given above ._._._. The AP2F listed below is the second holder of the call and obviously cannot be held responsible for QSL debts of the original licensee. The new AP2F *does* QSL ._._._. All OE13 stations appear to welcome cards through: QSL Bureau, APO 777A, % PM, New York City, N. Y. ._._._. The "M" prefix almost invariably represents British Forces overseas personnel in which cases the RSGB bureau will be the best bet in lieu of a direct route (MB9, MP4, et al.).

AP2F	Terrence H. Falstein, 109 Depot Lines, Karachi 3, Pakistan
AR8AR	(TA3AA, via ARRL)
C8YR	Yu Ruey Chi, P. O. Box 73, Laochunmiao, Kansu, China
CR5AC	A. Vicente, % REP, nesta cidade de Bissau, Portuguese Guinea
CR5AM	A. Mariano, % REP, nesta cidade de Bissau, Portuguese Guinea
CX7BA	Box 37, Montevideo, Uruguay
FM7WF	St. Joseph, Martinique, F. W. I.
FY7YB	(ex-FY8AE) Ws only via W9AND with stamped envelopes
HA4SB	(via MRRE)
KZ5SC	Signal Office, Corozal, Canal Zone
LZ1Z	Box 830, Sofia, Bulgaria
OE8FK	(via RSGB)
OH5OD	Kalle Manninen, Hamina, Finland
OH5OE	Imatra, Finland
PJ1UF	(via VERON)
SP1KM	(via PZK)
SP5AB	(via PZK)
TG9FC	Box 438, Guatemala City, Guatemala
VK3LV	Cheltenham, S. 22, Melbourne, Australia
VK9MR	GPO, Madang, New Guinea
VP4LT	% PAA, Port of Spain, Trinidad
VP9OO	(via VP9D)
VQ2JK	(ex-ZS3W) J. A. Ker, P. O. Box 199, Livingstone, No. Rhodesia
VQ4AA	(ex-VQ3AA) S. H. W. Tanner, % Station Master, East African Railways, Mombasa, Kenya
VR2AA	Signals Officer, RNZAF, Suva, Fiji Islands
WØBFE/KJ6	QSL to 2630 James, Minneapolis, Minn.
YU1CBD	Box 48, Belgrade, Yugoslavia
YU1CBE	Box 48, Belgrade, Yugoslavia
ex-ZD8B	% Staff Dept., Cable & Wireless Ltd., Electra House, Victoria Embankment, London W. C. 2, England
ZS8MK	Dr. R. L. Markham, Quaches Nek, Basutoland, South Africa

♦

Over 135 countries have been worked from this sunny alcove at ZL3LR. Active on 10 and 20 meters, the transmitter is automatically voice-controlled, the receiving handled by an SX-16 with converters, and the antennas feature a 3-element beam and a collinear array.

August 1950

W1s MUN ODW RWS, W2s AEB CJX IXT IYO JBL ZVS, W3s AFM LMM VES, W4s MR NUI, W5FXN, W6s AM TI, W8WZ, W9s AND CFT IVN KA TRD, G3FOO, ON4QF, XE1AC and the members of the Northern and Southern California DX Clubs took time out from their summertime vacationing and/or rebuilding to volunteer the forerunning glossary.

Tidbits:

DL4ND now officially holds the Monaco license 3A1A and looks forward to an early session with the call. In fact, Ford says he intends to try a few CQs from there every three or four months when circumstances permit. More power to him! Send all QSLs for 3A1A contacts to the DL4 bureau ._._._. VQ3AA somewhat regretfully became VQ4AA and is looking forward to many W QSOs from the new location. ZS3W changed spots to VQ2JK as of May — the rare ones are getting rarer! ._._._. W9AND came up with the W log of FY7YB of all things. Wes also says he can accommodate W9s who are looking for their VP8AO cards; self-addressed stamped envelopes must accompany QSO data ._._._. ZD8B is now QRT for a stay in the U. K. and hopes to renew acquaintances with the gang from some other DX spot in the near future. HL1BA is now signing VP9OO much closer to home ._._._. Oldtimers will welcome W9KA back to the DX game. With many prewar "firsts" to his credit, Roy presently is enjoying success with some QRP ._._._. CR5s AD and AM were QRT for a period for lack of replacement parts according to W2IYO. Dave also understands that all CR5 amateurs will QSL via airmail if reply coupons are sent; regular mail, otherwise ._._._. While we did our best to make it impossible, the WAJAD certificate outlined here recently requires only *seven* different JA call area QSO-QSLs and not a full house of ten ._._._. For those it may concern, the Pakistan call areas are as follows: AP2, Sind; AP3, Baluchistan; AP4, N. W. Frontier Province; AP5, West Punjab. From W9TRD we hear that APs 2F, 2J, 2N, 5A and 5B are the only current ticketholders ._._._. Word from MD7XP has it that the six active Cyprus hams are MD7s DC, HV, PE, WE, XP and one other with more scheduled to fire up directly. Sid finds that the prefix is a favorite of bootleggers, the most zestful having been ZC4AC, MD7s AC, AN, AR and MR. MD7XP will soon QRO from 20 to 150 watts with which latter he hopes to complete his WAS, working all DX bands ._._._. Catching his breath after his now historic DX jaunt, HC2JR wants it made clear that HC8GRC cards are only being made out as incoming QSLs arrive. This greatly facilitates the bookkeeping involved and ensures correct return addresses. Furthermore, cards received air mail are attended

first. Once again, HC8GRC mail should be sent: Guayaquil Radio Club, Casilla 784, Guayaquil, Ecuador ._._._. W4MR brings up good points with regard to c.w. DX operating. Too many DX stations are lax in their procedure, throwing their Ks and SKs about with abandon. With dozens of Ws waiting to open up with a blast, askew on the edges of their chairs, much of the QSO-jamming these days is purely unintentional and due to poor judgment at the DX end. For instance, if you want to listen for another transmission don't send SK! And be consistent — if you let one bird break in improperly for a contact you'll certainly have trouble making the rest of the queue behave ._._._. OY3IGO is completing a new receiver, a 9-tuber with double-conversion. Ingvar states that the widely-worked OY3G is ungood ._._._. XE2N/XF1A requests through W1JMY that the boys be patient who are awaiting QSLs for his DX Test contacts. With over 4000 contacts in the log it isn't hard to visualize the task Juan is up against ._._._. A batch of charred KR6CA QSLs reached W1IKE with which was enclosed a note to the effect that an aircraft accident may have destroyed others. KR6C will replace these upon request ._._._. W1VG hears from friend EK1CH that the amateur-authorization status in Tangier is slightly garbled and almost anyone may operate without

Ten-meter enthusiasts are familiar with the excellent signals of HH2W's low-power 'phone. Herbert is just sixteen and is shown here checking the log while second-operator Ben Dupuy handles the mike. The 35-watt 807 rig is completely homebuilt and a 3-element rotary takes care of the radiation.

a license. This circumstance may be remedied through club activity in due time ._._._. ZS5YF is settled again in England and bemoans a lack of U. S. possession Pacific islands confirmations in response to his South African cards. Peter looks forward to G3BYF activity as soon as his crated gear clears the Durban docks ._._._. ON4QF told W1ODU that PX1H was a prevaricator and Mick may be engaging in some legitimate Andorran activity of his own by the time you scan these lines ._._._. VP9HH informs us that Cable & Wireless gives the exams down there and that the Bermuda government issues the licenses. Power limit is 20 watts and there are quite a few U. S. boys on 20 c.w. Phil is affiliated with a hurricane reconnaissance squadron and the boys thereabouts are busy forming the KAFB Amateur Radio Club ._._._. VP9D, who runs the Bermuda QSL bureau, deplores continued pirating of the VP9 prefix. Jim advises all to keep in mind that current call signs down there bear either a single letter or double "like" letters after the VP9 label. VP9T was one of the more consistently bootlegged call signs ._._._. Those who wonder what happens to QSL cards sent via SARL for nonmembers of the ZS organization need not be unduly concerned. While SARL and several other overseas organizations do not undertake to handle confirmation QSP for others than society members, the cards are neither pigeonholed nor destroyed but returned to sender ._._._. W1CEG quotes a letter from HK1DZ: "As president of the Atlantic Radio Club, wish to inform you that our club is granting a certificate of merit to any amateur outside our country that can certify working 10 HKs." We presume that said award will be forthcoming upon submitting the required 10 HK QSLs to HK1DZ ._._._. W8WEN notifies us that the W8 QSL bureau has taken over the chore of relaying cards to ZC6PM while W8SYC and W6UZX report their services are no longer required to forward QSLs to undercover PK stations. We should endeavor a large vote of thanks to these boys and the others who sacrificed a flock of operating time to such a cause ._._._. VE7HC must be living right these days. Among 30 contacts made by AP5B/YA his was the only North American QSO. Ham radio is unauthorized in Afghanistan so chances to snag this one will remain few and far between. Because of postal difficulties experienced by AP5B, W4TO will continue to handle his QSL department at 1706 South Gordon St., S.W., Atlanta, Ga. ._._._. Charly, HB9JJ, had much sport during his latest session as HE1JJ. Because of the extreme QRM, he made strict practice to ignore stations who couldn't keep their eagerness on leash. In case your almanac is out of reach you may be interested in a few facts concerning Liechtenstein or, more properly termed, the Principality of Liechtenstein. Sixty-two square miles in area and independent since 1719, it is a resort of Alpine beauty nestling its population of 10,000 between Switzerland and Germany. The only remaining monarchy within the German-speaking world, it is ruled over by the Princes of Liechtenstein. It is now closely allied to the Swiss, both economically and through custom. Its capital is the town of Vaduz and the Valley of the Vaduz is one of the most picturesque in Europe ._._._. We reiterate that the prefix DK is presumably being used by German nationals in the Russian-occupied zone of Germany and is not a country separate from DL on the Countries List. Cards sent via DARC will probably be delivered okay.

—•••—

While in the process of refurbishing our humble gear preparatory to the fall operating season, Jeeves included in his servicing the tightening of loose screws in our BC-348 i.f. cans. Back we go to the 0-V-1.

A.R.R.L. WEST GULF DIVISION CONVENTION

San Antonio, Texas, August 18th–20th

The twentieth annual ARRL West Gulf Division Convention will be a three-day affair at the Gunter Hotel in San Antonio, Texas, sponsored by the San Antonio Radio Club. There are few divisions that can lay claim to having staged twenty annual conventions, and the boys in San Antonio are all set to outdo themselves this year.

For early arrivals there will be a special party on Friday evening, Aug. 18th, at La Villita, an old Spanish village in the heart of San Antonio which features Mexican atmosphere and food. The regular convention program will get under way the next day. There will be technical talks, contests, a dance, and a banquet. Speakers will include Dr. William Hamm, W5FMG, of the physics department of St. Mary's University, and George Hart, W1NJM, ARRL's national emergency coördinator. For the gals attending the convention there will be a tea, a style show, and a visit to the historic Alamo. The Hill Country Radio Club, long renowned as experts in hiding transmitters at inaccessible locations, will sponsor a hidden-transmitter hunt Sunday morning on 3860-kc. 'phone.

Preregistration fee for the three-day affair is $7.50 (which includes the banquet), with preregistrations closing on August 10th. The early-comers party on Friday night will be $1.50. Registrations and hotel reservations may be obtained from W5EJT, Box 62, San Antonio, Texas.

FEED-BACK

"How To Visualize a 'Phone Signal" doesn't become any easier with the statement (page 28, July, 1950, *QST*) that the difference between 14,200.000 and 14,200.010 Mc. is 10 cycles. Actually, of course, the frequencies were supposed to be in the 20-meter band and should have read "kc." instead of "Mc."

Hints and Kinks For the Experimenter

ADAPTING THE COAX S.W.R. METER FOR USE WITH 300-OHM TWIN-LEAD

THE resistance-arm bridge used as a standing-wave ratio indicator is particularly useful for coaxial lines, but normally is not used on balanced lines because of the unbalance introduced by one line being grounded at the s.w.r. meter. The coax s.w.r. meter can be adapted to measure the standing-wave ratio on 300-ohm Twin-Lead if the circuit shown in Fig. 1 is used.

The phase-inverting properties of a half wavelength of transmission line are used to give a line-balance converter and at the same time provide an impedance transformation of about four to one. This transfer of impedance comes from the fact that the same voltage appears between each conductor of the Twin-Lead and ground as exists between the center conductor of the coax and its shield. This gives a voltage step-up or

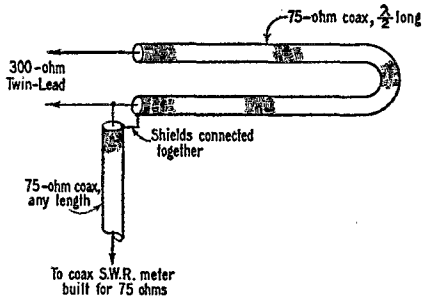


Fig. 1 — Method of using a 75-ohm coaxial s.w.r. meter with 300-ohm Twin-Lead. A length of 75-ohm coaxial cable is used to convert from the balanced feedline to the unbalanced input connection of the s.w.r. meter as described in the text.

step-down of four. The proper impedance match will be secured when a coax s.w.r. meter built for 75 ohms is used. It should be remembered that the physical length of the half-wave 75-ohm coaxial line is modified by the velocity factor of the line. — *John P. German, W5IIBII*

AUDIO-FILTER CONNECTION

AN AUDIO FILTER is a very useful addition to most receivers, but many of us hesitate to install one because it usually means that we have to dig into the wiring. If your receiver is equipped with a phonograph input jack, an audio filter may be connected without need for revamping the wiring of the receiver, and without impairing the original function of the phono input jack.

To connect the audio filter, substitute a three-circuit jack for the two-circuit unit usually used. The connections are made as shown in Fig. 2.

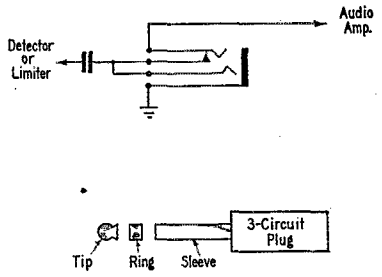


Fig. 2 — Simple method of connecting an audio filter to a receiver with a minimum of effort. In the arrangement shown, the tip connection on the plug goes to the input to the audio amplifier, the ring to the input of the audio filter, and the sleeve to ground.

This slight modification is so easy to make that none need hesitate to attempt it. Both the FL8A and "Selectoject" types of filters can be used with this connection.

— *C. Ray Wagner, W2FEN*

HOMEMADE INSULATORS FROM SALVAGED MEDICAL GEAR

YOUR family doctor may be able to supply you with some of the disposable penicillin syringes shown in Fig. 3. These units have several salvage possibilities that will appeal to the thrifty ham. They are made of a brittle plastic, possibly polystyrene, and with a little work with hacksaw and file several useful gadgets can be made.

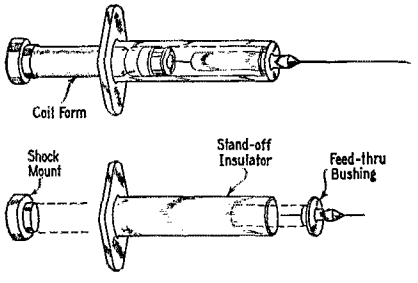


Fig. 3 — No, you don't need a "shot in the arm" if you're as ingenious as W9ALU. Here's how he makes feed-through bushings, stand-off insulators, coil forms, and shock mounts from discarded disposable penicillin syringes.

As shown, the end containing the needle may be cut off to make a feed-through bushing suitable for low voltage. After the feed-through is mounted in the chassis, the plastic on the underside of the chassis can be softened by heat and formed into a retaining flange that will hold it in position firmly.

(*Continued on page 90*)

TVI Tips

HIGH-PASS FILTERS

We are indebted to R. D. Zucker of W2QKT for the information on the TVI high-pass filters shown in the accompanying diagrams and photographs. The four-section filter of Fig. 1 has considerably greater attenuation for frequencies below 30 Mc. than the two-section filters that have been commonly used for protecting the TV receiver from fundamental overload. It was designed by A. M. Seybold, W2RYI, for use in 300-ohm lead-in, and the photographs are of a unit built at W2QKT.

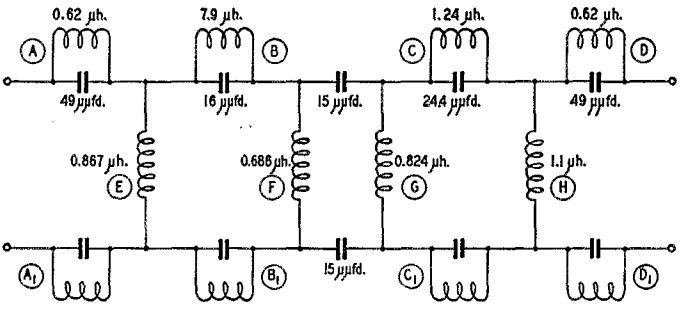


Fig. 1 — A four-section high-pass filter for use with 300-ohm line. It is designed for a cut-off frequency of 36.25 Mc. Construction is discussed in the text.

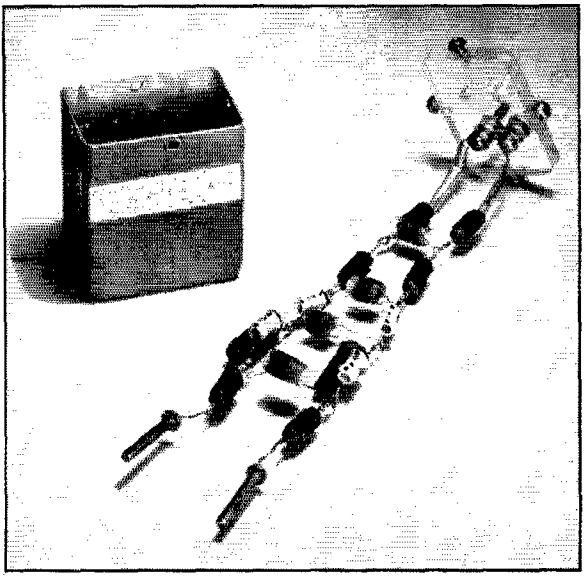
Identical *L-C* values are used in the corresponding trap circuits in the top and bottom legs of the filter; e.g., circuits "*A*" and "A_1" are the same, etc. The values shown on the diagram are the result of calculation; in actual construction the nearest available commercial values may be used. Thus 50 μμfd. may be substituted for 49 μμfd., 25 μμfd. for 24.4 μμfd., and 15 μμfd. for 16 μμfd.

Circuits *A*, A_1, *D*, and D_1 all consist of 14 inches of No. 26 s.s.c. wire close-wound on 50-μμfd. Ceramicons (either the GP or NPOK types may be used). The wire is held on with beeswax. The inductance should be adjusted to the correct value by spacing the turns — while the wax is softened with a hot iron — until the circuit resonates at 29 Mc., as checked with a grid-dip meter. Circuits *C* and C_1 use 21 inches of No. 30 s.s.c. close-wound on 25-μμfd. Ceramicons. These two circuits should be adjusted to 28.5 Mc. as shown by the grid-dip meter. The frequencies of all these circuits should be adjusted before the units are assembled into the complete filter.

The coils for circuits *B* and B_1 should be wound on ¼-inch diameter polystyrene rod or tubing about ⅞ inch long. The windings are No. 30 s.s.c., close-wound for a length of ⅝ inch. Adjust the coil so that it resonates at 14.1 Mc. with a 15-μμfd. condenser in parallel.

The coils designated *E*, *F*, *G* and *H* are all wound on quarter-inch poly rod or tubing, using No. 26 s.s.c. wire close-wound. To check the inductances, temporarily connect each coil in parallel with a 100-μμfd. condenser and measure the frequency with the grid-dip meter. The following table gives the approximate number of turns and the frequency to which each coil should be adjusted to resonate with 100 μμfd.:

Coil	*Turns*	*Freq.*
E	12	17 Mc.
F	11	19.2 "
G	12	17.6 "
H	17	15.0 "



A stretched-out view of the four-section high-pass filter.

Very successful filters using this circuit have been made as shown in the photographs. Although it has not been found necessary to use shielding between sections, care should be taken to minimize inductive coupling between the various circuits and components when the filter is assembled in a small space.

A Coax Filter

Fig. 2 is an improved version of a filter circuit that was published in *QST* some time ago. The important difference is the use of the 50-$\mu\mu$fd. trim-

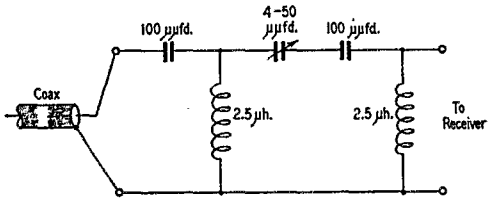
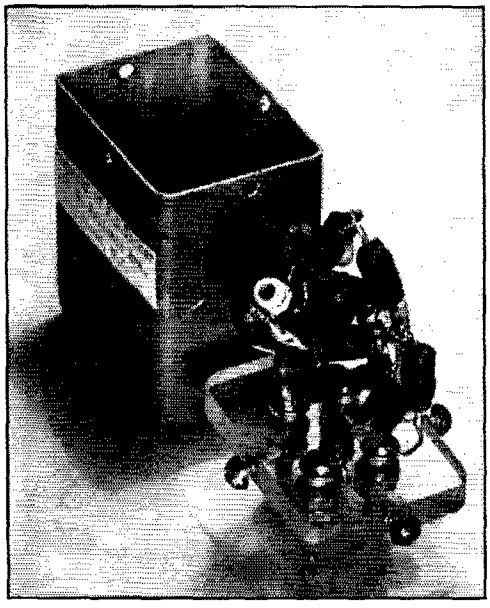


Fig. 2 — High-pass filter circuit for coax line. See text for further details.

mer, which can be peaked up for best picture after the filter is installed. Each inductor consists of three turns of No. 14 or 16 on a ¾-inch diameter form, ⅛-inch turn spacing. The B & W No. 3010 Miniductor provides suitable coil material. Each coil should resonate at 10 Mc. with a 100-$\mu\mu$fd. condenser temporarily connected in shunt.

The 100-$\mu\mu$fd. condensers in this circuit may be either small mica or ceramic types. A small inexpensive ceramic trimmer can be used for the variable.



Although the parts of the four-section filter are apparently jumbled together, the actual case is that the coils have been carefully arranged to minimize the coupling between them.

Strays

We have received numerous complaints from the New York City-Albany area that an unscrupulous person, introducing himself to W2s as a fellow-ham, has used the resulting "friendship" as a reference when cashing worthless checks at business places. The swindler uses various aliases and amateur calls, and professes to be a merchant marine radio op. He is described as being 23 to 29 years of age, of medium height and stocky build, and dark-haired.

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To prevent log sheets from becoming dog-eared, take two wire paper clips and join together the bottom two corners of the top few sheets. — *W6UJ*

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If you use a BC-453 "Q5-er," the quality with headphone reception may be improved when the low-impedance output tap (300 ohms) is terminated in 300 ohms and the ordinary high-impedance 'phones are hung across it. The response loses a broad peak near 1000 cycles and becomes essentially flat over the audio range. The same trick could be applied to the 4000-ohm tap if necessary. If the audio output of the BC-453 is fed to another amplifier, the resistor termination should also be included. — *W6DMY*

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Gilbert E. Gustafson, W9AQS, vice-president in charge of engineering for the Zenith Radio Corporation and continuously an ARRL member for 27 years, recently received an honorary degree in electrical engineering from Stevens Institute of Technology, Hoboken, N. J. Two years ago Mr. Gustafson received the Medal of Merit awarded by the President of the United States for outstanding contributions to the war effort. In rounding out 25 years with Zenith, W9AQS recalls that his first assignment was operating a station especially set up by the company for short-wave tests with the MacMillan Arctic Expedition of 1925.

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While making her rounds as a census enumerator, Mrs. Doris Burch, La Porte, Texas, came to the home of Bob Morrison, W5PEL. She found Bob in the middle of a friendly rag chew with a KG6. Always quick to demonstrate the potentialities of ham radio, Bob asked Mrs. Burch if she knew anyone on Guam. "Why sure," she responded, "C. T. Edwards, formerly of our staff, flew there last week to take up a guard assignment." Obligingly, W5PEL asked the KG6 if he knew Edwards. "Know him!" replied the Guam amateur, "Why he's visiting here in the shack right now!" Result — a prolonged rag chew and two new boosters for amateur radio.

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A portable-model sunlamp, which can be held in the hand and moved around if necessary, makes an inexpensive and effective light-producing source for taking indoor photographs of ham gear. — *W2OLU*

Operating News

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

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

Traffic Agreement Completed with Ecuador. Traffic-handlers will be particularly interested in the addition of Ecuador to the countries (Canada, Chile, and Peru) with which U.S. amateurs may handle third-party traffic. The Department of State announced in June the signing of an agreement with the government of Ecuador permitting traffic exchange by amateurs of both U.S.A. and Ecuador, and their possessions, on behalf of third parties. Any messages must be of a type that would not ordinarily go by commercial circuits, and with no compensation involved.

Traffic and Responsibility. Quite a lot of "fair" or exhibit station traffic has been turning up on the nets this summer. We suppose it is attributable to some absences in the roster of section networks that more than the normal amount of traffic has been free-lanced. The regular nets and National Traffic System provisions that make for interconnection between even the most remote sections will help expedite traffic. Count on that set-up and use your own section net frequency and operating times to "get the message through" now and during the coming season. If you enjoy trying to pass messages into the section they may be headed for in one hop there is nothing wrong with listening carefully on the bands and trying to relay. If a message stays in one's station over a day or two, it does not relieve the operator from seeing it through. However, attention is invited to the general premise that messages count in traffic totals only when they are handled in a 48-hour period or less in one's station. Vic Gish, W7FIX, in his excellent bulletin has said this: "Then again comes the practice of accepting 'fair' traffic and holding it until the fair is over, three, four, or five days later and unloading it then on the various outlets. This is decidedly not in keeping with the spirit of ham radio. . . . We have always operated in the traffic game with the idea if a message can't be handled in 48 hours, don't accept it. No operator has the right to judge the importance of any message. That is one thing reserved for the originator (and addressee) regardless if it appears to be of a rubber-stamp type or not."

'Phone Bulletins Now Ready. The ACM-'Phone has sent out two of a series of special bulletins to NCSs and 'phone netters. The first was one on the common subject of message form, including the reason for each part and proper order. The second bulletin gives simple information on the counting of groups in the text (message check) with several examples and tips on how to copy "five on a line." This is all to help those of us interested in operating smoothly and efficiently on voice as well as code both in everyday amateur operation and in emergencies. Drop a postal card for copies of one or both bulletins. Ask for an OPS application blank and data on that 'phone appointment also, if interested in receiving our booklet on appointments, awards for operating proficiency, and copies of the CD Bulletin as issued.

Section QSO Parties. Virginia climaxed a most successful year of organized activity with a 1-to-9 P.M. QSO Party held on one Sunday in May. Six of the radio clubs in the Section had offered prizes of tools or equipment. One hundred amateurs participated. The committee of three appointed by the SCM who was chairman of the committee for this activity has reported results in full through the Virginia Section bulletin. Activity was indicated in 36 counties or "multiplier" areas. All bands were used. Results will be of interest to the Section SEC and NCSs of the 'phone and c.w. nets making coverage plans for next season. It was a highly-acclaimed activity and is here reported as a suggested popular pattern for any ARRL section.

Get Mobiles and Portables in Trim for Simulated Emergency Test. October 14th-15th will mark the period for the next nationwide ARRL Simulated Emergency Test. Objective of all amateurs will be to roll up the biggest number of points ever, nationally, for the whole institution of amateur radio, under a new point plan to be announced. The Test will more than ever promote emergency preparedness. Emergency coördinators will sparkplug surprise local plans and renew contacts with all responsible agencies to be served, including the American Red Cross which will file chapter messages with special report data on preparedness plans; messages in the usual pattern may be sent by each participant for individual credit. Any or all the following items will count *points* toward a National Total, so all amateurs may start building or start testing out new mobiles and portables right now in the vacation season, since just having these registered in AEC will count point credits.

Present advance planning calls for basing the over-all preparedness score of the fraternity on local points contributed by evaluating some such factors as: (1) credit for each mobile and portable

operated in the Test; (2) number of amateurs AEC-registered, holding currently-dated AEC cards; (3) number active in the SET; (4) contact made between the amateur group and local agency or agencies served; (5) press release; (6) messages originated in the Test; (7) report of amateur communicatiohs plan for area or community. ECs and assistant ECs can help the standing in the October test by bringing up the subject at group and club meetings and losing no opportunity between now and the test date to bring former AEC registrations up to date, as well as to register the facilities of amateurs working every band and mode in either the *full* or *supporting* division of the Emergency Corps.

The aim is to have constantly at every point an amateur group able to serve efficiently as a standby communications medium in case of disaster — one strong facility.

On Decency in Testing. WØOAQ states that the biggest amount of operating grief today is in the loss of operational time and frequencies through long periods of tune-up operation, continual standing on the key, swishing, etc. He writes, "There's more DX lost, and more QSOs ruined, by this practice than even by the calling of DX right on the DX station's frequency. Here in the Middle West the problem is growing worse through the tuning of VFOs both with and without the final drawing full power." He agrees that hams in general are swell guys. If experienced readers know any who continually test, he suggests they pass along the information on how easy it is to do most of the tune-up in the early stages. And how about their putting in a dummy antenna with switching arrangements to minimize this unnecessary QRM? Bud also points out that "Any station lacking testing equipment, no matter what type transmitter and receiver is used, is just half a station, and it is not necessary that the equipment for test be especially costly."

Code-Practice Station Skeds To Be Listed in *QST*. In another six weeks fall activity will be looking up, and in the fall season we always have a keen demand from newcomers for data on stations that send code practice. FCC's Section 12.106 authorizes one-way transmissions addressed (QST) to persons learning code or improving proficiency. A mimeograph available on request covers ARRL's suggestions for sending addressed code practice alternately on code and voice as permitted by the regulations. If you can assist by establishing a schedule, say three times a week on any 28.5–29.7 Mc. frequency, kindly drop us a line giving your proposed schedule, effective date late September or early October, so we can list it for October *QST*. Work in this band is preferable to permit CP with minimum interference to general amateur operation on other bands. Volunteers who undertake such operation are often surprised at the good reports received of people using their established service. It is part of the traditional helping hand for the newcomer. May we hear from you?

— *F. E. H.*

MEET THE SCMs

Father Lawrence C. Strandenaes, **WØJWY**, has been active in amateur radio since he obtained his license in 1945, although his interest dates back to 1937.

WØJWY formerly was OBS, is a past-president and past vice-president of the Jamestown Amateur Radio Club, and has been SCM of North Dakota since December, 1949. He has participated in ARRL SS, DX, and Field Day activities and is a member of the Rag Chewers Club.

A second-floor room houses WØJWY's equipment, which consists of a Collins 32V-1 transmitter and a Collins 75-A receiver. All bands from 3.5 to 28 Mc. are used, but the favorites are 3.5, 3.85, and 28 Mc. The regularly-used antenna is an 80-meter doublet, fed with 600-ohm line on all bands. A 25-watt portable and a home-grown receiver, battery-operated, are on hand for emergency use.

SCM Strandenaes' favorite sports are target shooting and golf. He is a Roman Catholic priest presently assigned to the Diocese of Fargo.

BRIEFS

The MacMillan Expedition Schooner *Bowdoin* left Boothbay Harbor, Maine, in mid-June for its annual cruise in northern waters. As in the past, the expedition is depending on radio amateurs for communication. Tom Hutchinson, W2OXE, is operating from the schooner using his amateur call for maritime-mobile work on 80, 40 and 20 meters under special FCC authorization. W2OXE/MM is open for contact on 3505, 3900, 7010, 14,020 and 14,210 kc. W1AW is keeping schedules with the *Bowdoin* for exchange of traffic. All contacts with the schooner will be confirmed by card after the expedition's return in late September.

A.R.R.L. ACTIVITIES CALENDAR

Aug. 7th: CP Qualifying Run — W6OWP
Aug. 18th: CP Qualifying Run — W1AW, WØTQD
Sept. 9th: CP Qualifying Run — W6OWP
Sept. 20th: CP Qualifying Run — W1AW, WØTQD
Sept. 20th: Frequency Measuring Test
Sept. 23rd-24th: V.H.F. Contest
Oct. 8th: CP Qualifying Run — W6OWP
Oct. 14th: Simulated Emergency Test
Oct. 17th: CP Qualifying Run — W1AW, WØTQD
Oct. 21st: CD CSO Party (c.w.)
Oct. 28th: CD QSO Party ('phone)
Nov. 4th: CP Qualifying Run — W6OWP
Nov. 16th: CP Qualifying Run — W1AW, WØTQD
Nov. 18th–19th, 25th–26th: Sweepstakes Contest
Dec. 2nd: CP Qualifying Run — W6OWP
Dec. 18th: CP Qualifying Run — W1AW, WØTQD

The Winnipeg Flood and the South Amboy Explosion both come in for good write-ups this month, in addition to several other emergencies which occurred and need to be recorded. We want to express our appreciation for the accounts sent in by participating amateurs in the above two and other emergencies throughout the country, in addition to the various reports of drills, tests and emergency planning and progress which have been filling up our file of possible material for this column. Unfortunately, the response to our previous appeal for more material for the AEC page has been so great that, in line with our policy to give first priority to accounts of actual emergency operations, we have not had room for all of it. We hope that those whose material has not appeared will understand this and know that it is still in our file to be used at the first opportunity.

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On April 28th a tornado arrived in Holdenville, Okla., with a roar. It cut a swath of destruction about two blocks wide across the east end of town, unroofing and demolishing over a hundred homes and tearing down power and telephone lines.

The emergency generator of the local club was immediately put to use to supply lights to the hospital, which urgently needed them. A generator made available by the USNR unit at Wewoka was then used to power the station of W5PGN, using the club call, W5RFY. This station remained on the air on emergency power for 14 hours, handling emergency traffic, mostly inquiry. The power came back on Saturday morning (Apr. 29th), but W5RFY continued to operate until that night. Those operating W5RFY were W5BXO, W5PGN and W5NUT. Operation was conducted with the Oklahoma Emergency 'Phone Net on 3860, with the following known to have taken part: W5s ATJ, BIE, DRE, DXR, EZX, FMB, FOM, FDI, GKG, GZS, HGC, JIC, JHA, JKQ, KWG, LHU, MRD, MGH, MHJ, OQT, PA, WQ, K5WAH (W5OQD opr.) and WØs BVL, BOI/5, EGN and EUZ.

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The well-drilled Rochester (N. Y.) Emergency Net was called into action to assist the Red Cross during the Balytine Flood in late March. Communication was set up between Red Cross Headquarters in the downtown area and the field station at the scene of the flood. Within five minutes after W2UTH, W2QY and W2RSL arrived at the Red Cross field canteen, 2-meter communication was established with Headquarters where W2SCZ and W2NES were set up. In the meantime, the rest of the boys were standing by on 2 and 10 meters.

W2ZZS was having trouble lining up the 10-meter net until the mobile boys came along and placed themselves in good locations so that they were able to complete the net. W2CR became net control for 10 meters.

Since it looked like a job that might run into several days, it was decided that the 10-meter net take up their posts during the day and the 2-meter net take over in the evening. This method afforded almost 24 hours of communication, and worked like a charm throughout the four-day period of the flood.

After the flood waters subsided, EC W2RSL received a letter from the Chairman of the Rochester Chapter Disaster Committee which said, in part, "I do not know how we would have been able to function through those first hectic days had it not been for the excellent two-way communication which you made available." Orchids to REN!

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Oregon PAM W7HDN reports two incidents in which the Oregon Emergency Net was able to be of assistance.

On the evening of March 13th, OEN was contacted in Portland and asked if they could locate a watermelon for a seven-year-old boy suffering from leukemia. The boys were turned loose on this job and, to make a long story short, succeeded in locating several melons, one of which was shipped from San Diego and arrived within eight hours of the initial appeal. The youngster is reported to have improved as a result. The Mission Trail Net and the Texas Emergency Net assisted in this operation, as well as individual hams in Arkansas and Hawaii. As a result of the widespread appeal, two more watermelons arrived the next evening from an unidentified source, one of which was turned over to the Veterans' Hospital for a cancer case they had. OEN wishes to render thanks to all those who assisted.

On May 18th, OEN assisted the Washington gang in an attempt to establish communication with Wenatchee, Wash., which was reported by the Washington State Patrol to be isolated as a result of a fire which had taken out all power and telephone lines. Although this emergency arose at 8:15 A.M., the OEN gang was alerted and stood by ready to help. However, at 10:00 A.M. it was determined that the trouble was not as serious as at first supposed, so the gang called it a day's work with another demonstration of ham radio's ability to spring into action at a moment's notice. Those who participated, both in Oregon and Washington, were W7s AIZ, AUH, BBK, DWG, FY, HCW, HRY, KPE, KYK, LHT, MBW, WJ.

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The town of Floodwood, Minn., lived up to its name on May 8th and 9th, when the Floodwood River overflowed its banks and caused some concern. On May 8th, WØIPA informed the Skroobawl Net that the water was getting pretty high. WØGKP called Red Cross Headquarters in Duluth and the director of the chapter there talked directly to IPA. GKP and DOQ of Duluth maintained contact with IPA throughout the day. On May 9th the flood reached its crest and the water reached the switchboard in the Floodwood telephone office. This left IPA and one Western Union wire as the only means of contact with the outside world. The next 48 hours were busy ones for IPA. He kept hourly schedules with GKP and DOQ and also made frequent contact with GFR in Hibbing and DUS in Virginia. All emergency traffic was handled through these four stations with IPA acting as pivot point and control of the whole affair. BGY and KØNRN monitored continuously and gave occasional relay help. Most of the traffic was for the Red Cross and concerned the dispatching of boats, men and supplies to the emergency area. KZE set up a portable rig in Meadowlands. Telephone communication was restored on the 11th, but considerable Red Cross traffic was still being handled by amateur radio. By the 12th the need for emergency communication was over.

Three things stand out in regard to this emergency. One was the splendid coöperation between the Red Cross and amateur radio in the towns concerned. Another was the absolutely amazing way in which QRM disappeared from the 75-meter channel after a couple of announcements of the emergency situation. The third was the utility of being able to operate both 'phone and c.w. GFR used c.w. exclusively and IPA, GKP, DUS, KZE and BGY used both. There were times when poor propagation conditions made use of 'phone impractical. — *WØBOL, SEC Minnesota*

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The violent winds of May 5, 1950, disrupted railroad communications in northeast Iowa. At 2030 the dispatcher for the Milwaukee Railroad at Marquette, Iowa, contacted WØAXH of McGregor, Ia., and reported that both telephone and telegraph lines were damaged, and that he had no communications with several vital points. Electric power also was going off once in a while. The pontoon bridge between Marquette and Prairie du Chien, Wisc., across the Mississippi had been opened to allow passage of a boat and because of the high winds could not be closed.

WØAXH found the Iowa Net ready for action and was routing Mason City traffic on its way within five minutes after being approached. Credit for the speed of this action is due to WØVHK, WØYDN, and WØWLY. Assistance in relaying messages was given by WØKSS, WØAZR, and WØKAA. During the time of the emergency contact was established with Madison, Wisc., and information was exchanged for the dispatching and protection of trains. The stations in Madison giving valuable assistance and monitoring were W9OOL and W9PFK. Four messages found their origin in Marquette and were delivered to the dispatch office in Mason City and five were originated in Mason City and delivered to the office in Marquette. These were mostly very long messages and many of them required an immediate

answer. Two informals were exchanged each way between the dispatch offices of Marquette and Madison.

All messages were delivered on time, the whole process lasted about three hours and a hard-working relay system was required to route the traffic since WØAXH and WØWLY could not read each other. Suddenly at 2330 wire communications were established from Marquette to both Mason City and Madison and the amateur radio emergency ended. Great credit is due members of the Iowa Net because communications were established immediately upon request and because messages were delivered on time and with accuracy.

— *WØAXH, EC Northeast Iowa*

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Rain and snow caused a break in the communications system at the Elko, Nevada, airport on Good Friday, making it temporarily impossible to send vital weather information and flight plans to other parts of the state. W7KOA, Elko EC who also works for the CAA, put a portable rig on the air and contacted W7CX and W7MJP in Reno, who relayed all vital information to CAA-Reno. Initial contact was made on the Nevada State Net frequency of 3660, but operations were later shifted to 7 Mc. Landline communication was resumed early Sunday afternoon.

SOUTH AMBOY "REPORT"

Less than a half hour after the South Amboy blast in May, AEC units were on the air and ready to handle any emergency communications. W2VQR, EC for Monmouth County, fired up on 3875 and almost immediately contacted W2BAT, and the two of them set about clearing the frequency and getting the county AEC mobilized. Within a very short time, W2DME, W2ZI, W2ECD, W2PWO, W2HIA, W2DQK, W2PFL, W2TRN, W2VJM, W2NRM, W2DRA, W2KR and W1JMC had reported in. At 2030, W3PZA and W3LTW jointed the net, which made coverage complete from Perth Amboy and surrounding territory direct to Red Cross Headquarters in Washington. But not yet any direct contact with the scene of the disaster in South Amboy.

To correct this situation, W2DME was dispatched with his mobile unit, supplemented by a 30-watt portable unit, to provide contact from the scene of the disaster. W2BAT, W2HKY and an SWL, Lou Longstreet, accompanied him. Upon arrival at South Amboy, it was discovered that supplementary communications were badly needed, and the mobile rig of W2DME was immediately pressed into service maintaining communications with members of the emergency net outside the disaster area. The portable rig was established amidst the rubble of the damaged South Amboy High School, and an antenna hurriedly stretched to the City Hall next door.

Highest traffic priority was given to requests for medical supplies, doctors, nurses, ambulances, and Red Cross assistance. These messages were dispatched to the Monmouth County Red Cross Headquarters via W2KR and W2VQR, and National Red Cross Headquarters was advised of the situation. Next priority was given to U. S. Coast Guard traffic, by means of which Coast Guard cutters were guided to the demolished waterfront area. Third priority was given to information requests regarding personnel who were known to be on the munitions-laden barges at the time of the blast. For each amateur operating at the scene of the tragic explosion there were many more assisting from their home stations. These are too numerous to mention individually, but thanks are due particularly to W1s DRL, ORO, SS, and W2s BUX, DQK, DYW, JXH, LQL, NRM, PFL, WLS and YVP.

Meanwhile, the 2-meter boys were also on the job. Very shortly after the blast, the Middlesex County 2-meter net was alerted and contact was established with the local Red Cross. Learning of the need for power and lighting, the Raritan Valley Radio Club's 2.5-kw. mobile power unit was ordered to the scene and arrived there at about 2100, along with a mobile 2-meter station which operated under the call W2QW/mobile and maintained contact with fixed W2QW at the clubhouse at Middlebush by means of a relay operated by W2CBT at South River. Also at the scene shortly after the blast was W2HUZ, a 2-meter mobile unit parked at the South Amboy Hospital and relaying messages originating in that area. The Union County Amateur Radio Assn. 2-meter net was also alerted, with mobile K2BC at the scene of disaster.

The Bloomfield Radio Club's 10-meter mobile section arrived on the scene Saturday night with two cars, their services requested by the Red Cross chapter at Montclair. W2IGX furnished one unit and the other was operated by W2KLA, assisted by W2LEG. Their traffic was relayed through W2WUD/mobile atop the mountain at West Orange, with W2VTP assisting. W2GBI officiated at Montclair Red Cross Headquarters. W2GPG and W2ZQC also assisted this operation.

Eighty- and 2-meter nets in the New York City area were also on the job and were of considerable assistance in effecting a tie-in with the New York City Red Cross. At 2130 EDST the NLI traffic net, called on its regular operating schedule, was immediately put on an emergency basis with W2ZDE as NCS and W2ZRR assisting. W2CEV and W2KYN reported in, as did W3LT in Washington with a direct land-line to Washington Red Cross, later taken over by K3FMC. W2AOR and W2RUF assisted by monitoring the NEN frequency of 3550 and the NNJ frequency of 3630. W1DAV also reported in and relayed information to ARRL. Others participating were W1EOB, W1AW, W1LKF, W2LDS, W2NAI, W2OBU, W2PHO. Close liaison was maintained with the 2-meter net, which was activated about the same time.

EC W2PQG was alerted by a call from W2TJA at 2130 EDST Friday and immediately proceeded to monitor 2 meters for activity in the disaster area. Shortly afterward he received a call from W2QGH, EC of the Westchester Net, who offered assistance. W2EA and W2SVI accepted policing duties to ask all other stations to stand by. At about 2330, W2UYU/M was heard on 10 meters handling traffic with the disaster area from a mobile located at Fort Jay. He was working through W2IHR who was rebroadcasting K2BC/mobile in South Amboy. W2UYU was contacted and advised of the facilities available. Although no need for these facilities developed, these stations remained on the alert until about 0200 Saturday, when word came through that no further assistance was needed.

While the need for emergency communication at South Amboy was not so great as it might have been, it exemplified the kind of emergency that can suddenly develop out of nowhere, with absolutely no warning. The activation of emergency nets within minutes of the explosion, and the dispatch of mobile units to the scene to supply such facilities if needed, was an excellent demonstration of the ability of amateur radio to rise to the occasion quickly and effectively when called upon to do so.

The following is a composite list of all stations known to have participated in this operation. All who reported activity agree that there were many more who participated by keeping off the air and by constant listening to be ready to jump in if they were needed. W1s DAV, DRL, EOB, JMC, LKF, ORO, SS, W2s AOR, AIU, BFD, BAT, BUX, BYC

(Continued on next page)

♦

W2DME/2 and the crew that operated it at South Amboy. The portable rig, which was set up at the hospital, is a bandswitching job, 10 through 160 meters, running 30 watts to an 807, and a modified BC-454 receiver. The car rig also is 30 watts, bandswitching 10 through 75 meters, with a Gonset 3–30 doing the receiving. The crew consists, left to right, of W2HKY, W2DME (holding mike), Louis Longstreet (SWL) and W2BAT.

CBT, CEV, CQD, CUI, DFV, DLP, DME, DQK, DRA, DYW, EA, ECD, EFA, EKU (at QW), FO, GBI, GMY, GPG, GPV (at QW/M), HIA, HKY (at DME/2), HNY, HUZ, IAH, IGX, IHR. JXH, KLA, KR, KYN, LDS, LEG (at KLA), LFC (at QW/M), LFI (at QW/M), LQL, MGF, NAI, NLH, NQK, NRM, OBU, OJJ, PAT, PCX, PFL, PHO, PQG, PWO, QGH, QW, RUF, SVI, TH, TJA, TRN, TVZ, UMZ, UOU, UYU, VBL, VCZ, VJM, VQR, VTP (at WUD/M), WLS, WUD, WWN, YBK, YVP, ZDE, ZI, ZKG, ZQC, ZRR, ZWN, K2s BC, NRS, W3s ECP, LT, LTW, PZA, K3FMC.

TRAFFIC TOPICS

The amateur radio traffic-handling system is essentially a light-load system. Most of us who handle traffic do so because we like it, and mostly we *don't* like it when we are expected to keep late hours and expend back-breaking effort so that someone will know that someone else wishes they were there. True, some who take their traffic handling more seriously do not read the messages they copy, spend much time and effort getting them through regardless of their contents. Most of us cannot assume this detached attitude, however, and have a definite letdown feeling when the stuff we are getting seems of the lowest possible importance.

We will not go into the important training angle at this time, although it should be obvious that the training benefit is there regardless of the contents of the communications. What we want to point out is that amateur radio is capable of handling only a certain amount of traffic in normal times — this as a result of the voluntary nature of the pursuit and the unwillingness on the part of most traffickers to make a "chore" or an "occupation" out of their hobby. In emergency it's a little different; practically any good amateur will go all out for heavy-duty effort for a good cause. Normally, however, he just wants to keep his hand in, turn in a respectable total each month, operate in a net two or three times per week and have the rest of his spare time for building, rag chewing, DX-ing, or for other radio or non-radio pursuits.

It seems to us that we would do well to recognize these facts and to plan our traffic facilities accordingly. Last February (see p. 56, Feb., 1950, *QST*) we made some conclusions based on an analysis of the Net Directory, to the effect that 80 meters was practically one solid mass of nets at the highest point in the evening, and that a good many frequencies accommodated more than one net. Last season there were more nets registered and more traffic handled than ever before in the postwar period, and there is every indication that the coming season will show even higher activity. As long as most of the traffic nets continue to use 80 meters, as seems indicated, the time sharing of channels will become more and more necessary. One net will have to terminate its operation at a specific time so that another net can begin. It will then be necessary to specify not only a time at which a net drill begins, but also a time at which it *closes*.

This has its ominous aspects, but also its good ones. Nets will concentrate on efficiency, to clear their traffic in the allotted time. Stations reporting in will not be held up unduly, will be through when time runs out; knowing this, it is likely that more stations will report into the net. The traffic not cleared at the end of a session will be held over or cleared on other nets as "overflow" traffic, on the principle that any specific net can handle only a certain amount of traffic. The best net is the one that can handle the most traffic within its allotted time.

This kind of preliminary thinking has not yet congealed to the point where it is a recommendation. There will be many who disagree. But there may well be a great deal of merit to the philosophy of recognizing and abiding by what we know to be our limitations in traffic work — except in emergency, when we can extend ourselves, if necessary, almost beyond limit.

CODE-PROFICIENCY AWARDS

Have you received an ARRL Code Proficiency Certificate yet? Twice each month special transmissions are made to enable you to qualify for the award. The next qualifying run from W1AW/WØTQD will be made on August 18th at 2130 EST. Identical texts will be sent simultaneously by automatic transmitters. Frequencies of transmission from W1AW will be 1887, 3555, 7215, 14,100, 28,060, 52,000 and 146,000 kc. WØTQD will transmit on 3534 kc. The next qualifying run *from W6OWP* only will be transmitted on August 7th at 2100 PST on 3590 and 7248 kc.

Any person may apply; neither ARRL membership nor an amateur license is required. Send copies of *all* qualifying runs to ARRL for grading, stating the call of the station you copied. If you qualify at one of the five speeds transmitted, 15 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, Monday through Friday, at 2130 EST. References to texts used on several of the transmissions are given below. These make it possible to check your copy. To get sending practice hook up your own key and buzzer and attempt to send in step with W1AW.

Date	Subject of Practice Text from June *QST*
Aug. 4th:	*Amateur Television* . . ., p. 11
Aug. 7th:	Qualifying Run, 2100 PST, from W6OWP only
Aug. 8th:	*Amateur Television* . . ., p. 14
Aug. 10th:	*An All-Band Mobile Antenna System*, p. 16
Aug. 14th:	*So You Don't Get Out Very Well*, p. 25
Aug. 16th:	*A Four-Tube Bandswitching Circuit* . . ., p. 30
Aug. 18th:	Qualifying Run, 2130 EST, W1AW, WØTQD
Aug. 22nd:	*A Low-Cost Audio Filter*, p. 36
Aug. 24th:	*Tower and Rotator Techniques*, p. 41
Aug. 28th:	*Tower and Rotator Techniques*, p. 44
Aug. 30th:	*The World Above 50 Mc.*, p. 46

BRASS POUNDERS LEAGUE

Winners of BPL Certificates for May traffic:

Call	*Orig.*	*Recd.*	*Rel.*	*Del.*	*Total*
W3CUL	41	2312	2120	162	4635
W7CZY	17	439	1718	2201	4375
WØZJO	43	1206	806	397	2452
W6CE	19	1163	1138	26	2346
W5MN	19	464	303	161	947
KG6DI	390	40	420	40	890
W1CRW	12	432	374	58	876
W7JJK	47	25	371	429	872
VE5MA	33	406	394	10	843
W4PL	0	413	227	161	801
W6JZ	259	248	222	32	761
K5WAH	20	349	343	6	727
VE5JI	16	353	346	4	719
W8BTV	10	348	224	121	703
VE3IA	17	341	328	6	692
W1EOB	21	334	316	14	685
W6DDE	36	325	252	72	685
W4PYN	45	328	267	37	677
W6BPT	6	328	303	24	661
W3GZH	11	326	242	81	660
W6YLZ *	65	295	186	109	655
W1EMG	4	277	238	120	639
W9ESJ	24	303	261	42	630
K5NRJ	70	268	257	11	606
KG6FAA	387	103	29	71	590
W6NW	15	276	195	81	567
W6DTW	29	0	490	21	540
VE6NA					538
W6DDE *	316	110	50	53	529
WØQXO	9	265	99	144	517
W1NJM	29	246	146	81	502

The following made the BPL for deliveries:

W7MTX 217	W8EXZ 90	W5QMQ 56
W6CMN 134	VE5IC 76	W6FMG 56
W5GZU 131	W2NOZ 65	W1NJM * 53
W7ZU 125	W5ARK 61	W2H8A 53
W9BGN 120	W3KMN 59	W2CGG 52
K2WAR 105	W7APS 59	W3UF 52
W8DAE 103	W2EWZ 57	W3PDJ 51
W6LDR 101	W2KYN 57	W6ELQ 51
W3OML 99	W4KFC 57	W6YYN 51
W3OUY 95	W3DVW 56	

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

* April traffic.

ELECTION RESULTS

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

Connecticut	Walter L. Glover, W1VB	April 14, 1950
Virginia	H. Edgar Lindauer, W4FF	June 15, 1950
Eastern Mass.	Frank L. Baker, jr., W1ALP	June 15, 1950
Ontario	G. Eric Farquhar, VE3IA	June 15, 1950
Idaho	Alan K. Ross, W7IWU	June 17, 1950
No. New Jersey	Thomas J. Ryan, jr., W2NKD	July 26, 1950
Arkansas	Dr. John L. Stockton, W5DRW	Aug. 16, 1950

In the Nevada Section of the Pacific Division, Mr. Carroll W. Short, jr., W7BVZ, and Mr. N. Arthur Sowle, W7CX, were nominated. Mr. Short received 28 votes and Mr. Sowle received 20 votes. Mr. Short's term of office began June 15, 1950.

ELECTION NOTICE

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

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

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

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

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

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

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

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

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

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

— *F. E. Handy, Communications Manager*

Section	*Closing Date*	*SCM*	*Present Term Ends*
New Hampshire	Aug. 15, 1950	Gilman K. Crowell	Resigned
Yukon *	Aug. 15, 1950	W. R. Williamson	Mar. 17, 1949
West Indies	Aug. 15, 1950	Everett Mayer	Dec. 15, 1949
Maritime *	Aug. 15, 1950	Arthur M. Crowell	Apr. 15, 1950
North Carolina	Aug. 15, 1950	W. J. Wortman	July 26, 1950
Kansas	Aug. 15, 1950	Earl N. Johnston	Oct. 29, 1950
Sacramento Valley	Aug. 15, 1950	Ronald G. Martin	Nov. 1, 1950
Western Mass.	Sept. 1, 1950	Prentiss M. Bailey	Nov. 10, 1950
Montana	Sept. 1, 1950	Fred B. Tintinger	Resigned
E. New York	Sept. 15, 1950	Fred Skinner	Nov. 30, 1950
Saskatchewan *	Oct. 2, 1950	J. H. Goodridge	Dec. 15, 1950
Oklahoma	Oct. 2, 1950	Frank E. Fisher	Dec. 15, 1950

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

DXCC NOTES

HZ1AU, who has been operating "under cover" in Saudi Arabia, has just sent us a special log containing all contacts made by his station. The period covering these contacts is August 2, 1948, through September 24, 1949. Because of his position, HZ1AU has not been able to send QSL cards, but he has forwarded his complete log in order that all who worked him might have an opportunity to receive DXCC credit. When requesting credit, please indicate both the date and time of QSO. Remember that only holders of the DXCC award and those submitting a formal application for DXCC may request credit from special logs and logs of ARRL International DX Competitions.

DX CENTURY CLUB AWARDS

HONOR ROLL

W1FH.....235	W8HGW.....224	W3BES.....221
W6VFR.....225	W6EBG.....222	WØYXO.....217
G2PL.....224	W2BXA.....222	W6MEK.....216
	W6ENV.....221	

RADIOTELEPHONE

W1FH.....194	VQ4ERR....174	W1JCX.....166
W6DI.....181	W8HGW.....172	W9RBI.....166
XE1AC.....181	LU6AJ.....171	G2PL.....163
	W2BXA.....167	

From May 15 to June 15, 1950, DXCC certificates and endorsements based on postwar contacts with 100-or-more countries have been issued to the amateurs listed below.

NEW MEMBERS

G8IG.....167	EA9AI 108	ZS2IW 101
WØLLN.....157	VK4FJ.....108	W9GDI.....101
ZL3GU.....143	4X4BX.....105	W9NZZ.....101
PY1HX.....133	ZS1FD.....104	W6ZUI.....100
SM5VW.....131	W4DCW.....103	W3MNO.....100
W6ADP.....129	W3AZG.....102	OE1CD.....100
PY7WS.....115	W6WO.....102	G5WC.....100
ZS6HO.....114	G6QX.....101	W1NS.....100
I1UA.....109	W8CKX.....101	W3CGS.....100
	DL1DA.....101	

RADIOTELEPHONE

G8IG.....141	W1FZ.....106	4X4AD.....101
W5CEW.....110	GC2RS.....104	W4ECE.....100
DL4TL.....109	EA2CA 104	LU8CW.....100
G2MI.....108	W9WXT.....102	W2MA.....100
I1UA.....107	G2DP.....102	

ENDORSEMENTS

W3IYE.....206	W7PGS.....152	W6OBD.....130
ZL1HY.....200	W3BXE.....151	W6WWQ.....130
W1JYH.....195	G2MI.....150	W6BZE.....129
ZL2GX.....191	W6PZ.....150	ZC1CL.....126
W6MJB.....190	W6BVM.....150	I1ZZ.....122
VK2DI.....190	HB9EU.....142	DL4TL.....122
W2QHH.....190	HK3CK.....141	W6RLQ.....121
VE4RO.....181	W1JLT.....141	W7KWC.....121
W7GUV.....181	GM3AVA....140	W9RQM.....120
WØPNQ.....180	W7ENW.....140	SM6HU.....120
W2ALO.....172	W2BJ.....140	W7GPP.....120
W6GFE.....172	W6LDD.....140	W2PJM.....113
W5JC.....171	W6EHV.....140	G3AWP.....112
KH6IJ.....170	W5CEW.....138	G5LH.....111
PY2CK.....168	ZS6BW.....138	W3EVT/1....111
WØEYR.....161	ZS5YF.....134	ZE2JN.....111
W2TXB.....161	EI5F.....131	W9BRD.....111
W9FKC.....161	W8DAW.....130	CX1BZ.....111
W4DKA.....160	W3LPF.....130	IS1AHK.....111
OK1FF.....160	KZ5CP.....130	W1MRP.....110
HB9X.....154	W6DUB.....130	W5KUJ.....110

RADIOTELEPHONE

PY2CK.....162	W1LMB.....140	W6TT.....130
W7MBX.....151	GM3AVA....131	W8NXF.....124
W8BF.....150	ZS6BW.....131	W4MB.....120
HB9DS.....147	ZL2GX.....131	W4AQR.....120
W4AZD.....140	W4ESP.....130	W1MMV....120
ZL1HY 140	W9BZB.....130	W3MAC.....110

• All operating amateurs are invited to report to the SCM on the first of each month, covering station activities for the preceding month. Radio Club news is also desired by SCMs for inclusion in these columns. The addresses of all SCMs will be found on page 6.

ATLANTIC DIVISION

EASTERN PENNSYLVANIA — SCM, Jerry Mathis, W3BES — We welcome to the family of affiliated radio clubs the Lebanon Valley Society of Radio Amateurs, Robert Fuhrman, secy. CUL needs Eastern and Western Pennsylvania schedules. PDJ made the BPL on deliveries. QBZ worked his first DX, G3HK, on 7 Mc. for over an hour. He and PKX are building a 500-watt amplifier which should be quite an improvement over his present 50 watts. The U. of P. Radio Club had open house on Engineers Day and showed its three transmitters to the public. One rig runs from 24 volts for emergencies. There was a display of QSLs and awards. Sixty-one messages were sent to all parts of the country. About 600 people visited the shack. MYL and ODC were on duty at all times. An amateur teletype was set up on 144 Mc. by KBW consisting of two transmitters and two receivers. The Philadelphia Area Council of Radio Clubs has thus far supplied the Schuylkill Regattas with communication. BYB is the coördinator for same and the clubs known to be active are the West Phila. RA, Havertown Net, York Road, Abington Twp., and Phila. Wireless Assn. On June 4th the Council operated in the Delaware River Boat Races with units at intervals from the Tacony-Palmyra Bridge to the Trenton Marine Terminal. Stations and participants are as follows: Trenton, the Delaware Valley RA, 2ZQ, operated by 2ZI and 2UPS; Duck Island, 3PUP with EQA assisting the Frankford Radio Club; Bordentown, 3BXE with 2HEH assisting the Frankford Radio Club; Penns Manor Park, 3UKI and 3DUU with 3CGS, CAA, and AIG. UKI had a mobile and represented the York Road Club. DUU is the Delco Radio Club call. BES, with CPV, was located at Roebling, N. J., and flew the FRC banner. KFK (York Road) and DMQ (FRC) held down the Bristol Yacht Club assignment at Edgely, Pa. The Anchor Yacht Club at Bristol, Pa., was manned by NKU and DYL, who used the N. E. Radio Club call PKV. EM (York Road) was assisted by DOE (Penna. DX Club) at the Pennsylvania Yacht Club near Cornwells Hts., Pa. QV (York Road) aided by NDZ (Abington Twp.) was at Net Control Station at the Columbia Y. C. 2LY (South Jersey ARA) operated from a boat at the Tacony Bridge to watch the turns. The operation lasted about five hours. The net was on 3610 kc., the E. Pa. net and disaster frequency. It was by far the best demonstration of club unity in many a day. Traffic: W3CUL 4635, NHI 433, OML 201, PDJ 136, ABT 64, ELI 22.

MARYLAND-DELAWARE-DISTRICT OF COLUMBIA — SCM, Eppa W. Darne, W3BWT — The Chesapeake Amateur Radio Club's first May meeting featured a talk and demonstration on "R. F. Power Measurements" by LXK. At the second May meeting the club staged a "gear-building contest" with prize. The Electronics Club of the Bethesda Chevy Chase High School had a complete amateur station set up for the April Hobby Show. The club used its call PZM and handled messages for the public in attendance, with PRT and PEY doing the operating. Both 3.5 and 7 Mc. were used, with a rig on each band. The Washington Radio Club visited television station WNBW at its first May meeting. KIB, of the station, conducted the club group during the visit. The May 27th meeting was election night, and the following were elected to take office in September: LFG, pres.; IHN, vice-pres.; OTC, corr. secy.; LSX, treas.; CDQ, rec. secy. The Baltimore Amateur Radio Communications Society held a smoker at the home of Ed Nichols on May 12th. The Rock Creek Amateur Radio Association held a "Stag Social Session" at its regular meeting of May 12th. At the May 26th meeting, John Ellison spoke on the subject of "Scopes." The Potomac-Rappahannock Valley Net held four excellent drills during May. During the May 7th drill a number of stations participated with their mobile units, LPL was NCS on the 7th, FPQ served as NCS on the 14th and 28th, with 4JDS as NCS on May 21st. PXC has been appointed Official Observer. FWB is changing QTH. JCL is new Emergency Coördinator for the Baltimore Area. PTZ is busy eliminating TVI, and is on 7 Mc. Jens is building a 50-Mc. superhet. PRZ has a new Lysco 600 exciter. PDZ has modified an SCR-522A for 144 Mc. OPM is modifying his Collins ART-13. CVE, formerly 9CVE, is on 7-Mc. c.w. VES was active in the CD Contest and VE/W QSO Party. JHW has cleared up his receiver troubles, and is looking for DX schedules. DQB has a new jr. operator and also is getting out well on 28-Mc. 'phone. FQZ is working on his new modulator, and worked in the VE/W QSO Party. OEU has several new antennas. QCB is working hard for his WAS certificate. LFN has moved to Bethesda, Md., and is on 144 Mc. PZ has a rig on 420 Mc. with 50 watts in a circular polarized antenna, and also is doing good DX on 14 Mc. GZH is high traffic man for the section this month, making BPL "both ways." LUN has been appointed Official Observer and Official Experimental Station. LSX has been elected chairman, 3rd District, YLRL. Traffic: W3GZH 660, UF 412, KMN 156, DVW 127, ONB 94, PZ 53, PZM 51, PTZ 38, NNX 35, ECP 31, VES 19, JHW 8, FWP 7, AKB 5, BWT 3, QCW 3, LSX 2.

SOUTHERN NEW JERSEY — SCM, Dr. Luther M. Mkitarian, W2ASG — It must be the good old summer time; there is very little news to report. New officers of the Delaware-Lehigh Amateur Radio Club are 2PXU, pres.; 3MAC and 2ZVW, vice-pres.; 3QBF, treas. 3OAB, PZL, QBF, PYF, 2ZQK, WXK, and ZVW are using mobile rigs on 28 Mc. YSP boasts a new Collins 310C-2. RFF still is busy with TVI. ZYZ is on 144 Mc. TNB is sending code practice on 147 Mc. from 6:40 to 7:00 P.M., Tues., Thurs., and Fri. Many thanks to all who QSYed during the South Amboy disaster. PFT wants more members for the emergency net from this section. The SNJ Net will resume activities after Labor Day. BAY is busy on 50 Mc. Good men are wanted to function as ECs for Salem, Sussex, and Camden Counties. How about it? Traffic: W2ZVW 183, ZYX 43, PFT 34, ZI 30, RG 18, ASG 12, ORS 12, YSP 4.

WESTERN PENNSYLVANIA — SCM, Ernest J. Hlinsky, W3KWL — QN reports that new officers of the Radio Association of Erie are VHP, pres.; TAC, vice-pres.; NGB, secy.; and KKT, treas. QKI, the 144-Mc. DX hound, has OLL for a new neighbor. IOH has a new QTH. PKJ made his 28-Mc. debut recently. ODF was in charge of Field Day activities for Erie. Howard is using teletype on 144 Mc. QN got a swell write-up in the Erie newspapers, and since Ken is an Emergency Coördinator he chose a subject relating to the amateur and his importance in emergencies. These nice write-ups are written by Peter L. Yoke. Your SCM was disappointed in the little amount of activity and interest shown in the recent V.H.F. Contest. Credit is due KWH, NKM, RXT, LBE, OKU, RIK, DNO, NRQ, UAK, NWD, JT, UHM, and Zimmer for a job well done in Operations Comet. In the v.h.f. column for KWH we hear that JAV, CTN, RXT, and 8WM are using 220 Mc. NKM and OKU worked JAV and RUE cross-band on 420 Mc. MTP is QRL at Latrobe. LOR has improved his voice from an S4 to an S9. KYC was heard in Farrell on 144 Mc. RIK is ready to fire up the new mobile rig. PAS's operations are from MTN's shack. NGA is not only the skipper of his sailboat but the "sparks" as well. MIZ is converting an SCR-522 and getting ready for 144 Mc. YA, at State College, was busy with Open House traffic and originated 180 messages using 144 Mc. to relay from the Engineering Building to the radio room and then relaying through 3.5-Mc. c.w. nets. MOT is QRL but promises to become active again. IYR is trying to organize station and new QTH. ODU copied the Armed Forces message solid right down to the last sentence and then missed two words. The Mercer County Radio Assn. made a trip to Elkins, W. Va., to participate in the V.H.F. Contest. Those taking the trip were 8OAJ, 8SFG, KQA, GEG, NCD, and QCN. LNA moved his v.h.f. gear to his summer cottage at Pymatuning Lake and managed to make 20 contacts in 5 sections during the V.H.F. Contest. MQW also was heard for a brief period. Traffic: W3YA 360, OUY 337, ODU 7, LSS 4, KWL 3, MIZ 2.

CENTRAL DIVISION

ILLINOIS — SCM, Lloyd E. Hopkins, W9EVJ — Sections nets: IEN, 3940 kc., ILN 3515 kc. ASN reports no TVI on 3.5-Mc. c.w. BRX is spending his vacation in Florida. BON is going mobile marine this summer. UBP is rebuilding the rig and sends in a fine total. HOV has a small controlled carrier job perking and reminds us of the Hamfester's picnic to be held August 13th at the big grove near Frankfort, Ill. AVN and CRD are building crystal-controlled 425-Mc. rigs

for proposed Chicago emergency net. JNC reports a ham radio club has been formed at his place of business. FKC and OLU are sporting swell portable receiver and transmitter jobs. APK is busy getting the rig TVI-proofed and got a bad burn from 700-volt supply in process. LNI is busy making milk bottles. NN is pleased with new Premax vertical and reports good DX. EBX is back in the swing after a long absence. GDI reports 102 countries confirmed for DXCC but lacks time to send them in. Spring QRN shattered BUK's nerves. BGN is doing wonders with 15-watt rig on 7 Mc. but expects to have 500-watt final shortly. The Starved Rock Radio Club Hamfest was a huge success and featured among the prizes were many crystals for IEN and ILN Nets. How is that for promotion? QLZ is doing a bang-up job as our SEC. CJV has new TV set and ham radio is suffering. IPD traded cars and is installing mobile job. ABF is rebuilding but may be heard from ZJT. JZP has recovered from scarlet fever. TCL is busy with new home. HLX does some operating from Civil Air Patrol. GOZ also is a member of CAP and flies with them. KPS can be found on either 10 or 160 meters when TV picture is poor. FLF may be found on 7 Mc. EAD is looking for a new receiver. MUD overhauled the rig. The Cenois Amateur Radio Club is planning a transmitter hunt. ZEM is spending several months at Grand Island, Nebr., in TV microwave research work. IBC received QSL from an old DX friend, ex-G3BYF, now ZS5YF in South Africa. The Tri-Town Radio Amateur Club publishes a swell monthly bulletin, *The Oscillator*. Why not get up a bulletin or newsletter for your club and see how it helps to keep your group more closely knit together? Both of our section nets are continuing to operate during the summer and interest remains high. Traffic: (May) W9EVJ 471, UBP 382, BGN 334, EBX 273, SXL 96, BUK 70, FKI 67, ZQT 61, SYZ 22, MRQ 19, ASN 16, HOV 11, IVN 4, JNC 4, GDI 3, APK 2. (April) W9FKI 16, MRQ 7.

WISCONSIN — SCM, Reno W. Goetsch, W9RQM — SUF is back on with a pair of 813s and 650 watts c.w., 350 watts 'phone. Operation in the BEN, TCPN, and Coast Guard Net keep ESJ busy as well as provide a nice traffic total. YCV reports that HHX was in operation Field Day. ANM is working on emergency equipment and a fully-enclosed rig. HDZ graduated from school, and has been experimenting on 144 Mc. After 30 years of Class B, LFK finally took Class A exam and, believe it or not, passed. IQW cancelled net schedules for the summer. FPE, new OES, has been working regularly into Illinois and Minnesota on 144 Mc., with heard reports from Michigan and Ohio in May. 9 P.M. CST daily is 2-meter time in the section. If you have 144-Mc. gear get on at this time and help stir up the activity on this band. IQM has a new bug. As their newly-elected president, ONY takes over at the helm of MRAC for the next season. After nine years, DDD is back with 250 watts on 7 Mc. HHS has a new Viking transmitter. Newly-elected officers of the WVRA are HFV, pres.; FZC, vice-pres.; EWM, secy.; VHA, treas.; RQM, custodian. OVE is planning emergency run for Mancorad AEC. AOW now is OPS. HEL is on 160-meter 'phone with converted BC-458. UFX represented the section at a meeting for disaster planning in Madison at which all departments of the State were represented, as were the Armed Forces. It looks like FYP has deserted n.f.m. for a.m. ERW has WAS certificate, and is busy on a new 200-watt rig with an 812 in the final. OQY is back on after graduating from U. of Wis. with B.S. degree. ZTO has 94 countries chalked up on his way towards DXCC. The BEN held its first annual picnic June 18th with DXV as the host. Traffic: W9ESJ 630, CBE 175, FXA 94, SUF 74, YCV 57, ANM 53, SFL 34, HDZ 29, LFK 24, IQW 23, UIT 8, SKA 6, BZU 3, RKT 3, IQM 1.

DAKOTA DIVISION

NORTH DAKOTA — SCM, Rev. Lawrence C. Strandenaes, WØJWY — A report from LHS says that the Fargo gang really is getting mobile-minded. Some of the boys in and around Fargo who have mobile rigs are AVT, JNP, RNS, TSN, UGM, WBY, and WZQ. Taking in the Watertown Hamfest this spring were OYM and UNU. With 30 watts on 7 Mc. ZCM reports working HR1AT for an FB QSO. The spring flood in and around Mott put the following on an emergency basis: SWL, LIY, NAD, PGO, and ZCM. Recent new calls include BHT and BIC, both Class B at Jamestown. BIC is 14 years old and the daughter of HJK. SKE and FX now are Class A. A four-element wide-spaced beam has sprouted in YIZ's yard and soon will be ready to lay down some low-angle 'phone and c.w. on 28 Mc. FX is burning a hole in 14-Mc. c.w. with his exact 459 watts. AZV, EOZ, and NBS also took in the Watertown Hamfest and were pleased with arrangements. DXC has new RME-99. Traffic: WØSSW 112, PUJ 2.

MINNESOTA — SCM, John B. Morgan, WØRA — Acting SCM, Charles Bove, WØMXC. SEC: BOL. There's not much news this month but we will do the best we can. BGY and IPA turned in a dandy report on the Floodwood, Minn. flood. The Twin City Mobile Club has a hidden transmitter hunt the third and fourth Fridays of each month. BOL, Minnesota SEC, called a simulated emergency at Anoka, twenty-five miles north of the Twin Cities, with HKF in full charge of operations and planning. HKF also is doing a bang-up job operating code classes in St. Paul. The St. Paul Radio Club, Inc., elected new officers as follows: UYJ, pres.; HKF, vice-pres.; PDN, secy.; and NXZ, treas. VHE is on 160 meters. Bob has been appointed AEC and OO at Hancock. NYI has been very busy working as an electrician. SYW and MLT are new Official Bulletin Stations. PVS and VHE are new Official Observers. BBM has been appointed Official Phone Station. Traffic: WØITQ 380, BGY 97, KFF 82, RPT 73, MXC 56, RXL 19, FIT 9.

DELTA DIVISION

LOUISIANA — SCM, Robert E. Barr, W5GHF — KYK, LOBS in New Orleans, continues serving as a valuable traffic inlet to the Crescent City. 144-Mc. activity has reached a record high in the Shreveport Area. The Louisiana section lost one of its real pioneers when AO joined the ranks of Silent Keys. House Resolution No. 19 and Senate Resolution No. 9 were passed by the Legislature in June, making license tags with ham calls a reality for the amateurs of this State in the future. Much credit for the enactment of this legislation goes to EVZ, of Golden Meadows, and to the club members at Baton Rouge. Also lobbyists representing various industrial and ultility interests, whom the amateurs had aided in past emergencies, rallied to the aid of the hams in supporting the license measures. NCO, POB, LER, QEH, and JEY, all with 28-Mc. mobiles, staged a "mobile" picnic and outing at Monroe. NJJ now has a full gallon on 3.85 Mc. and an FB signal. MUN runs weekly schedule with his brother in California. EB and GMR are handling Far East traffic daily on 14-Mc. 'phone. MFT recently joined the ranks of the benedicts, and is moving to New Jersey. MO is building up a dream 14-Mc. beam. CEW returned to 3.85 Mc. with a small rig, leaving the big rig peaked on 14 Mc. in his goal for 200 countries worked. CGC and BMM, brothers, keep schedules on 3.85 Mc. Traffic: W5KYK 35, GHF 22.

MISSISSIPPI — SCM, J. C. Wallis, W5DLA — The Gulf Coast Club held another of those special shrimp suppers. The Hattiesburg gang set up a relay system for the boat races at Lake Shelby. The Jackson Club sponsored a picnic recently. RDA has a new rig on 28 Mc., using 807s. It is bandswitching, 3.5 through 28 Mc. RGJ has two new rigs, a TR-75 and a home-brew 829B job. PNA is rebuilding. RIM, at Millsaps, is putting a 28-Mc. beam on top the three-story science hall, which is on top the highest hill in town. OTI is operating portable on 7 Mc. NNZ has moved to Jackson. PFC holds regular schedules with KP4LH. KUT is Vicksburg EC. FFF is new EC for Jackson. GIA, DT, and ANP attended the picnic in Baton Rouge. The recently-organized Mississippi Intercounty Amateur Radio Club holds net meetings Thursday nights and personal meetings the third Sunday afternoon of each month. C. F. Moore is pres.; QLK, secy.-treas. Traffic: W5QMQ 108, DOL 33, KYC 23.

TENNESSEE — SCM, D. G. Stewart, W4AFI — The summer season has taken its toll. The Tennessee 'phone net is meeting once a week on Sunday A.M. on reduced schedule. The c.w. net has folded for the summer. PL made a comeback with the usual bang but the doctor has ordered him off again. NZG left us for North Carolina. NNJ is taking a much-needed rest and readying transmitter for fall traffic activity. CXY is vacationing and fishing. IKG opened new TV business. ETN is building new TVI-proof VFO and transmitter. HHQ put up new long-wire 4-Mc. antenna and is new OPS. RMJ is a new ham in Paris. FLW is new OES. APC, FLW, HFO, NAN, NNH, NYY, PSN, and RMJ set up four transmitters for Field Day. PSB is new RCC. PBK licked his TVI. LNN, LHQ, and BBT are rebuilding to combat TVI. MZK is filling his 40 acres with antennas and has two new towers, one 70 and another 66 feet high. POO and PUA are new hams. DIJ handled rush traffic from AYE-MM. JIH is on 14-Mc. c.w. KPR and NUW are active on 28-Mc. mobile. FLS vacationed in Louisiana. MJR is operating 3.85 Mc. on battery-powered transmitter with good results. The Memphis gang, under the leadership of BAQ and LI, furnished communication for the Cotton Carnival Parades. BAQ, FWX, HSU, LRO, NBN, and PXW were mobile in the parade and HHK and IBG were fixed portable in the downtown area. Fine work, fellows, in both communications and public relations. Traffic: W4PL 801, NZG 385, BAQ 64, NNJ 48, CXY 28, IKG 10, AFI 3, HHQ 1.

GREAT LAKES DIVISION

MICHIGAN — SCM, Robert B. Cooper, W8AQA — Asst. SCM c.w.: J. R. Beljan, 8SCW. Asst. SCM U.P., Arthur Kohn, 8TTY. SEC: GJH. RMs/QMN: TRN and UKV. PAM: YNG. Those who attended the Division Convention in Detroit need no reminder that they were well repaid for the investment, and sincere congratulations certainly are in order to all the individuals who worked so hard to make the affair a success. Everyone who saw or participated in the R.O.W.H. ceremony will long remember the splendid work on the part of the Flint group, which deserves very high praise for the finished results of its efforts. LTF made a very fine "novice"! New ORS for this month is SWG, who also should be congratulated on his election as vice-president of the Lions. RM Brock has stated that the Slow Speed QMN will continue throughout the summer and

he hopes the regulars will make frequent calls into this net on 3663 kc. to provide outlets necessary to make the summer session a serviceable arrangement. Also, how is your emergency gear? Congratulations to the Ann Arbor Radio Amateurs, who have become affiliated with ARRL. 2RTZ is working the SSN from UKV's QTH and Hope did a fine job on the prize-drawing at Detroit, as attested by UFH who won a very fine 75-A in the drawings. The Motor City Radio Club at its annual election chose PYW, pres.; AJQ, vice-pres.; GWA, treas.; and Milton, secy. EXZ makes BPL again and is doing a very fine job as a supply for traffic, as well as providing a very necessary outlet in the Metropolitan Areas of Detroit. TRN advises that 8RN is being reorganized by BTV and will run full schedules again. CRH has his Class A license and makes use of the "BR" for some traffic outlets. ELW is working 7 Mc. with a BC-457 and reports UMX did a nice job on K8NRI during Armed Forces Day. FLA participated in Field Day activities with CMA, and reports FNU is a new operator in the Allegan Area. ZCH is active as OES and reports hearing more stations on 144 Mc. than he can work. VTG was active on 144 Mc. during Field Day. AYV had little success with a 40 ¼-wave vertical and is getting the ½-wave back on 3.5 Mc. IV reports that FNH is a new amateur in the Grand Rapids Area. Traffic: W8EXZ 368, RJC 180, ELW 114, TRN 111, TQP 97, CRH 93, DAP 75, ATB 74, SWG 65, IV 45, ZWM 42, AYV 39, URM 34, AQA 23, WVL 19, EJD 18, WXO 16, YNY 15, LR 12, UFH 10, FX 9, UMX 8, EGI 4, UKV 1.

OHIO — SCM, Dr. Harold E. Stricker, W8WZ — Asst. SCMs, Charles Lohmer, 8RN, and C. D. Hall, 8PUN. SEC: UPB. PAM: PUN. RMs: DAE and PMJ. Your SCM attended the Great Lakes Division Convention in Detroit and was very glad to meet quite a few of you fellows from Ohio. The Detroit gang is to be complimented on its handling of the Convention. Members of the military forces and the Directors of the Central, Dakota, and Midwest Divisions, as well as our Director and Alternate were in attendance. Both the SCMs and SECs of Michigan and Ohio attended. 1LVQ, Asst. Secretary of ARRL, also was present. If you weren't there you missed a good time and I presume that the ham who won the 75-A is making good use of it by now. We welcome the Tri-County Radio Association of Alliance as the newest ARRL affiliate. A new appointee is ZQU as OO. The Case Institute of Technology Radio Club holds club meetings over the air on 160 and 75 meters every Saturday at 4:00 P.M. This news was received from URD. WPF was in charge of all Field Day preparations for the Intercity Radio Club of Mansfield. Intercity Club meetings now are held at the Naval Armory. The Cleveland Area Council is sponsoring a "10-Meter Hand-Warming Contest" the last days of the months of June, July, and August. Only those in Cuyahoga and adjoining counties are eligible. The Annual Family Basket Picnic will be held at Harmony Ranch on July 30th. I regret that I cannot publish more club bulletin information this month as the rest of the bulletins were mislaid during my vacation. However, don't stop sending them on this account. DAE made BPL on deliveries for the fourth month in a row. WRN and UZ both sent in long reports on v.h.f. activity, and from their reports the v.h.f. bands were hot. PBZ, EC for the Cleveland Area, is going to put a rig on a power launch and slip out on Lake Erie some Sunday and run an AEC test. IVC was battery-operated during Field Day. EZE received his 25-w.p.m. Code Proficiency sticker and has applied for ORS appointment. GZ is handling Pacific Island's traffic. FNX's activity will be curtailed this summer as the shack is in the attic. The Dayton Radio Club had a hidden transmitter hunt on June 4th with the following winners: PTF, YCP, and ESF. The Buckeye Short Wave Association's 4th Annual Picnic will be held August 27th at Virginia Kendall Park, north of Akron. PBX says that CIQ will be his new neighbor. The Second Dog House Picnic will be held at the first shelter house south of Fishinger Bridge on Route 33 north of Columbus June 18th. This information came from EQN. PUN reports that the first picnic was held Sunday, May 7th, at Serpent Mound with about 25 families present. TDI is on 3.85- and 28-Mc. 'phone. EDP has received his Class A license. WAB reports that the 25-year-old 130-foot towers at LT (OSU club station) have been taken down. AOC has new three-element beam at his new QTH. TRX is keeping schedules with Guam on 14-Mc. 'phone. TKS reports that the Civilian Amateur Radio Monitoring and Relay System held a simulated emergency drill June 11th. The Toledo Radio Club, Red Cross, and MARS assisted. CNY was busy getting the kinks out of the generator before it was used for Field Day by the CORC. Traffic: (May) W8DAE 367, GZ 78, SG (DSX, opr.) 54, QIE 45, EQN 42, AL 38, RN 29, PUN 22, EDP 16, WAB 16, EZE 12, DZO 6, YCP 6, BFH 4, TRX 4, WZ 4, LBH 3, BEW 2. (April) W8SG (DSX, opr.) 79.

HUDSON DIVISION

EASTERN NEW YORK — SCM, Fred Skinner, W2EQD — SEC: CLL. The 144-Mc. gang in Westchester County and vicinity has started a traffic distribution net on 146.3 Mc. which meets at 7 P.M. Daylight Time. QGH invites stations in neighboring sections to report in. GYV is busy building a new 50-Mc. beam. GMU is grabbing some rare DX on 14-Mc. 'phone. The Albany Radio Club did a good job providing communications for the Albany-New York Motorboat Race. ECs appointed: AWQ, Mt. Kisco; WBH, Ardsley; PSH, Ossining; FVJ, Rockland County; ILI, Troy; SQW, Scarsdale. Section Net Certificates have been awarded the following for NYSS Net operation: FZW, GTC, and LDS. Endorsements: FVP as EC for Greene County, LRW as ORS and OPS, TYC as ORS, CLL as OO. Nominations will be open this fall for candidates for SCM and I want to urge all of you to start considering whom you want for the job. Because of other demands on my time, I do NOT wish to be a candidate. Let's get a lot of interest stirred up for this campaign. Traffic: W2PEO 302, PHO 285, QGH 264, TYC 163, CLL 156, EQD 62, GTC 29.

NEW YORK CITY AND LONG ISLAND — SCM, George V. Cooke, W2OBU — Asst. SCM, Harry J. Dannals, 2TUK. SEC: BGO. RMs: BYF, PRE. The South Amboy explosion disaster caused the NLI 3.5-Mc. c.w. and 144-Mc. AEC groups to get in some emergency work. Their assistance was of the first order and credit for the control of aid and alertness to call the nets to order, maintaining smooth coördination and operation, go to ZDE and PQG, on 3.5 and 144 Mc. respectively. Details of the actual workings of the groups with credit where due appears in a complete article elsewhere in this issue. BGO has replaced BYF as SEC and promises continued action to increase our AEC efficiency. In the last report the 28-Mc. AEC net, with IAG as EC, frequency of operation was in error. Please correct it to read 29.520 Mc. Active mobiles in the 28-Mc. AEC net are JSV, LLR, CBD, KAZ, MYR, 4KKM/2, ZAC, IAG, KGP, PFY, IRJ, DIC, YEW, and LGK. This net meets on Thursdays at 1900 and 2300 EDST, and more mobile stations are invited from Brooklyn, Queens, and Nassau. LGK establishes liaison between this group and the NLI 3.5-Mc. c.w. traffic net. The NLI traffic net meets during the summer on Mondays, Wednesdays, and Fridays on 3710 kc. at 1900 and 2200 EDST. BYF is the new RM for the net and invites all traffic-minded operators to join up. Don't be afraid of high-speed operation; the NCSs will extend every courtesy. DIC has been appointed Assistant EC for 28-Mc. Queens AEC net. In Suffolk County AJF runs the 3600-kc. AEC Net, KDB controls the 3.85-Mc. 'phone group and MZB heads the 144-Mc. gang. The 144-Mc. group consists of EKI, ZTS, WA, MFJ, VGQ, and PDU. This 144-Mc. group meets Monday nights at 2045 EDST. The Huntington Radio Club reports new officers for '50 and '51 as follows: JAR, pres.; EKI vice-pres.; CHT, secy.; and HAE, treas. CHT informs me that the Club meets in the Red Cross Building in Huntington and seeks more stations for coverage in Northern Suffolk. Congratulations are in order to the Amateur VHF Institute in winning the gavel for top score in the 1950 VHF Sweepstakes. OHE leads this club and has acquired a fine group of v.h.f. experimenters and operators. VWH heads the Kings Point Merchant Marine Academy Club, with CXC and VKG instructing about 15 neophytes in code and theory. VKG reports regularly into NLI Traffic Net. Section Traffic Net certificates were issued to CEV, ZRR, OAF, and VWH. New appointments are as follows: KYN as ORS; PQG as OPS, OBS, and OES; BIB and UTB as OO. ZRR qualified for 35-w.p.m. Code Proficiency certificate. TUK received his B.E.E. degree from Brooklyn Poly. Inst. The Amateur Radio Society of Queens has increased membership. DTJ is the club leader. DZK is new license-holder in Huntington. GUB is back after three months in Ohio. UUM is working hard on v.h.f., mobile, ARC-5, and teletype. DRM, PJH, EBZ, and PL operated K2WAJ during National Guard encampment at Camp Edwards, Mass. ZXQ passed his Class A exam. Regulars on the UHF Club's net on 144 Mc. on Mondays at 2100 EDST are DVK, JTV, QPQ, OTA, and OTZ. RTZ returned from Florida, set out for the Detroit Convention, and remained there for some weeks. ZKJ received his Class A ticket. CSO reports 186 countries worked with 160 confirmed and is putting up new Johnson 10- and 20-meter beams. RIB converted from DX to traffic and is working into SSN regularly. Traffic: (May) W2KYN 242, ZRR 184, SJC 163, OBU 161, CEV 142, OUT 129, VNJ 123, OAF 113, WHB 65, ZKJ 57, VWH 54, VSU 52, RXB 32, LGK 22, TUK 13, IAG 11, JBQ 10, QFH 6, DIC 5, PF 5, BGO 3. (April) W2VNJ 111.

NORTHERN NEW JERSEY — SCM, Thomas J. Lydon, W2ANW — The N.N.J. AEC members were active on May 19th at the South Amboy explosion. First on the scene was the Middlesex County 2-meter net, followed by the Raritan Valley Radio Club QW. The following stations also participated in this emergency: CBT, LFI, GPV, LFC, TVZ, BAI, EKU, HUZ, DME, VQR, N3NBC/K2NRS, CUI, JC, IGX, KLA, LEG, WUD, VTP, GPG, and ZGC. ZEP reports that the Monmouth County Radio Assn. and the Jersey Shore Amateur Radio Assn. have combined and are now the Garden State Amateur Radio Assn. NRA was married to a YL from Brooklyn. KXD has a new jr. operator. LMB will operate 3.85- and 14-Mc. 'phone from Grayling, Mich., during the summer. CGG is active again after being in bed for quite a spell. Traffic: W2CUI 365, CGG 349, K2WAR 327, W2LMB 276, NKD 181, EWZ 176, HSA 162, NOZ 134, ZEP 123, NCY 104, OXL 47, CFB 14, JKH 6, CJX 2.

(*Continued on page 58*)

HRO-50

IT SEEMS to us that nothing soothes the ego like praise for a job well done, particularly when such praise comes from such severe critics as our fellow hams. The enthusiastic comments on Warranty Registration cards, supplemented in many instances by glowing letters proclaiming the merits of the recently acquired HRO-50, had us walking on air — 'till the rains came. What a lot of woe a handful of lousy spring washers can create!

Those of you who found the general coverage/bandspread switches flapping around uselessly when the new receiver was unpacked, or had them fail shortly after it was placed in service, know why our caudal appendage is currently at half mast. No, it wasn't the heat of soldering that did the damage. Here's what happened, as revealed by microscopic examination of broken springs returned to us from the field: During the forming operation tiny invisible fractures occurred in the springs made from a certain batch of beryllium copper — cracks too small to be detected under the inspector's magnifying glass. As you probably know, beryllium copper is rather tricky stuff to handle; it is worked in the soft state, very much like ordinary copper, and heat-treated after forming to give it the proper temper or "springiness." The fractured springs, after tempering, took the load imposed upon them just long enough to get out of our hands, letting go during shipment or shortly thereafter.

Needless to say, corrective measures were taken immediately the flaw came to our attention and not a single instance of failure has been reported by the purchasers of coils produced since.

We wish to stress the fact that only a very small batch of springs was defective; also, that beryllium copper is well known as a material of great endurance. So don't dash out to mail your HRO-50 coil sets to us just because the ninety-day warranty is running out, for we will replace any bandswitch springs failing in your coilsets *free of charge during the life of the receiver*, and without disturbing the alignment!

While on the subject of HRO-50 coilsets — we wonder if any of the gang would like to have one for the 6 meter band? Although we do not yet have a production model, preliminary experiments indicate that the Fifty has better possibilities in this frequency range than previous HRO models. Did you read Loren Windom's article on 6 meter coils for the HRO-M in the June 1950 issue of *QST*? And every now and then we get a letter from one of our SWL brethren asking if we can furnish bandspread coils for the short wave broadcast bands. If enough of the fellows want such coils, we can make 'em — complete with lucite scale to match!

A penny postal will bring us your thoughts; how about it?

SETH CARD, W1DRO

MIDWEST DIVISION

IOWA — SCM, William G. Davis, WØPP — DIB has received his postwar DXCC certificate. SCA reports that T.E.N. goes on a Monday, Wednesday, and Friday schedule for the summer. New hams in Waterloo are BCM and BGQ. YTA says he's going to report in on T.E.N. during the summer while traffic is light. AYC reports that he has moved and doesn't have skywire up yet. He also reports that his jr. operator was badly burned. JUI was in charge of Field Day plans for the North Iowa Club. The Club had the unique experience on its 28-Mc. groundwave net May 5th of having 5RDG practically their NCS. Seems the high winds took a toll of a goodly number of Iowa hams. Among those who lost their 28-Mc. beams were AWF, GCZ, and RJD. PP lost his 3.85-Mc. antenna tower. ZAM is a new ticket in Iowa. AWF went visiting and found DAS, JUI, and RJD all at home. QDB is building a new home just two blocks from the highest spot in Mason City. YKN has a new location and is doing better than ever. It seems that the summer slump has hit. The reports to the SCM are very few. I hope for a pick-up this fall and hope things have arranged themselves to allow me to give you a better job as your SCM. Hope you all have a fine summer and enjoyable vacations. Your reports will be appreciated. Traffic: WØQVA 141, SCA 126, NYX 60, YTA 18, WMU 14.

KANSAS — SCM, Earl N. Johnston, WØICV — DYX, of Norton, has accepted appointment as EC for Zone 20, replacing KPJ, who is QRL in Kansas City. FDJ has been appointed corresponding secretary of the High Plains Net. We had the pleasure of meeting some of the High Plains Netters at the Salina picnic. The Salina picnic was a grand success, and congratulations to CKRC, the sponsors, for a job well done. Plenty of prizes, lots of eats, a swell day, plenty of mobiles, and plenty of personal rag-chews were the high lights of the affair. UQD, of Beloit, has been having receiver trouble but sends in another EC registration, the NCS of the High Plains Net, WØNAS. IPI reports 50 Mc. contacts with 5IYG, VY, ONS, IYG, JLY, BDT, CXS, 2PAU, 3CGV, 3GGR, 4NJD, JEA, OXC, MKT, FBH, EMQ, OVT, and LRR recently. Also JFE, of Abilene, was worked with new ten-element beam on 144 Mc. Christy's picnic at Osage City was well attended with lots of prizes, good eats, and personal rag-chews. 3.85-Mc. mobiles predominated and 5EAK, ØNSD, NH, EQD, RQC, NEI, and ICV had a rag-chew on the way home. Power-line QRN broke up the QSO but the mobile contacts held up for about 25 miles. WGM spent the first part of June vacationing in the Ozarks with his BC-696. FLZ, FRK, NSB, NXJ, CXF, and BNU attended hamfest with the Chicken House gang at Danville, Ark. Some FB mobile contacts on 3.85 Mc. were made from Magazine Mountain, they said. Traffic: WØKXL 52, FDJ 49, DYX 41, NIY 10, LIX 7, ICV 4.

MISSOURI — SCM, Ben H. Wendt, WØICD — Most amateur radio clubs will hold get-togethers during the summer. Sometime during the festivities it may be well to take a few minutes to discuss worthwhile benefits that your club may not now enjoy. Why not spend a few minutes on one of the following subjects. Is our club an ARRL affiliated club? If not, there is progress to be made. Does our club have a representative amount of appointments such as EC, ORS, OPS, OBS, OES, and OO? If not, write your SCM for information. Does our club wish to participate in the Club Federation Plan? If so, write your Director or the SCM for details. Is our club actively engaged in emergency preparedness? Your SEC would be happy to furnish full information. Rolla and St. James amateurs have organized the Rolla Amateur Radio Society. The Club invites all South Central Missouri amateurs to become members. Meetings are held the first Tuesday of each month. The MOARKY Amateur Radio Assn. has adopted a constitution and by-laws. MON has moved from 3755 to 7285 kc. as net operations were not suitable on the former frequency. Net members, however, are monitoring both 3755 and 7285 kc. whenever possible. PTG will vacation in Utah and looks forward to mobile contacts on 3.85, 14, and 28 Mc. with the gang at home. WAP will QSY to Windsor for a portion of the summer, at which time he plans to maintain contacts from RB and JUR. BAF is active on 3.5- and 7-Mc. c.w., using a Westinghouse transmitter secured from a Federal barge line boat. 860s are used in the final for 400 watts. A BC-696 comprises the VFO. QXO recently returned from a Florida trip. CGZ has 814 on the air with 225 watts. OUD has new 7-Mc. dipole. Traffic: WØQXO 517, PME 195, WAP 98, CGZ 83, PTG 22, QMF 14, OUD 11, SOM 6, ICD 3, TLY 3.

NEBRASKA — SCM, Scott E. Davison, WØOED — Your SCM has been on the go, having recently attended a fine meeting in Omaha and the North Platte Hamfest. Nebraska hams enjoyed the visit of 1ICP very much, as well as DEA's visit to Omaha. MHV, DCQ, VNA, LIQ, and APX are new members of the Emergency Corps. EKP has an FB mobile rig on 3.85 Mc. CBH has Q5-er to improve receiving. AQT, new at Aurora, operates on 14 Mc. with 90 watts. The Ak-Sar-Ben's Dutch Treat Social Night was a "howling" success. PZJ, KCK, UPY, NNW, QHG, QHK, and HZE are sporting new "A" tickets. BCA and BDT are new calls in Omaha. BCA is a fine lad of 12 years and no doubt is Nebraska's youngest ham. Ex-6AID now is BBX of Omaha. MTI again is active on 1.9 Mc. JPI has moved to Denver. QAN is a new Assistant Director in Lincoln. JDJ and HQQ are sporting new 3.85-Mc. mobile rigs. VEC is busy building a new home. WVE has installed mobile unit in his new car. AOA has kw. on both 'phone and c.w. DMQ installed new 805 modulators. GFK put up a new tower. UZE has new receiver in the shack. LTE has 3.85-Mc. mobile in his TV truck. WBE is active on 3.85 and 28 Mc. APK is a new call in Omaha. QHK and JJK are working on 420-Mc. rigs. AY has his rig on 3.85-Mc. 'phone after a long siege on the c.w. nets. ZJF is active on the 1.9-Mc. nets. CMO has worked three states with his 3-watt rig. AIN made RCC. CXT is putting up a new two-band antenna. Traffic: WØKJP 128, CBH 98, AY 76, AIN 2, ZJF 1.

NEW ENGLAND DIVISION

CONNECTICUT — SCM, Walter L. Glover, W1VB — The Mattatuck Amateur Radio Society of Waterbury has renewed publication of its monthly bulletin, written by its secretary, Dick Nuhn. At its May meeting new officers were elected as follows: Don Kaplan, pres.; Percy Fox, vice-pres.; Fred Johnson, treas.; and Dick Nuhn, secy. The Club again has been asked to participate in the Bethlehem Fair. QVF, the new editor of the *CN News*, has come forth with his first issue, which reads well for a beginning. He also reports he and the new XYL have invested in a new Chevy. YU has shut down for the summer and will resume operations in September. OJR, EC for Fairfield, reports a recent meeting to form an emergency net. Those attending included WX, EYM, HUJ, IKB, LRW, OJR, SGN, IPQ, and RTB. TD is working on the big rig to clear up TVI. BVB is down to a Meissner Signal Shifter with 7 watts in his efforts to keep the neighbors happy. YBV is moving to Monroe. The warm weather is with us but ORP reports CN and 1RN traffic holding up well. The combination of wet weather and old ropes brought two of VB's antennas down lately, and they do not seem to go up as easily or as fast as they came down. Traffic: W1NJM 502, AW 407, DAV 193, BDI 114, BVB 112, QVF 96, LV 90, ORP 84, BIH 45, YBV 37, RWS 25, HYF 20, GVK 14, BGT 10, YU 9, OJR 1.

MAINE — SCM, Manley W. Haskell, W1VV — PTN, 3550 kc., 1900, Mon.-Wed.-Fri. Sea Gull Net is off for the summer. SEC: IGW. RM: NGV. PAM: FBJ. A new ORS is LRG, with a traffic total of 58 for May. He is moving to a new QTH for more traffic! QUA heads the traffic list with 164 points made the hard way with 8 watts in the final. He was BPL last month with 64 deliveries, too. SFZ is keeping his OBS schedules all the time and has a new rig ready to hit the ether. RQR just loves oodles of traffic and says that the Maine gang sure is a swell bunch of brasspounders. He has his emergency rig ready for 3.5 and 7 Mc. NGV, our RM, is sweating it out building a new shack. Several new members have been added to the Pine Tree Net for summer work. YA, at the University of Maine, closed down for the summer June 13th. NXX has no definite schedules for the season but drops in on the 1RN and EAN from time to time. EJS, Rockland, has done a fine job on AEC work. During May 25 drills were held. Many amateurs took an active part in Field Day. Equipment was tested on dry runs and camping gear was overhauled for the event. Advance ticket sales indicate that amateurs from many other states will be at the Second Maine Down-East Hamfest, Hotel Eastland, Portland, on July 29th. Traffic: W1QUA 164, SFZ 162, LKP 134, RQR 129, NGV 101, YA 60, LRG 58, VV 42, PTL 34, RBD 15, IGW 13, NXX 8, SWX 6, AI 3, AMR 1, KDE 1.

EASTERN MASSACHUSETTS — SCM, Frank L. Baker, jr., W1ALP — The following have had their certificates endorsed for one more year: As EC: BBL and MCR. As RM: AAL. As ORS: QJB. As OO: PXH. QMD is a new OBS. PDG is new EC for Norwood; ROQ is new EC for Malden. OLP and his XYL, QON, have a new baby boy. NXM also has one. We hear that HXE has moved to New Hampshire. Stations on 144 Mc. are SNM, LBL, KBN, HXY, and OIZ, Weymouth; JOZ, Middleboro; HAR, Concord; NON, Lawrence; PKQ, Weymouth; QJT, Boston; QKW, Revere; GGC, Mansfield; PMD, Roxbury, IO worked VE1QY portable-mobile. SGT, Brookline; MIT, So. Boston; and BWY, Braintree, are on 28 Mc. NWB has the rig on 3.8 Mc. MP says he gets on portable down on the Cape. EAU had a tough time with a broken appendix and spent some time in the hospital. DRL's rig in the car on 3.85 Mc. is working swell. The South Shore Radio Club held its annual banquet with a large gang present. KBM and AKY won a beam for 28 Mc. AKY is going to send his to his brother in Sweden. KON gets on 3.85-Mc. 'phone some but MJE hasn't been on very much. A new ham in Lynnfield is SVN, the XYL of KEK. The Eastern Mass. Club had DBM as a speaker on TVI. BHW has a BC-454 for 3.5 Mc. and a BC-455 for 7 Mc. The Merrimac Valley Amateur Radio Club put on a testimonial and banquet for its custodian, NNG, in honor of his marriage. The Club received its new SX-71. The Gypsy Radio Club of Haverhill is putting on a general get-together in Amesbury. RGR is active on 28 Mc. and has a rig on 144 Mc. SSY is on 28 Mc.

(Continued on page 60)

"SYLVANIA miniatures sure can take it... UR SIGS VY FB HR OM"

Says Ero Erickson, W9HPJ

As an electronic expert in mobile equipment and Secretary-Treasurer of Chicagoland's largest mobile radio club, Mr. Erickson speaks with authority when he praises the durability and fine performance of Sylvania Miniature Tubes.

They're tops, he reports, for amateur mobile radio equipment.

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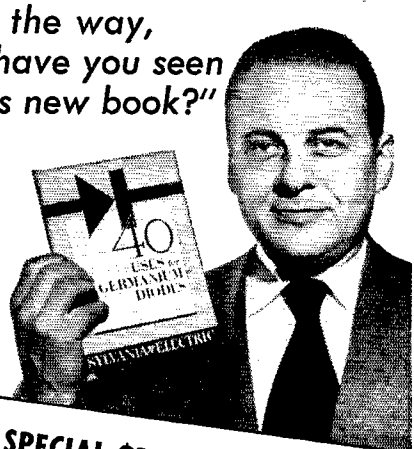

SPECIAL $1.00 BOOK OFFER

If you haven't yet obtained your copy of "40 Uses of Germanium Diodes," call your distributor today . . . or send $1.00 to Sylvania Electric Products Inc., Dept. R-2808, Emporium, Pa.

STH has a new TBS-50. RLF is moving to Everett. RLT's preselector is so good that almost every ham has the diagram. SIX dropped his beam down to 30 ft. high. IH has a new beam on 28 Mc., a rig in the car and his big rig is ready to go. BGW has a rig on 3.85 Mc. in the car. KVQ gave a talk at the Quannapowitt Radio Assn. on tubes. BHD has a TV set going on 432 Mc. with KNA assisting him. FUR was speaker at the South Shore Radio Club. ZR moved to Nonquitt for the summer. The T-9 Radio Club met at HBG's QTH. KIM was speaker at the Eastern Mass. ARA. BGH is rebuilding the 813 rig. ICP, of ARRL, spoke on TVI at the Quannapowitt Radio Assn. SMO, a new ham in Roslindale, will have a rig in the car on 7 Mc. PU reports that the Seagull Net is off for the summer. DMS built grid block keying system. WU has mobile rig in new 1950 business coupe. BB has his sailboat #73 in the water. AAL has 522 on 144 Mc. QGL joined the EMN, and will be on 144 Mc. with 522. The Eastern Mass. Amateur Radio Assn. elected the following officers for the coming year: SS, pres.; CTW, vice-pres.; AMO, secy.; PRI, treas.; SS, CTW, LMB, OFT, and RFE, directors. Traffic: (May) W1EMG 639, TY 287, SS 153, QJB 147, LM 118, PU 55, DMS 39, QGL 10, IH 7, NWL 6, WU 6. (April) W1JCK 128, BB 22, AAL 21, QGL 5.

WESTERN MASSACHUSETTS — SCM, Prentiss M. Bailey, W1AZW — SEC: UD. RM: BVR. Net frequency, 3725 kc., Mon., Wed., Fri. 7 P.M. EOB leads the pack this month with the largest traffic total of the year. RHU is close behind. Hobby Show traffic boosted all totals this month. PAX, MOK, RIA, RTJ, QJN, QUS, SIB, and CJK participated in the Boy Scout Hobby Show. RHU took part in the FMT and is spending some time each week observing. MOK reports public interest in their exhibit at the Hobby Show was high and the demonstrations did much to convince the people that we aren't just fellows who spoil their TV. EOB got VR1C for another new one. MUN has new 75A-1 receiver but a new landlord with a TV set! SSO has new 28-Mc. beam. RLQ/QQO have new 14-Mc. squirter. ODU got a sticker for 110 countries. EFQ still is busy working new ones. GZ has had trouble with Collins on 3.5 and 7 Mc. Nes has been working DX on 14 Mc. in the interim. RZG bumped his traffic this month with many schedules and Hobby Show traffic. Carl got a card from EK1AO. BVR attended the Board Meeting and was appointed Chairman of the Constitutional Revision Committee. Perce also is Chairman of the Planning Committee and a member of the Finance Committee. BDV is very busy with school work and garden. COI hopes for some activity soon. LUD resigned as EC for Pittsfield because of increased other duties. IZN is the new EC for Pittsfield. RO has been appointed EC for Worcester. The Pittsfield Radio Club has revived 144-Mc. activity by having a round table on the air each Tuesday at 9 P.M. JLT, IZN, PYR, HAZ, LPQ, and AZW are active on this band. The K1FAB Radio Club is a new club in Westfield with MQK, pres.; SDZ, vice-pres.; and SWJ, secy.-treas. Traffic: W1EOB 685, RHU 357; BVR 122, AZW 121, RZG 121, OSA 69, GZ 60, MOK 18, MVF 8, GVJ 6, BDV 5.

NEW HAMPSHIRE — Acting SCM, Clifton R. Wilkinson, W1CRW — RM: CRW. Information received here shortly after the forest fire that raged through the Southern New Hampshire woodlands in the early part of May is that mobile transmitters could have been used to great advantage. What is the trouble with our emergency set-up? Do you have mobile or portable equipment and would you like to put it through its paces each week, and what frequency would you like to use? Please send me information on any of your equipment that could be used in time of need. Any suggestions and ideas will be greatly appreciated. The Concord Brasspounders held its Field Day atop Mt. Kearsarge. What a set-up! POK reports a new ham in Portsmouth. His call is SWD and he operates on 7-Mc. c.w. Reports this month were very poor. What say, gang? Traffic: W1CRW 876, SAL 102, QJX 35, RFP 3.

RHODE ISLAND — SCM, Roy B. Fuller, W1CJH — RM: BTV. PAM: BFB. BBN is EAN representative on Wednesdays. Summer schedule for RIN is Mondays, Wednesdays, and Fridays at 1900 on 3540 kc. Net stalwarts BTV, BBN, CPV, and HLY are keeping Rhode Island traffic moving during the summer months. The Newport County Radio Club has been assigned the call SYE. Trustee of the club station is Fred Allen, KUW. KNE, of the Trailer KW, has moved into a house and doesn't know what to do with all the excess room. QOG has installed a Q-fiver and is digging out some rare DX with it. NDA (Commander Wondergem) left for duty in Virginia, and was tendered a life membership in the Newport Club. SLY has left for sea duty and will not be stationed in this area on his return. PRA's sponsored bill to authorize amateurs to use calls for license tags died in committee but the Club will try again during the next session. Traffic: W1BBN 271, BTV 40.

VERMONT — SCM, Burtis W. Dean, W1NLO — ETE has Lysco VFO. PTB has NC-173. Recent visitors at ORO were NLO, PZX, and the Adirondack Radio Club of Glens Falls, N. Y., for Field Day. BRO, NDL, NLO, and OKH visited DX-Land (EKU's home QTH). No wonder he works so much DX. You can see half way around the world from his homestead. OKH is on 14-Mc. 'phone and c. w. SVT as TBS-50A on 29-Mc. 'phone. NLO recently visited EJF, FSV, GAZ, FN, JLZ, KJR, NWY, and SOU. Recent visitors at MMN and OAK were LTW, NLO, RLS, and RNA. QKK is married and living in Barre. PWX has moved to California. AZV, AVP, MMV, PWB, RMX, and RWX are busy with CAP. Recent visitors at KRV were IT and SPK. MMN is back in the CAP. The Schenectady boys are turning their 144-Mc. beams toward Vermont every Thursday between 9 and 10 P.M. DST. Give a listen or better yet, work them. Traffic: W1JEN 109, LVP/1 83, IT 62, JLZ 61, AXN 36, NLO 30, AEA 24, ELJ 24, RNA 24.

NORTHWESTERN DIVISION

ALASKA — SCM, Charles M. Gray, KL7IG — NK has been transferred from Adak to Kodiak and should be on again soon. ZM returned from teletype school and is on 14, 27, and 28 Mc. with prospects of 3.85 Mc. when the ice breaks and he can get up a sky wire. RI is back in Ketchikan in his old position and should have a rig on soon. OW reports the usual summer slow-up on the c.w. net. GI has been operating from his country QTH on 7 and 14 Mc. He has a gas-power plant for the rig and has to operate by candle to get enough power for the rig. With his choice of either a three-element beam or a "V" beam he does very well on DX. JDG, in Sitka, really is putting a signal out on 3.85 Mc.

IDAHO — SCM, Alan K. Ross, W7IWU — Moscow: GHT sends in three items: 2MRL/7 is going back to New York for the summer. MRL graduated in pre-med. HME will be a KL7 this summer. Boise: The Gem State Radio Club is having monthly picnics. The next one will be at Anderson Dam with HPH as host. The 75-meter mobiles around here are using center-loaded antennas with much better results than base-loaded. Homemade coils are easy. IWU had a schedule with 6EBK mobile en route to Lewiston and worked him while at Jordan Valley for the night. IWU has weekly schedules with KIL/7 at Mullan, Idaho, on 7155 kc. at 8 P.M. MST. Any Idaho amateur who wants to chat or try out this frequency (our Idaho frequency for this band) should break in. We'll be looking for calls after the schedule anyway. Traffic reports of the Gem Netters will be listed next month.

MONTANA — SCM, Fred B. Tintinger, W7EGN — The North Montana Radio Club and the Lethbridge Radio Club enjoyed a joint meeting and social get-together at Lethbridge, Alberta, May 15th. The North Montana Radio Club has started action toward getting call letters placed on auto license plates instead of the usual numbers. Any other clubs that can help in supporting this movement are asked to contact CVQ, Box 403, Shelby, Montana. Our Director, CPY, reports that the ARRL Convention will be held in Seattle in 1951. The Hellgate Radio Club of Missoula and the Cathode Ray Amateur Radio Club of the Great Falls High School recently were affiliated with the ARRL. Traffic: W7EGN 18, CT 4.

OREGON — SCM, J. E. Roden, W7MQ — La Grande: NOB and MEZ spent their vacation touring the eastern part of the U. S. CHN is back in this community from Forest Grove. Medford: LNG reports that LYY is new president of Rogue Valley Radio Club, filling the chair left vacant by the death of FMQ. NWO is new vice-president. This Club has inaugurated a program of a movie to be shown each fourth Thursday of the month. HLF, our SEC, reports that the Grants Pass boys are working up a fine two-meter net for that area. Nehalem: HNR is new OPS. Pendleton: BDN has left for a summer vacation visiting the eastern part of the U. S. and will bring back a new Buick on his return in the fall. Portland: HDN is new Assistant SCM and Assistant SEC for Oregon and is active in helping the boys in this area reorganize their AEC program. FY is new OPS. EX is doing a fine job in making this area more two-meter minded for their local short-haul work, and is receiving fine coöperation and much success. Sheridan: EKL is new OPS and is helping to represent this area on the OEN 'phone net. Willamina: EHW is helping OEN by taking a turn as Net Control and also is new OPS. Sweet Home: GWE reports that he may be a W6 before long. Tillamook: IDP is new OPS. Traffic: W7HDN 227, AJN 172, IIV 168, AXJ 164, MTW 134, NOJ 124, JRU 118, HLF 81, MQ 68, KL 62, II 34, FY 33, DZT 27, IF 26, BDN 25, BSY 25, ESJ 25, LT 23, NOB 23, OJA 22, ADX 20, OBM 13, JPM 10.

WASHINGTON — SCM, Laurence Sebring, W7CZY — SEC: KAA. RM: JJK. PAM: CKT. EYS is very busy with new appliance business. Fighting fires and farming keeps JZR out of mischief. APS made BPL on deliveries. KHL is using a ground-plane antenna for 144 Mc. MTX and MCU have built handie-talkie rigs for 144 Mc. MTX handles a lot of traffic on WARTS. 'Tis yachting time at ZU, so any operation will be maritime mobile. KCU works ERH and DP in on copying a message. JPH originated quite a bit of traffic at a hobby show. FWR and FWD are spending their time in the garden instead of the shack. NWP and LVB are giving the 160-meter band a try and like it fine. ETO keeps Wenatchee on the map. DRA expects to have his electronic key rebuilt and working by fall. LJM blew up his power supply and ACF his exciter. KTL has a new four-element wide-spaced beam antenna for 28 Mc. DDQ, who is a new OO, built a 28-Mc. handie-talkie. NMT has a new Ford. MVY has a new SX-71 receiver. AMZ came off second best

(*Continued on page 62*)

Centralab Announces

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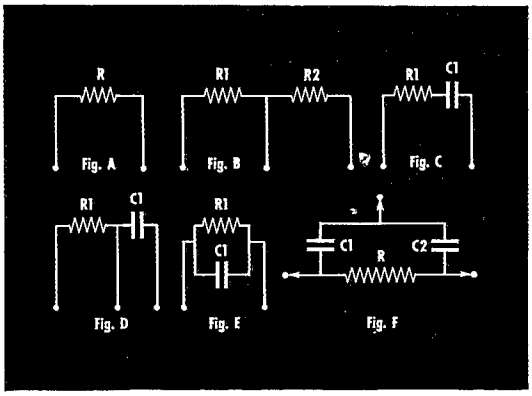

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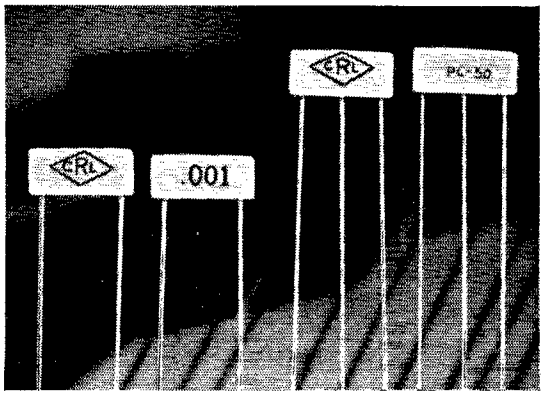

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No. 26 tinned copper, 1¾" minimum length.

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All capacitor units are 150 volts d.c. working, 300 v.d.c. flash test. Tolerances: 1000 mmf. +50% −20%; 100 mmf. ±20%.

RESISTOR RATINGS
All ±20% tolerances, 1/5 watt.

CRL. CAT. NO.	CIRCUIT DRWG.	CONSISTING OF
PC-2	FIG. A	Resistor: 2 megohms
PC-21	FIG. B	Resistors: ½ megohm; 110,000 ohms
PC-30	FIG. C	Res.: 240,000 ohms. Cap.: 1000 mmf.
PC-33	FIG. D	RES.: 1 megohm. Cap.: 1000 mmf.
PC-36	FIG. F	Res.: 100,000 ohms. Cap.: 100 mmf.

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LEADS
No. 26 tinned copper, 1¾" minimum length.

CAPACITOR RATINGS
Capacitors are rated 100 volts d.c. working, 200 v.d.c flash test; tolerance +50% −20%.

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Tolerance ±20%, 1/5 watt.

CRL CAT. NO.	TYPE	CONSISTING OF (See Fig. F)
PC-50	FILPEC	C1 = 100 mmf. C2 = 100 mmf. R = 47,000 ohms.
PC-51	FILPEC	C1 = 150 mmf. C2 = 150 mmf. R = 47,000 ohms.

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in a bout with a Rototiller. EPW took in the OARA Convention. RT won the code contest at Portland, making 43 w.p.m. with a stick. FIX spent a month touring the Southwest. KAA has a new YL jr. operator. KYV passed his 2nd-class radiotelephone exam. IOQ, KWX, KYV, JOO, EGE, MHM, NCD, FMT, ICL, CZY, BYK, and John Riley completed Red Cross First Aid training classes. JCT works into the Alaska Net daily. It is gardening time at CWN. The Cascade Radio Club has gear installed at Red Cross Headquarters to work 3.85, 7, 28, and 144 Mc. The following hold valid appointments: ORS: JJK, LJM, AMZ, EPW, ACF, ZU, ETO, FIX, APS, CWN, FRU, HGC, KCU, GAT, DRA, KWC, JZR, EYN, EAU, LEC, LVB, AXT, CKT, CZY, FWR, FWD, JC, KAA, and DGN. OES: CKZ and MBY. OPS: AXS, EYS, KWC, EVW, LFA, KTL, AXT, CKT, FWR, and CKZ. RM: JJK. PAM: CKT. SEC: KAA. OO: FIX, ETK, CZY, DDQ, EKT, MEM, NHS, DXZ, IJJ, CKZ, and IVJ. OBS: SSQ, EYS, EHQ, LEC, AXT, FWD, JC, and CKZ. EC: EGR, BMG, KNV, HWK, MPH, SSQ, KYV, NKO, NJ, EHJ, BVO, EEN, JDC, EAU, KTL, and MVH. If your call is not on the list your appointment has lapsed because of non-reporting or failure to send it in for endorsement. SEND YOUR REPORTS IN ON THE FIRST OF EACH MONTH. Traffic: (May) W7CZY 4375, JJK 872, MTX 439, IOQ 338, ZU 275, KCU 184, JPH 143, APS 122, JZR 120, FWD 57, ETO 39, CWN 37, DRA 31, ACF 27, LVB 15, NWP 14, KTL 10, EYS 5, LJM 4. (April) W7EPW 13, AMZ 2.

PACIFIC DIVISION

SANTA CLARA VALLEY — SCM, Roy E. Pinkham, W6BPT — HC is about ready to move into his new QTH and will be on all bands, both 'phone and c. w. NW is QRL rebuilding to rid his rig of TVI. VIQ is spending most of the time on mobile seventy meters. ZRJ is heard part time on 3.5-Mc. c.w. of late. LZI. is ready to work 3.85-Mc. mobile. JSB returned from a trip East driving out a new car. AVJ put his rig in an enclosed rack. KMM is heard on the bands more often now that Stanford is over for the year. RFF is back on after a three-week lay-off replacing bad tubes. CIS finds time to operate and handle a little traffic. RNG is using 3.85-Mc. mobile to make contacts on his way home from work in the evenings. EOA is looking for someone to work 420 Mc. with him. The SCCARA was host to the Santa Clara Valley and Bay regions at its annual hamfest July 17th in San Jose. The Mission Trail Round-Up at the ranch of JTE was a big success again this year. Those MTN boys sure know how to plan hamfests as well as handle traffic. Traffic: W6BPT 661, NW 567, HC 88, CIS 11 RFF 2.

EAST BAY — SCM, Horace R. Greer, W6TI — Asst. SCM, Charles P. Henry, 6EJA. SEC: OBJ. RM: FDR. ECs: CX, AKB, EHS, NNS, IT, IDY, QDE, LMZ. The line-up for team captains for the SARO on Field Day was as follows: 3.5-Mc. c.w., DDO; 3.85-Mc. 'phone, BEZ; 7-Mc. c.w., EY; 14-Mc. c.w., FZC; 14-Mc. 'phone, KPO; 28-Mc. 'phone and c.w., EE; 144-Mc. 'phone, VCG. YDI is running mobile rig on 3854 kc. DTW keeps daily morning schedules with KR6CA, KG6HG, and KG6GU. The Mission Trail Net, Inc., is an organization of amateur radio stations desiring to handle messages free of charge, especially in times of emergency or disaster, for the general public. Interested amateurs are invited to join and check in with them nightly on 3804-kc. c.w. at 7:30 P.M. PDT or 3854-kc. 'phone at 8:00 P.M. PDT. PB worked some of the local gang from KL7NR on his recent trip to Alaska. The San Leandro Radio Club had portable transmitters on all bands on Field Day. The Oakland Radio Club had an antenna farm for its set-up. ZUI has new 14-Mc. beam about ready to go. GIZ might play around with a two-element job while waiting to move. EY is trying to work a little DX for a change. NO still is playing with 'phone. ASJ has rebuilt his rig and now it looks good enough to have a picture taken. OBJ is looking at TV when not on the air. PK6HA blew into these parts and is going to make the good old U.S.A. his home. BUY and SQ are QRL work. All official ARRL appointees should send me a report on the Station Activity Report Form 1 such as supplied every three months by ARRL. This report should reach me not later than the 5th of the month. Many of the gang are thinking of vacation time and getting portable gear ready to take along. Remember that the Oakland Radio Club still has an FB award for those working all California counties. The summer time is the time to keep your ears opened for some of those hard-to-get counties. All QSL cards confirming QSOs should be sent to the club secretary when all counties have been worked and confirmed. Only a handful have been issued in all the years this award has been in effect. Be sure, be safe, life is worth while. Be careful when playing around with your rig, especially if you're sleepy. Traffic: W6JZ 761, DTW 540, UEV 412, YDI 123, OT 64, RRH 31, TI 4.

SAN FRANCISCO — SCM, R. F. Czeikowitz, W6ATO — Phone JU 7-5561. SEC: NL. PL 5-6457. *Eureka Area:* EC: SLX. AEY, now 28-Mc. mobile, is running 200 watts on other bands. ZSE is on 7 Mc. with ARC-5/T22. FBK is back on 7 Mc. NAO is back on 28 Mc. with 2 watts f.m. The jr. operator of NAO, Teddy Howland, age 9, is the youngest member of the Humboldt Radio Club and one of the active

(*Continued on page 64*)

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RG-5/U	
APTITUDE RATING	No. 8236
Frequency (Mc)	Attenuation per 100 ft
100.	2.65
200.	3.85
300.	4.80
400.	5.60

RG-8/U	
APTITUDE RATING	No. 8237
Frequency (Mc)	Attenuation per 100 ft
100.	2.10
200.	3.30
300.	4.10
400.	4.50

RG-11/U	
APTITUDE RATING	No. 8238
Frequency (Mc)	Attenuation per 100 ft
100.	1.90
200.	2.85
300.	3.60
400.	4.35

RG-54A/U	
APTITUDE RATING	No. 8239
Frequency (Mc)	Attenuation per 100 ft
100.	2.90
200.	4.20
300.	5.50
400.	6.70

RG-59/U	
APTITUDE RATING	No. 8241
Frequency (Mc)	Attenuation per 100 ft
100.	3.75
200.	5.60
300.	7.10
400.	8.30

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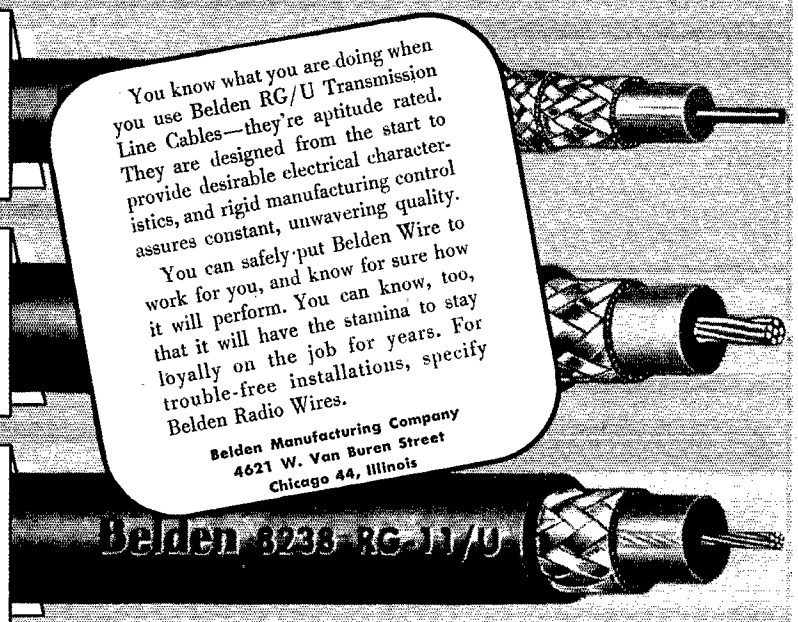

RG-58/U	
APTITUDE RATING	No. 8240
Frequency (Mc)	Attenuation per 100 ft
100.	4.10
200.	6.20
300.	8.00
400.	9.50

For use with radio frequency transmission, video, test equipment, and pulse transmission.

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members. SLX is trying to arrange a schedule on 7 Mc. with his son in the Navy Electronics School. IBJ, Ukiah, visits the Humboldt Club, which meets every other Friday night at the YMCA building, Eureka. Visitors are welcome. CWR is now using both c.w. and 'phone, and is converting an ART-13, for which he needs a filament supply. Can anyone help? AUB now is portable. EQQ is trying 28-Mc. 'phone. BSM, WYP, and OUT are building. IRE is on 3.5 and 7 Mc. CXK is working on a BC-430. BWV has a new final running on 14 Mc. ZZK is building a mobile rig for the HARE Net. LE lost his mast when someone cut his guys. FYY is working all bands. The Humboldt Amateur Radio Club now holds emergency 28-Mc. drill net every Thursday at 7 P.M. daylight time and would like other areas to come in on the drill at 29,146 kc. About one-fourth of the HARE comes in with portable gear. All comers are welcome. *Guam Area:* Congratulations to Clark Cox, now in the U.S.A., on his excellent traffic record while at KG6DI. KG6FAA also has been handling a large amount of traffic. All Guam traffic has been increasing steadily. Traffic totals and news is solicited from all Guam stations for publication in this column. *Marin Area:* EC: KNZ. The Marin Radio Amateurs Club meets the 2nd Friday of each month in the Engineering Lecture Room of the Marin College, Kentfield. Visitors are welcome. W6FYJ is experimenting with a controlled carrier with an 814 final on 3.85 Mc. LUM has completed and is making good use of a Select-O-Ject adaptor. KNZ is building a 50-kc. i.f. adaptor when time permits from EC activities. All amateurs in this area interested in mobile and emergency operation are urged to contact Ernest Brown, KNZ, 168 Woodbine Drive, Mill Valley. He will be glad to make all the necessary arrangements. TIJ is working both 160- and 10-meter 'phone. MRZ also is building a selective i.f. strip. News and traffic totals are solicited from the Marin Area for publication in these columns. *San Francisco Area:* EC: BYS. The fund donated by the SFRC, matching the fund previously donated by the HAM Society, is being used to fine advantage in converting the mobile equipment of the Emergency Corps. The HAMS is located in its new home, the new Local Red Cross Building, at Sacramento and Van Ness. The RC gave the HAMS the choice of rooms and installed power and coaxial cables. Meetings are held the 2nd Friday of each month. All are invited. The SFRC meets at 1641 Taraval St. the 4th Friday of each month. All are welcome. LVW has recovered from a very serious illness. LOZ, JKN, KNH, and URA are on 144 Mc. CDT put good 144-Mc. signals into Yosemite and Sequoia National Park from the base of KRON-TV tower. WCD is operator at KRON-TV. SWP is back on after declicking and de-TVIing TCS. CHP is San Francisco Emergency Net Control. Traffic: KG6DI 890, KG6FAA 590, W6SWP 134, CXO 119, NL 38, CHP 22, YC 21, RBQ 3.

SACRAMENTO VALLEY — SCM, Ronald G. Martin, W6ZF — Asst. SCMs: Northern Area, 6YNM; Central Area, 6CKV; Southern Area, 6SUP. SEC: KME. ECs: Met. Sacramento, AUO; Walnut Grove, AYZ; Dunsmuir, JDN; Paradise (Chico Area), HBM; Roseville, GHP. RM: PIV. OBS: AF, BTY. PAM: ZYV. OES: PIV, GHE. OOs: ZYV, YNM, BTY, GDO, YV. OPS: JDN. Sac. Emergency Net (city), NCS AUO. SVS Traffic Net, 29.4 Mc., NCS ZYV, ANCS GDE. Mother Lode Net, NCS WSI. *Northern Area:* DDC has new 7-Mc. dipole with 72-ohm twin lead. GOO is on 28 Mc. at Alturus. OMR is chairman of Mt. Shasta Hamfest to be held Labor Day week end. HPL is on 7 Mc. after rebuilding. CFU and YNM visited Canada, with YNM seeing VE7UD and VE7GV, and stopped in Portland to see 7HDN, GXO, and 7AXJ, keeping in touch with 6JDN all the way. New Northern Area Net is on 28.8 Mc. REB is on 7 Mc. *Central Area:* GERC has joined USNR on ARC committee. AYU is on 160. FGW is trying 160. TID, WYX, and CKV are mobiling on 3.85-Mc. 'phone. The Oroville gang is going to 160 en masse. AF sends Official Bulletins on 14 Mc. CKV is mobiling on 3.85 and 28 Mc. GIIE is converting APS-13 to 420 Mc. *Southern Area:* HOP now is in D. C. SFA moved into the section from Long Beach. Boat races were held on the Sacramento River, with communications furnished by the Emergency Corps under the leadership of SEC KME. UNT has new mobile unit on 28-Mc. a.m.-f.m. OXG has new vertical antenna and is on 160. GHP has 28-Mc. mobile in new Chevy panel job. KKL vacationed in Wash. and Canada with 28 Mc. mobiling a huge success. MYL reports in on 420 Mc. and says 300-ohm ribbon will not load but 300-ohm tubing will. NBW moved to Chico Area. UAF is heard in Alaska on 3.85-Mc. 'phone. NYS astounds the gang working W5s on 160. AJD and FPN are DXing on 7 Mc. ASE has new Motorola 10 mobile unit. CTH has hand-generator mobile unit on 3.85 Mc. KX6AF, 7WKR, and 7HWX visited SUP recently. ERR, from San Leandro, now is in Roseville on 3.85 Mc. HTS schedules TI4JG and CE2JJ Wednesdays on 28 Mc. Traffic: W6ZF 43, JDN 26, KRX 16, YNM 15.

SAN JOAQUIN VALLEY — SCM, E. Howard Hale, W6FYM — ECs: AJE, CQI. ORS: GRO, HU. OBS: GRO, EXH, OHT. OPS: GRO, IEM. OES: PSQ. OO: GRO, CF, of Modesto, is mobile with 1-kw. input to a pair of 5D21s using constant modulation system and has the Cadillac wired with 28-volt aircraft system. GRO is building full gallon for home rig and is working on mobile rig at the same

(Continued on page 66)

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time. Keith reports he is helping to put the American Legion 'phone net on an emergency basis. NSK, at Hanford, reports in on the 6th Regional Net (3735 kc.) quite regularly. Your SCM hopes to organize a section c.w. net to connect with the 6th Regional Net. Any traffic men interested in helping this program to get started, please write the SCM. The Turlock Amateur Radio Club is awaiting approval of its petition for affiliation with ARRL. No reports were received by the SCM from Kern, Madera, or San Joaquin Counties. I can't report what you're doing, gang, if I don't hear from you. CQI is consulting engineer for movie outfits on location in Tuolumne County. DVS has new ten-element beam on 144 Mc. EQO used 3.85-Mc. mobile on a trip to Oklahoma and return and Joe reports he made some fine contacts along the line. We are sorry to report that DWH has joined Silent Keys. Traffic: (May) W6GRO 106, NSK 12, FYM 6, GQZ 2, EXH 1. (April) W6GRO 72.

ROANOKE DIVISION

NORTH CAROLINA — SCM, W. J. Wortman, W4CYB — Congratulations and thanks to the Raleigh gang for the hamfest which they held. It was an interesting and nicely planned meeting. Who is thinking about sponsoring the next one? We are all sorry to hear of the untimely passing of FXY. We have been advised that the Thomasville Club is having a bill presented in the 1951 Legislature covering the use of call letters for auto tags such as has been done in some of the other states. Let's try to get our own representatives to back this bill. Thanks, OFO! DSO is selling out everything, so he says, and starting back on low power. DCW thinks the boys are too modest to report their activities but comes through with the fact that he has the Radio Onda certificate for working Argentine 50 on 'phone. FXU is busy on the farm and is helping rebuild OIX in his spare time. KJS still is on plugging NCN when the new Buick allows him time. CVQ and DCQ are working 50 and 144 Mc. quite consistently. So are DLX, UEG, and yours truly. IFR is busy on 28-Mc. 'phone. LDZ is sticking to 'phone on 28 Mc. also. Only one card was received last month which was held over and included in this report. This represents the next to the final report that I will write. My term of office expires next month. My last report will contain an open letter to the North Carolina gang. I hope you will read it because I think it will be of value to each amateur in North Carolina. Luck in your summer work.

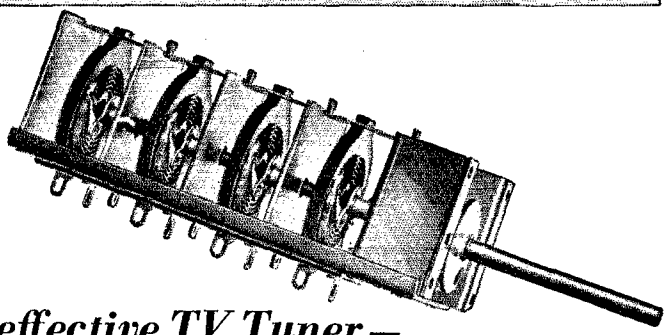
SOUTH CAROLINA — SCM, Wade H. Holland, W4AZT — The following stations have been appointed Emergency Coördinators in the counties listed: CXO, York; DPN, Orangeburg; CPZ, Cherokee; OLZ, Richland; DX, Kershaw; MVX, Fairfield; NZA, Lexington; NQP, Aiken; HXZ, Anderson; HSM, Sumter; ILQ, Greenville; NLP, Williamsburg. These men will contact all stations in the county and set up plans for emergency operations. Give them your assistance. Applications from other counties are solicited. BSS and OLZ have been appointed Official Observers in South Carolina. BSS suffered severe electrical burns in an accident at the power station in late May and will be glad to hear from the fellows. EDQ now is on 28 Mc. and is getting plenty of DX. Make your plans now to attend the fall South Carolina Hamfest. Exact date and place will be announced shortly. Traffic: W4ANK 144, AZT 28, EDQ 10, CPZ 8.

VIRGINIA — SCM, Victor C. Clark, W4KFC — Asst. SCM: Elias Etheridge, jr., 4KYD. The final tally in the First Annual Virginia QSO Party shows the winners to be NNN 3278 points, IA 3120, FV 2832, PYN 2784, CVO 2538, and KVM 2484. Others making over 2000 points were LRI, NQV, FF, and PAY/4. Exactly 100 Virginia stations were on deck for this activity, according to logs received. IWA and IWO report that the VFN picnic was a great success. PYN winds up the season with a man-sized traffic total and completed WAS on contacts and now is awaiting cards. NHX, RDL, and JGW will keep PYN on the air this summer. MLH is using a loaded whip for 3.5 and 7 Mc. now and reports on ESN and NSS Nets. NAD has been handling traffic with TCPN. CZK is new EC for Roanoke and Roanoke County. NKV is new ORS/OBS and NH new ORS. New AEC members are IYU, JGS, and RAO. PVA missed OO FMT because of house guests. It's a new baby girl for the KYDs and a boy at KFC. CJS is busy shaping up his new lot felling trees but leaving a few strategically placed! MLE is QRL his job at WCVA but contemplates de-TVling rig, installing bandswitching, and numerous other gadgets, plus radioteletype, this summer! SU is QRL rebuilding SCR-522s. CVO took a trip to Wyoming. NBA has been elected NCS for VFN for the 1950-51 season. MGE/4 used portable rig from Skyline Drive for Virginia Party. NNN, VE, CC, JFE, and KFC added AR8AR for a new country. DWF's new rig, used at PAY/4 during the Virginia Party, was heard in Cuba on 3.85-Mc. 'phone. KYD, forced to curtail his hamming activity, has had to give up preparation of the *Virginia Bulletin* after turning in a splendid job as editor for the past three years. ANK, from South Carolina, lunched with IA and KFC. Fellows, I want to thank you for your excellent support during my term as SCM. It's been mighty nice working with you in this capacity and I really have

(*Continued on page 68*)

MALLORY HAM BULLETIN

The Mallory Inductuner*



Not only an effective TV Tuner— but also a Useful Tool for TVI Study

The new 3 and 4 gang Mallory Spiral Inductuners (see Ham Bulletins in December 1949 and March 1950 QST) were designed primarily for use in constructing more efficient and easier-to-align TV receiver front-ends.

However, many amateurs have discovered that these same Inductuner front-ends also make admirable general purpose tuners for the entire frequency range from 52 through 216 megacycles when used with a suitable IF strip, or in conjunction with a standard communication receiver as an efficient double conversion receiving system.

Hams who live in TV infested neighborhoods will find the addition of a good 52 to 216 megacycle tuner a practical necessity for checking these frequencies for the radiation of spurious signals or harmonics from their transmitters.

In de-bugging a transmitter for the suppression of TVI, many amateurs have told us that the job is virtually hopeless without some means of making on-the-spot comparative measurements of harmonic or spurious signal radiation as various changes are made in the rig and its antenna circuit.

The neighbor's TV set down the street is a poor observation point for making preliminary adjustments on the transmitter because of the physical separation of the two and also because the TV set is not equipped for quantitative measurement of the strength of the interfering signal.

On the other hand, an Inductuner front-end equipped with a suitable IF system, an "S" meter or VTVM, a coax feed line and a simple dipole monitor antenna positioned a couple of wave lengths away from the transmitter antenna, will provide a convenient means for direct observation of the attenuation or increase of the transmitter harmonics as adjustments are made.

Unlike most VHF tuners, the construction of a front-end around the Inductuner requires only a bare minimum of wiring, parts, and chassis fabrication—and the cost is reasonable, too, when you consider the many practical possibilities the Inductuner has.

We'd like to have you visit your Mallory Distributor and see one of the new Spiral Inductuners. You'll be surprised at its smallness and you'll like its smooth, solid feel. And you'll like its price tag, too.

See your Mallory Distributor, today.

Or if we can be of help in answering your questions on the Inductuner, just address us at P. R. Mallory & Company, Inc., Box 1558, Indianapolis 6, Indiana.

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MALLORY

enjoyed it. Welcome to our new SCM, W4FF! Let's all get behind him and make Virginia a section that's second to none in all phases of ham activity! Traffic: (May) W4PYN 677, KFC 149, NAD 50, MLH 34, IWA 20. (April) W4NAD 21.

WEST VIRGINIA — SCM, Donald B. Morris, W8JM — Asst. Directors BTV, CSF, and JM attended the joint meeting of the Tri-City, Charleston, and KVARA Radio Clubs in Charleston. LII again copped the door prize. BQK, secretary of MARA, announces 3GEG, 8PZT, and JM as winners in the West Virginia QSO Party. BTV comes through with a very high traffic total, by 3.5-Mc. schedules. 3CJB/8 operated near Elkins in the v.h.f. tests. GBF has come back to 14-Mc. DX, and plans to stick up a four-section 8JK. EVR, West Virginia's only active YL station, will be glad to give you West Virginia contact on almost any band. FMU is inactive because of illness. KWL spoke at MARA meeting on how to remove TVI from your rig. DTL has a swell-sounding mobile rig on 3.5-Mc. c.w. Attention Parkersburg and Huntington stations, we need activity in Wayne, Lincoln, Wirt, Calhoun, and Pleasant Counties for WACWV. EUZ, the only station in Nicholas County, is on 3.5, 3.85, and 28 Mc. Don't forget ex-YCK will operate in Doddridge County during September as 1RNT/8. EZR is improving after a recent illness. We need more OBS and OO appointees. If interested, drop me a line. Traffic: W8BTV 703, AUJ 111.

ROCKY MOUNTAIN DIVISION

COLORADO — SCM, M. W. Mitchell, WØIQZ — SEC: KHQ. RMS: LZY and ZJO. ZJO rings the gong on BPL again this month with the heaviest traffic load so far. He schedules IUN nightly on 7080 kc. at 1945 MST and PAN at 2030 MST on 7207.5 kc. LZY has discontinued handling traffic for the summer but plans a bigger and better CSSN next fall. KHQ and PGX schedule on 3748-kc. c.w. each night. KHQ is trying to drum up a little more interest in ham radio in Eads. SGG, after several years of hospitalization and convalescence, now is back on the job. He has a car and plans to get around and see some of the boys. ULZ reports two new hams in Greeley, ATC and AZP. With those "A" calls, no one will know they aren't old-timers. That reminds me, this time next year it will be more than 20 years hamming for yours truly! ULZ got his big rig back on the air again after blowing out the "innards" which started with a short in a power transformer, which in turn set up a chain reaction which finished the whole rig for some time. How about getting on 3.85 Mc. once in a while, Bob? Yours truly has a good start on a new exciter unit using a 6C4 Clapp oscillator, 6SH7 Class A, and four 6L6s doublers down to 28 Mc. Traffic: WØZJO 2452, LZY 21, KHQ 12, MHR 11.

UTAH — SCM, Leonard F. Zimmerman, W7SP — The call W7OHR has been issued to the new Brigham Young University Radio Club, with AHD as trustee, and the station is all set up on the campus. KCT reports that between his job and building a new home he hasn't enough time for radio but in October of 1951 he will be 65 years young and will retire from his job. NPU, our ex-SCM, says he gets on 14 and 28 Mc. occasionally for rag chews. MFQ finds time to keep most of his schedules in spite of long hours and out-of-town trips required by his job. NXM resigned as president of the UARC because of conflict between meeting time and working hours, and KMR was elected to finish the term. "Pappy" Jones, of old 4th CA AARS fame, has been run out of the deep south and now is 7IS. He is Alternate NCS of the Utah c.w. and CARS Net. Traffic: W7AHD 109, MFQ 106, SP 10, UIB 6.

WYOMING — SCM, Marion R. Neary, W7KFV — JRG received OES appointment. BJS has antenna trouble since the QTH was moved to Laramie. MWS was Field Day call for the Shy-Wy Club. JDB was Field Day call for the Laramie Club. JGS is bouncing a TBS-50 around mobile on 3.85 and 28.5 Mc. KFV found a little DX on 14-Mc. 'phone and is looking for more. DXV still leads in traffic for this section. OWZ and MVK are persistently on 144 Mc. every Sunday A.M. at 0800 MST. Turn your beams northwest for JRG. The Pony Express Net on 3920 kc. changed its time to 0730 MST for the summer months. Vital statistics department — there are 160 licensed operators in the entire State. Possibly 50 per cent are active but from the amount of station activity reports received there are only about 2 per cent. Just a postal card on the first of each month would help very much. Traffic: W7DXV 73, HDS 27, OWZ 7.

SOUTHEASTERN DIVISION

ALABAMA — SCM, Leland W. Smith, W4YE — The Montgomery Club turned in an FB Field Day score, using the call of its oldest member, AP. MVM is our most active OO. BCU is giving up 144 Mc. 1MK is active on 4 Mc. MKV still is working on his new bandswitching transmitter. KCQ is nearing completion of his rebuilding project. Same for YE. KUX has the bug again and is returning to the air. ELX still is having BCI and TVI. OBV and OKF visited the Tuscaloosa gang during the month. K4FAG scored high in the Armed Forces Day Contest. JYB has new QTH at Maxwell Field. BFM is active in both c.w. and

(*Continued on page 70*)

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LOW PRICES: I sell to you as cheap or cheaper than you can buy anywhere.

COMPLETE STOCKS: Collins, Hallicrafters, National, Hammarlund, RME, Millen, Harvey-Wells, Meissner, Gonset, Meck, Johnson, RCA, all other amateur receivers, transmitters, beams, TV, AM-FM, high fidelity amplifiers and speakers, test equipment, tubes, parts, etc. I can supply nearly any equipment shown in any catalog or advertisement and at lowest prices.

BEST TRADE-IN ALLOWANCE: Customers in all parts of the USA trade with me because I allow so much. Tell me what you have to trade and what you want. I also buy equipment.

TIME PAYMENTS: You can order anything on terms. I finance the terms myself to save you time and bother. Customers everywhere in the USA find my terms best. Write for details.

QUICK DELIVERY: Mail, phone, or wire your order. It will be shipped promptly. I can be reached nearly 24 hours a day, 7 days a week.

TEN-DAY TRIAL: Try any communications receiver ten days — if you return it your only cost is shipping charges.

PERSONAL ATTENTION: The Butler store is run by Bob Henry, WØARA, and the Los Angeles store by Ted Henry, W6UOU. We make the deals ourselves. We finance the time payments ourselves. That way we have the lowest overhead and can do more for you. That's why YOU AND I CAN DO BUSINESS. Write, phone, or visit either store.

73,

Bob Henry
WØARA

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HENRY RADIO STORES

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WORLD'S LARGEST DISTRIBUTORS OF SHORT WAVE RECEIVERS"

'phone nets for Alabama. HYV has new QTH. AUP is new secretary of the Montgomery Club. PRF is home for the summer and is exclusively mobile. Traffic: K4FAG 299, W4LEN 32, BFM 12, JYB 11, YE 8.

EASTERN FLORIDA — SCM, John W. Hollister, W4FWZ — If you hold any appointment in the ARRL field organization and are not receiving the periodic bulletins I would like to know about it so you can get on the mailing list. This applies to EC, ORS, OPS, OBS, OO, PAM, RM, and OES appointments. Say, fellows, fast or slow, the nets need your assistance. The Gator Net now is on 7290 kc. at 7:30 P.M. every night in the week. More coverage is needed for traffic and emergency work. Just break in. "QNI" means "Net invites listeners to call in now." NGP says traffic work is the most interesting phase of ham radio he has tackled. Don't let the speed boys scare you out of calling in; they are quick to come down to your level. Here are some of the stations in the Gator Net: OCG, NGP, NMO, OZC, KJE, KMV, CQR, PMN, DES, ZC, DEP, IQV, and MNT. Clearwater: AYX reports the Club now has 17 members. Miami: LQN made DXCC. Sarasota: LMT is moving the rig into the living room. West Palm Beach: New Club officers are: IUJ, JQ, OBW, TH, and BHN. LXY has been appointed EC. St. Petersburg: NOJ is using p.p. 812s on 28 Mc. GAC runs 250 watts on 'phone and GFE has three-element 65-foot beam. HUY, the 3.85-Mc. leather lunger, is trying new field on 28 Mc. South Miami: BI runs 800 watts on 3.85 and 28 Mc., 500 watts on 3.5-, 7- and 14-Mc. c.w., and 20 watts on 144 Mc. With this there is a 5-kw. Onan generator. Tampa: AXY is using a Viking with 140 watts on 3.85-Mc. 'phone. Jacksonville: Our hardworking SEC, IQV, addressed a meeting of the JARS on emergency matters. That reminds me, how are we fixed for emergency communications? Is everyone ready? Did you contact your local EC as to your schedules? By the way, 2RTZ/4 now works for 8UKV. Traffic: W4IQV 143, NGP 92, IYT 76, KJ 76, LMT 47, OGI 14, BI 4, AYX 1, 2RTZ/4 1.

GEORGIA — SCM, James P. Born, jr., W4ZD — TI2VO, Ed and Jerry, visited Atlanta for two weeks. They attended the June meeting of the Atlanta Radio Club. IZM has moved to Albuquerque, New Mex. Thomaston now has four hams, OHH and OFG on 28-Mc. 'phone, IRL and 5RHS/4 on 7-Mc. c.w. MMB is SEC for the State of Georgia. BIW resigned because of pressure of business. HZG has a new mobile rig; he is EC for Fulton and Dekalb Counties. IRL graduated from Georgia Tech. and now is active EC for Upson County. The Atlanta Radio Club's publication, *The Atlanta Ham*, is doing a fine job publishing news of local interest, and will publish a Directory of Hams in Greater Atlanta soon. The Directory will list addresses, phone numbers, type gear, and bands worked and should be useful in EC work in this section. KFL has two new rigs, one on 3.85-Mc. 'phone and the other on 7-Mc. c.w. OOY has moved from Augusta, Ga., to Panama and is on 28-Mc. 'phone with his new call, KZ5OY. NLY who, as KZ5AY, was EC for the Pacific Side of the Canal Zone, now is EC for Dougherty County, Ga. KUO is active on 7-Mc. c.w. BHJ operated KV4AL for several months and gave the 28-Mc. gang in this section a new country. Traffic: W4FKE 4, NQO 2.

WEST INDIES — SCM, Everett Mayer, KP4KD — KV4AO and KP4DJ, HU, KB, KO, KP and UW are this month's reporters. The Ramey gang has organized the Borinquen Amateur Radio Club and offers a certificate for ten Ramey stations worked. AA has gone to 14-Mc. 'phone. DJ worked VK3 on 14-Mc. 'phone with TBS-50. AC left WITA for PAA. LI blew up his receiver. AZ is looking for a new QTH. AT works with one watt 6AK5 final. KV4AO schedules OM KD regularly on 3.5-Mc. c.w. AEC nets are operating with a fair attendance. HZ is sweating out new ones for 28-Mc. 'phone DXCC. KZ and CB are n.f.m. addicts. KP4USA set up portable at Naval Station for Armed Forces Day which was operated by CD, JG, FF, and HT. CL resigned his position with the FCC after many years, leaving EA and IF to hold down FCC. The new PRARC Board is quite active. Traffic: KP4KD 35, KV4AO 18, KP4KP 17, KO 12, KB 5, DJ 4, HU 4, UW 3.

CANAL ZONE — SCM, Everett R. Kimmel, KZ5AW — CZARA meetings, thanks to OY, are being enlivened with the latest technical training sound movies. The traffic watch line-up this month, Monday through Friday, is GG, NM; LR, RV; AC, PC; CG, AU; BD, OY. LR celebrated his 100th traffic schedule with W4PQP. CG and PA contact each other Sunday afternoons on c.w. to polish up their electronic bug technique. BL, JD, and FL vacationed in the U. S. A. and while there FL got his FCC ham ticket. RM and WJ are NCS for C.Z. AEC drills. WA was thrilled when his converted SCR-522 raised a VK on 28-Mc. 'phone. WG, with RM and others, handled quite a bit of Peruvian earthquake traffic. RB is building a plush new job, starting off with a Collins VFO, then B. & W. exciter and ending in p.p. 3125As. Several KZ5s recently received Public Service certificates. Traffic: KZ5PA 62, WJ 56, FL 39, RM 25, LR 4.

SOUTHWESTERN DIVISION

LOS ANGELES — SCM, Virge A. Gentry, jr., W6VIM — Asst. SCM, Irvin O. Hege, 6FYW. SEC: ESR. PAM: MVK. RMs: CE, CMN, DDE, IOX, and LDR. We

(*Continued on page 72*)

HARVEY *for variety for bargains*

THE NEW SUBRACO MT 15X

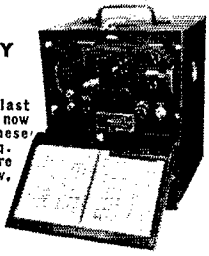
The finest in mobile rigs available today. 30 watts power, class B 100% modulation, with push-to-talk and built-in coaxial type antenna relay. Xmttr complete with tubes, coaxial antenna connector, mounting brackets, etc. *Shipping weight 15 lbs.* **$87.50**

BRAND NEW—MT15X for 20 meters $87.50

SUBRACO DS400

Dynamotor supply. 6 V. DC input, 400 V. at 175 ma. output. Complete with built-in control relays, filter, etc. *Shpg. Wt. 10 lbs.*.....**$79.95**

BC-221 FREQUENCY METER



These won't last long so order now for one of these famous freq. meters. They are just like new, with original calibration charts. Range 125-20,000 kc, with crystal check points in all ranges. Complete with crystal and tubes.

Special Price $79.50

Eldico TVT-62 low-pass filter, Kit, **$7.99**; wired and tested, **$10.99.**

Eldico TVR-300 high-pass filter. Kit, **$1.98**; wired and tested, **$3.98.**

COPPER MESH SHIELDING

Heavy Duty, tightly wound, expensive but it really does the job right, the only screening we've found that will. 36" wide, minimum order 6 sq. ft. **Per sq. ft. $.85, plus $.50 per order packing.**

NEW IMPROVED GRID DIP OSCILLATOR KIT

The most valuable piece of test equipment in the ham shack is the Grid Dipper. Build one with this kit and save countless hours in building, improving and de-bugging your rig. The GDO Kit builds an exact duplicate of the "Grid Dipper", now with regeneration. Includes everything from the special handy case permitting one-hand operation down to a complete application and instruction book. With tube and internal power supply, range 3 Mc to 250 Mc in 6 steps, size 5½" x 2⅜" x 3". **Complete Kit $24.50**

NOTE: All prices are Net, F.O.B. N.Y.C. and are subject to change without notice.

NEW COLLINS 75A-2

Double-conversion superhet with sensational stability, calibration accuracy and sensitivity . . . all the good features of the 75A-1, plus many new ones. Drum type dial with 1 Mc. calibrations; 160 meter band; separate CW noise limiter; 15 miniature tubes; antenna trimmer; mounting holes for standard coax fitting; permeability tuned VFO with improved stability unaffected by tube variations; nine tuned circuits at 455 kc IF, 5 xtal filter selectivity steps with front panel control, phone jack on panel, terminals at rear. Get your order in now for October delivery. Price, complete with tubes . . . **$420.00**; matching 10-inch speaker **$20.00**

SUPERIOR POWERSTATS

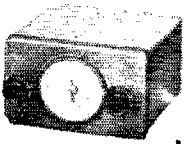
Smooth voltage control, 0-135V. output from 115V AC line.

Type 20, 3 amp.....**$12.50**
116, 7.5 amps, table mtg..... **23.00**
116U, 7.5 amps, panel mtg. **18.00**
1126, 15 amps..... **46.00**
1156, 45 amps.....**118.00**

Many other models, write for literature.

GON-SET CONVERTERS

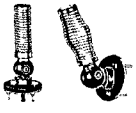
3-30 Gon-Set Converter; 10-11 Gon-Set Converter; 20 meter Gon-Set Converter; 75 meter Gon-Set Converter. *Shpg. Wt. each 4½ lbs. each,* **$39.95**



Gon-Set Noise Clipper, *Wt. ½ lb.* **$8.25**

MASTER MOBILE MOUNTS and ANTENNAS

All-band, center-loaded mobile antenna. 10-20-40-75 meter operation. Complete with coil for one band (specify) but less mount. **$7.95**



Extra Coils (not required for 10), **each $2.95**

For 10, Master Mount Stainless Steel 96" straight whip, Model 100-96S.....**$4.77**

Master Mobile Mount Universal Body Mount, swivel type, 126 straight spring, 132 double-taper spring, either model **$7.95.**

Bumper Mount with spring.....**$5.97**
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Shpg. Wts.: Each mount and antenna 3 lbs.

TR-1 TRANSMITTER KIT

A conservative 300-Watt phone and c.w. rig 6V6-6V6-6L6-813, Class B 811 modulators. All bands, 80, 40, 20, 15, 11, and 10. Exciter broad band, single control PA tuning. Three power supplies delivering 1500 v.d.c. at 350 ma, 500 v.d.c. at 200 ma, and bias supply. Punched aluminum chassis, tubes, transformers, capacitors, resistors, antenna changeover relay, meter, wire, hardware and coils included, but final tank coil for one band only. Electro-Voice 915 high level crystal microphone part of the package. Plug in the crystal and line cord and you're on the air. Shpg. Wt. 180 Lbs.....Only **$179.50**

TR-75 TRANSMITTER KIT

Loafing along at 75 watts this is the c.w. man's buy of the year. Simple enough for the beginner to assemble. Punched chassis. Uses the time proven 6L6 oscillator-807 amplifier combination. Pi-network output. Husky power supply delivers 600 volts to the 807. Complete . . . including a punched chassis and a smartly shielded cabinet to minimize television interference. Unbelievably low priced at **$34.95**

Shpg. Wt. 80 Lbs.

NEW TR-75-TV KIT. Same as TR-75 above, but TVI proofed on all bands. Has built-in TVT-62 filter, also brute force line filter with specially devised RF bypassing of osc. and 807 stage. Has new 3" square meter. Plate transformer and all a.c. lines electrostatically shielded. Shpg. Wt. 90 lbs.
Complete kit.....Only $49.95

MD-40 40-watt modulator....$29.95

MD-40P Same with built-in power supply **$39.95**

MD-100 MEDIUM POWER MODULATOR

100 watts of audio ending in two 807's. Includes E-V 915 mike. Shpg. Wt. 35 lbs.
Kit form $44.95

ELECTRONIC BUG

Similar to one described in Jan. 50, QST. Automatic dots and dashes, individual control of speed ratio and spacing. Permits you to set your own swing or characteristic of sending. Has built-in Johnson automatic key. Shp. Wt. 6 lbs.

EE1 Kit form $21.95

Wired and tested ..$27.95

EE2 Same as above but with integral keying monitor.

Kit form $29.95

Wired and tested ..$39.95

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HARVEY RADIO COMPANY, INC.

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are pleased to announce that EUR has been appointed EC and, according to ESR, Smitty will be responsible for the Glendale/Pasadena AEC, to be known as the Crown Jewel Area. EUR was Assistant EC at the Red Cross station, HGV. Your coöperation with Smitty in this capacity will be appreciated. After months of trouble, AAE had to send his receiver to the factory. Since AM worked a KZ5 on 'phone, perhaps he won't be among those working all but one section in the next 'phone Sweepstakes. ASW has a new four-element beam on 28 Mc. We are happy to report that BES has taken a serious view of the CD Contest. BHG, with his new 32V-1, had to drop out of the Long Beach net because of Daylight Saving Time. IGE is on 28 Mc. The following now have Class A licenses: CND, EBR, FZO, and GAE. CUF received appointment as OO and now is WAC on 7 and 14 Mc. and WAS. DLR had one of those rare but precious vacations consisting of rebuilding his main transmitter. FMG made BPL for the first time. IWD is the most recent addition to the amateur ranks in Paso Robles. His first QSO was with 1VZ, who received his license on the same day as IWD. PGX visited the Paso Robles Radio Club. GTE attended the Fresno Hamfest. GYH is handling trans-Pacific traffic. LDR reports that the Southern California Net still needs more Los Angeles members. A published letter to the editor of the *Los Angeles Times* from a frustrated TV viewer slamming ham radio for TVI brought such a deluge of rebuttals from amateurs and non-amateurs that your SCM found further action unnecessary. Orchids to all who participated, especially to GTE, whose letter was in language easily understood by all. VIM and ESR attended the Two Meters and Down Radio Club and enjoyed being guests at the Golden State Net's monthly dinner at Pierre's. EBR was guest speaker at the Two Meters and Down Club. The Golden State Net announced new officers as follows: KEI, Net Control; SCQ, Alternate; and TFC, secy.-treas. Amateurs active on 50 Mc. are ANN, BWG, DSO, EBI, FGS, FPV, MVK, NAT, OB, SGS, and TMI. ZL/6 held a successful radio expedition in the Santa Rose Mountains with HZ, WKO, ZRU, and K6BE. ANT has a kw. on 3.85-Mc. 'phone. QLM is back on the air with the Mission Trail Net. DSO has a 50-Mc. beam. DQO's BC-454 still is a hot receiver after conversion to 28 Mc. CSS reduced the possibility of smashed fenders by placing his mobile converter in plain sight. When HX recently moved to Van Nuys he had the problem of removing an 80-ft. tower supporting a four-element wide-spaced 14-28-Mc. beam. HBY is on 7 Mc. with a Command transmitter. MJ is on 7 Mc. with p.p. T55s. CTS has a new 144-Mc. sixteen-element beam on a 40-ft. tower. GHX has a new converter. VAQ joined the Long Beach Club. VIM visited IOX. CYI had six men and a boy to help him set a "toothpick" size telephone pole at his new location. ISQ received an ORS appointment. Traffic: (May) W6CE 2346, DDE 685, GYH 412, CMN 411, LDR 387, YLZ 230, ANT 191, FMG 121, BHG 77, JQB 48, CUF 39, DBY 38, MU 32, FYW 26, TFC 14, COZ 13, DGA 9, AM 6, CYI 6, K6NRI/6 4, W6ASW 2. (April) W6YLZ 655, DDE 529, JQB 62, FMG 32, BHG 29, DLR 22, CUF 18, BES 12, K6NRI/6 1.

ARIZONA — SCM, Jim Kennedy, W7MID — Congratulations to the Old Pueblo Club on becoming an affiliated club. MOW is on 50 Mc.; his first contact was with PY2CK. LVR and LQB worked Finland on 14-Mc. c.w. JMT does his usual nice job of handling traffic from Y Camp. The Tucson gang had a unique c.w. party with multipliers based on code speed. Interest in c.w. increases sharply as this area gets changed to Class B area. NFL gives code practice on 27 Mc. QJL handles 'phone patch traffic from Kwaj. MAL has new supermodulated rig with p.p. 4E27s. MTZ got hitched; QNO plans the same maneuver. OLB is heard working ZLs with his 2E26 final. UDI, MAE, and BH are holding down the traffic situation in the Valley. NAP moved into new home. LBN got his degree from Tempe. JYZ is heard on 14-Mc. c.w. working a ZS.

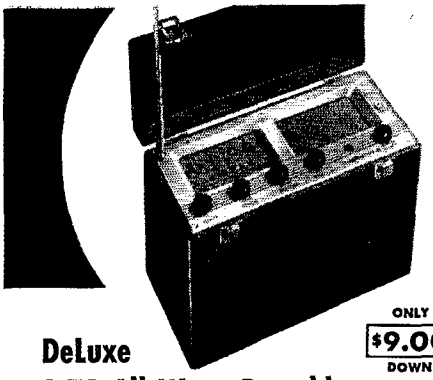
SAN DIEGO — SCM, Dale S. Bose, W6BWO — Traffic: W6YYN 128, ELQ 127, MI 72, BGF 61, AD 21, BAM 6, BWO 5, FCT 4.

WEST GULF DIVISION

NORTHERN TEXAS — SCM, Joe G. Buch, W5CDU — DXR, 1FY, and HGU have their QSOs while en route to work using 3.85-Mc. mobile units. DXR has worked both coasts with the mobile unit. PZA, on a trip to the northern part of the country, is maintaining schedules with the locals using his 7-Mc. mobile rig. JQY is working 14 Mc. most of the time. IGU, PPS, and DZ have signed up to assist with OO work. LHW and the Odessa gang have been whipping together an emergency organization with auxiliary nets working 7170 kc. and 29.3 Mc. Drills are held each Tuesday night. Since grass-mowing QRMs activity, BKH is considering a lawn mower mobile unit. ROH is a new ham in Big Spring and is working 7 Mc. AW reports plenty of antenna casualties because of high winds in the Big Spring Area. Happy memories — 5CDU and 9TT recently QSOed on 7 Mc. The unusual part is that the previous contact was in 1922 under the calls 9CEB and 9APK and was a spark/c.w. QSO. NSN reports his activity is limited for the present. RMZ is a new call in Dallas and is working 7 Mc. AWR is

(*Continued on page 74*)

it's ALLIED for hallicrafters!



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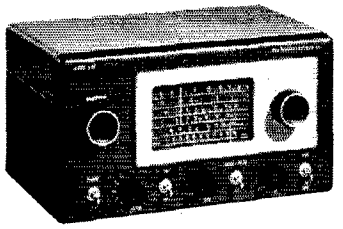

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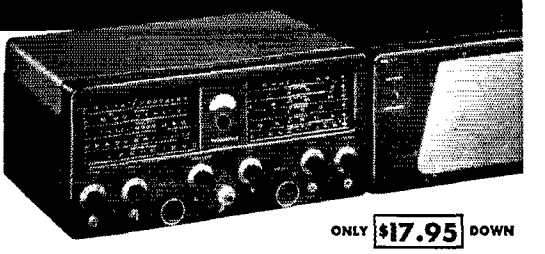

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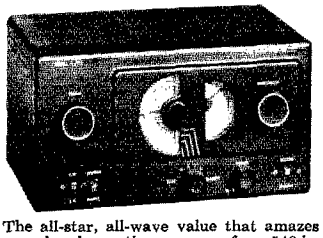

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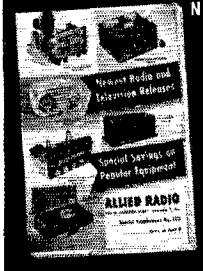

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keeping Sulphur Springs on the map. ARK is doing a nice job as NCS for NTX c.w. and BKH is proud of his supporters on the Sunday A.M. EC c.w. net. AAK is moving to Boston. FQT and QJY are in the process of organizing an active 160-meter EC net. JDZ and FZB represent Coleman on 3.85-Mc. 'phone. NW now is ARRL vice-president and BHO, of Houston, takes over as Director for the West Gulf Division. Traffic: W5GZU 461, ARK 201, BKH 102, NSN 14, IGU 8, ASA 5.

OKLAHOMA — SCM, Frank E. Fisher, W5AHT/AST — SEC: AGM. RM: OWV. PAM: ATJ. KFN is after WAS on 7 Mc. GVV and BDX are chasing harmonics around 7 Mc. NGE has a folded dipole and is looking for DX on 14 Mc. EZK is back on 7 Mc. after a move. MFX received WAS certificate. GVV reports four 3.85-Mc. mobile jobs being added to the Enid AEC. The list of counties organized for AEC continues to grow, thanks to AGM's persistent effort. Claude has arranged for passes to be issued to AEC members providing passage through State Police lines in emergency. We now have ten counties set up with a total of 98 members. Let's keep going and make our AEC as near 100 per cent as possible. The drive made by the Tulsa AEC resulted in a 30 per cent increase in membership. OYP is building a modulator for 28-Mc. 'phone. OQD has a jr. operator, born May 21st. GPD is fighting TVI. FOG has been busy eliminating haywire used in setting up in his present location. MBV is making final preparations for his move to W3-Land. IOW is leaving his b.c. station job to concentrate on his service business. Fred says he will have more time for OLZ by this move. Both OLZ and the 'phone net will continue operation throughout the summer. Net members are urged to make as regular attendance as possible. Net sessions will be short and members will be excused within 30 minutes if not needed. K5WAH and K5NRJ make BPL this month. Traffic: K5WAH 727, K5NRJ 606, W5FOM 306, OYP 198, OQD 189, AHT 122, FMF 34, EHC 16, ADB 7.

SOUTHERN TEXAS — SCM, Ammon O. Young, W5BDI — MN is building an isolation transformer. ACI is on in the mornings only until his rig can be made TVI-proof. The Port Arthur Radio Club has organized an emergency net to operate on 29.1 Mc. BUZ and DEW had a fire which damaged their home. DAA is on 3.85 and 144 Mc. LGL has moved to new QTH. DAA and JKB assisted the Red Cross by providing communication when the tornado hit south of Kingsville on May 15th. The Kingsville Radio Club has been issued the call FNL and will be located at Red Cross Headquarters in the County Courthouse. Activity will be on 3.5- and 7-Mc. c.w. PBX has a new shielded ham shack. IGJ is rebuilding. EZE is on 160- and 75-meter 'phone and 20-meter c.w. NNY is on 14- and 28-Mc. 'phone and c.w. IX still is on 28 Mc. IYR has a kw. on 14-Mc. 'phone. LXY and OFM are on 14-Mc. c.w. and 'phone. JWM now is located in Odessa. Traffic: W5MN 947.

NEW MEXICO — SCM, Lawrence R. Walsh, W5SMA — SEC: BYX. PAM: BIW. PAM v.h.f.: FAG. RM: ZU. The Sandia Radio Club elected the following officers: MSG, pres.; JXD, vice-pres.; and FVG, secy. The Messilla Valley Radio Club has 11 members enrolled in code classes. The Sandia Club's Field Day site was at Pine Flat, the Messilla Valley Radio Club was at Messilla Dam, the Los Alamos Club was set up on a mesa just north of Los Alamos, and the Hot Springs gang was at FAG's QTH. The Albuquerque Radio Club has been revitalized and reorganized. RMU and RPL are on 28-Mc. 'phone. QGL is on 28 Mc. with 5 watts. PLK received his Class A ticket and is driving a 300-watt final with a Collins 310-B using a "Vee" beam on all bands. MYP, QAG, and EWU visited FAG at Socorro. As a result of this visit the following 144-Mc. schedule was decided upon: Tues., 7:00–7:05 P.M., Albuquerque to transmit south; 7:05–7:10 P.M., Socorro to transmit north; 7:10–7:15 P.M., Albuquerque to transmit south; 7:15–7:20 P.M., Socorro to transmit north; 7:20–7:25 P.M., Socorro to monitor to the south; 7:25–7:30 P.M., Socorro to transmit to the south. LFR has a five-element beam on 144 Mc. OAI has his transmitter on 144 Mc. Traffic: W5ZU 81, MYM 42, SMA 4, KAO 2.

CANADA
MARITIME DIVISION

MARITIME — SCM, A. M. Crowell, VE1DQ — SEC: FQ. FQ handled some Winnipeg flood relief traffic in addition to his "northern schedules." Increased activity in the Halifax Area is noticed on 3.8-Mc. 'phone. NN has been doing some mobile work on 3.8-Mc. 'phone. DB has been putting in a lot of time on 14-Mc. DX. DQ has the 3.8-Mc. 'phone rig going week ends from the summer QTH while still rebuilding the "big rig." We hear that IE has WACed on 3.8-Mc. 'phone. BW is back on 3.8-Mc. 'phone after some time DXing on 28 and 14 Mc. LZ has been quite active with the new "all-band" rig, mostly on 3.8-Mc. 'phone. BB and his XYL, UZ, have been quite active from Shediac. GL just got set in the new QTH at Dartmouth and announces he has to move again. Some choice ones recently reported snagged by DB on 14-Mc. c.w. include HZ1AB,

(*Continued on page 76*)

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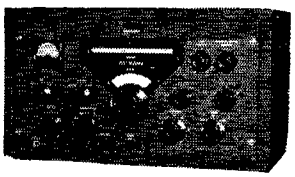

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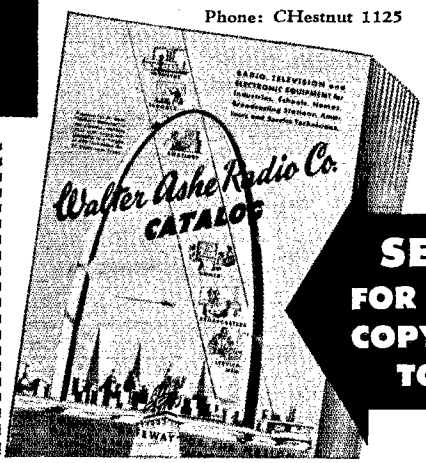

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CP1AP, and CR4AE. A recent visitor to Halifax was VE3ALK, ex-VE1JM, who motored down from Ottawa. BC still is putting out a swell low-power 'phone signal on 3.8 Mc. DC was reported recently in Halifax on a visit. Say, are you looking for a long-awaited card from that new country? Send in your large stamped envelope to QSL Manager FQ. Traffic: VE1MK 12, DB 3, FQ 3.

ONTARIO DIVISION

ONTARIO — SCM, Thomas Hunter, jr., VE3CP — Asst. SCM c.w., W. Guillott, 3BUR. Asst. SCM 'phone, E. Kimble, 3FQ. SEC: KM. RMs: ATR, AWE, BMG, BUR, DU, GI, IA, TM, WK, and WY. PAMs: BSA, FQ, and DF. New appointments include CY as EC for Kitchener, WY as RM, QE as OPS, and BL as ORS. DIF is a newcomer to Oshawa, DEF is new in Hamilton, and both are after EC appointments. EAT, AYY, HP, AAZ, ADB, and AQC, along with several of the gang from Windsor, were seen at the Great Lakes Convention. RU has been suggested for OPS appointment. EAA has new 300-watt rig. The Northern Ontario Net now is the Northern Squadron of AFARS. ADB is having trouble with squirrels chewing on the rope of his 3.5-Mc. antennas. FT now is located in Toronto. DDQ is a newcomer to 3.5 Mc. from Hamilton. BTE now has WAVE. BNQ now has 124 countries on 28 Mc. DBJ is active on 7 Mc. from Creighton Mines. OH, AUN, CP, and BER were kept busy on 14-Mc. 'phone with Winnipeg traffic. The Ontario 'Phone Net and the AFARS also did a swell job on 3.85 Mc. with Winnipeg traffic. WO, ex-2TH, now is doing an FB job on *Skywire* from Toronto. The Toronto and Windsor gang received FB write-ups on the Winnipeg Flood from the *Globe* and *Mail* and the *Windsor Star*. Congrats to IA, who made BPL again with an FB total and really deserves the nomination for SCM. The traffic totals were very good for May but only about half the reports were received this month. Traffic: (May) VE3IA 692, BUR 134, ATR 89, WK 73, CP 70, BBM 68, GI 60, ADN 46, BVR 23, AUN 18, WY 10, DBJ 8, VD 8, BNQ 6. (April) VE3ASL 26.

QUEBEC DIVISION

QUEBEC — SCM, Gordon A. Lynn, VE2GL — ALF is new on 7 Mc. with 809 at 150 watts and NC2-40D receiver. AML also is new on 3.5-Mc. c.w. with Collins 32V and S-40 receiver. CA handled considerable emergency traffic from the flood area at Winnipeg, with Phyllis doing about 90 per cent of the work. She also maintains a schedule every second day with VE8SM on Resolution Island. SD reports that the Hull gang have formed a new club. On May 24th they participated in a Boy Scout scheme, handling over 100 messages with TT, SD, AJR, and IZ taking part, assisted by VE3PY and VE3BPT. AOH and AON are newcomers in Grand Mere. EC schedules AKJ, AEM, RM, AKF, ZT, and EV on 3.8 Mc., 'phone and c.w. and reports that the 2-meter net in the St. Maurice Valley continues active. LO reports regular schedules with the boys up at Fort Chimo, in addition to the PQN and the Maritime 40-meter net. AKG is new at St. Felix de Valois. QN reports that the QEN is going fine with one drill and two meetings each month. BB has Q5-er in front of the receiver and schedules the SSN, QON, ESN, and BTN. ADV has 811 at 150 watts on 3.8-Mc. 'phone. ADY has an 813, all bands. EZ has 1155 receiver with a 6L6 on 3.5 and 7 Mc. ZF handled Winnipeg emergency traffic and traffic for Baird Expedition in Arctic. IS has 12 watts on 3.8-Mc. 'phone. XX has 1000-ft. long wire antenna. WA is on 14-Mc. c.w. and 'phone. ACM also is on 14-Mc. 'phone and c.w. with 300 watts. Traffic: (May) VE2ZF 147, CA 47, EC 29, QN 6. (April) VE2BB 132, LO 103, XR 60.

VANALTA DIVISION

ALBERTA — SCM, Sydney T. Jones, VE6MJ — SEC: M.J. May was a busy month for most of the gang in Alberta. Some real worth-while traffic-handling was done by the Alberta 'Phone Net in connection with the recent Winnipeg Flood disaster. NB says the jr. operator is doing FB. TH is Assistant EC in the Coronation Area. PV and VJ are reported to have moved into new QTH and should be active soon. VJ has successfully passed the 'phone exam. IW is visitor at Drumheller. OC now is operating from Himes Creek. MA and the Lethbridge gang are very busy publishing new RF paper. EA has been appointed EC for the Edmonton area, and PP as EC for the Lac La Biche area. DN is reported to QRL for some time owing to some difficulties. DF is real busy with hamfest plans. MJ snagged some DX on 14 Mc. EH has a fancy new antenna on his new Hillman and plans high-power mobile. ZW has moved to Vancouver. BN handled bags of traffic at the Air Force traffic center. CE is going to have some opposition in the operating field now — his XYL has her own ticket and call, YG. PE claims good results from new preselector. UT and BY had new rig for Field Day. Traffic: VE6NA 538, OD 216, 1K 137, MJ 24, NB 8.

BRITISH COLUMBIA — SCM, Ernest Savage, VE7FB — The 75-meter mobiles are blossoming out all over British

(*Continued on page 78*)

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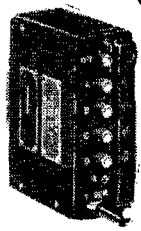

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	800—800	600					
P 67	1450—1450	1200	300	5¾	6⅛	4	19.84
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Columbia. OT checks in from Vancouver Island, AKD from Penticton, MU from Kelowna and many others are heard still in their back yards. The VARC held its Third Annual Tube Hunt. ZT paid Vancouver a visit. AOK has his WAS for 7-Mc. c.w., 50 watts and eighteen months pleasure. II was in Vancouver on his holidays. Victoria Short Wave Club officers are PO, pres.; MU, vice-pres.; DY, director. Charlie, our long-time SWL, now is ACM. Also 12-year-old Nita now is AYL. Our SEC and ECs have spent many hours visiting and talking to civic officials and others and if floods or trouble appear there is assurance of good communications in all areas. Let your EC know what equipment you have or what you can do. AKG reported in from Prince Rupert. Traffic: VE7TF 253, AOQ 125, AIC 21, FB 15.

PRAIRIE DIVISION

MANITOBA — SCM, A. W. Morley, VE4AM — There was no report last month and I think you all know why. As I write this one, the Red River still is two feet above flood level. Most places have dried up but some still are under. A lot of hurried organization was done and fortunately it worked. There are some spots to be changed and these changes will be made. In Winnipeg you have a new EC, RP. Rudy was appointed just before the flood started. He is willing and if you fellows get behind him there is no reason why Winnipeg can't have an AEC group as good as any in Canada. Remember amateur radio is an international organization and everyone must cooperate. During the flood we had the opportunity of meeting several out-of-town hams. I'm sorry we couldn't spend more time with you but you were all here in connection with the emergency and were as busy as we were, so if we seemed a bit sharp with you please pardon us. One I must mention, though, is W4PHL, the Director of Communications of the American Red Cross. Rick enlightened us on many things. To all who helped make traffic-handling so easy, many thanks. I'm sorry we couldn't use all the help which was graciously offered.

SASKATCHEWAN — SCM, J. H. Goodridge, VE5DW — SEC: SE. PAM: MA. RM: HR. The highlight of May station activity was the participation of the Saskatchewan 'phone net in passing a large volume of traffic in connection with the Winnipeg flood. JI, assisted by his XYL, IJ, and MA lost considerable sleep doing an FB job relaying traffic. JI, IC, and MA made BPL. SE was kept busy controlling the net during a good portion of the crisis. The SARC placed its club station on the air and it was manned by UC, GH, LT, HR, AJ, MD, OB, JF, CJ, AN, FY, GR, DR, EE, and JC. Among those present at the Assinaboine Valley Radio Club Hamfest were JI, IJ, MA, HS, UO, LY, HL, TE, CI, RD, RP, DB, and EH. The VE4s won the ball game. MA won first prize for the most versatile mobile rig. JI won the prize for the hidden transmitter hunt. MA succeeded IC as PAM June 1st. RM is EC for Moose Jaw, and BZ for the Rosetown Area. DN and DW attended the Moose Jaw Club meeting. EK has new jr. operator. Bob Paul, secretary of the PA Club, now is MQ. The PA gang went to Kinistino for Field Day. Traffic: VE5MA 843, JI 719, IC 323, AA 251, SE 194, DN 43, EE 18, DW 3.

HAMS AT HEADQUARTERS
W1AW, ARRL Headquarters Station

The following calls and personal sines belong to members of the Headquarters gang:

W1BAW	R. T. Beaudin, "rb"
W1BDI	F. E. Handy, "fh"
W1BUD	A. L. Budlong, "bud"
W1CEG	H. M. McKean, "mac"
W1DF	George Grammer, "gg"
W1DJV	Harry Paston, "hp"
W1DX	Byron Goodman, "by"
W1FTX	R. M. Smith, "rs"
W1FWH	W. E. Bradley, "wb"
W1GS	F. C. Beekley, "beek"
W1HDQ	E. P. Tilton, "ed"
W1ICP	L. G. McCoy, "lew"
W1IKE	Richard L. Baldwin, "ike"
W1JEQ	C. V. Chambers, "ve"
W1JMY	J. A. Moskey, "joe"
W1LVQ	John Huntoon, "jh"
W1MFA	H. K. Isham, "hk"
W1NJM	George Hart, "geo"
W1QIS	Murray Powell, "mp"
W1QVF	T. F. McMullen, jr., "fm"
W1RWS	John E. Cann, "jc"
W1RXL	R. E. Morrison, "lr"
W1TS	D. H. Mix, "don"
W1VG	L. A. Morrow, "pete"

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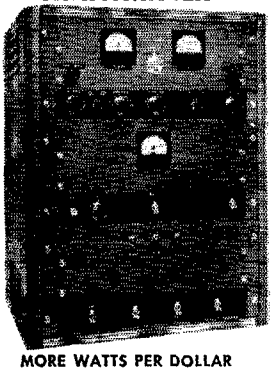

MORE WATTS PER DOLLAR

Efficient performance on all bands—10 to 160 on phone and CW. 350 watts phone—400 watts CW. Provisions for ECO. Complete with tubes, meters, and one set of coils.

KIT FORM $379.45 WIRED-TESTED $399.45

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FREE

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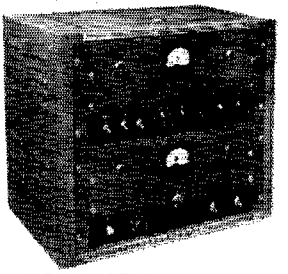

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R.F. Section a complete 175 watt XMTR. Provisions for ECO. Automatic fixed bias on Final and Buffer. Class B Speech Modulator. 175 watt input —10 thru 160 meter bands. Complete with tubes, meters, and 1 set of coils.

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Address_____

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Results on 420 Mc.

(*Continued from page 15*)

tubes are used. Someone has said that if we really need a thing we pay for it whether we buy it or not!

The various lighthouse tubes, the new 5675 "pencil" triodes, and the 4X150A power tetrodes are all being put to good use on 420 Mc. by enterprising amateurs. We hope to be presenting details of their work soon in *QST*.

Two-Control Transmitter

(*Continued from page 28*)

bolted to the left wall. The compact placement of these components is done in the interest of isolation between the low-frequency and the transmitter circuits.

Wiring of the transmitter presents no unusual problems but it is advisable to group as closely as possible the components for any one particular section of the rig. Disc-type by-pass capacitors should be used as recommended because of the short leads made possible by their small physical size. Use of shielded wire for all leads carrying other than r.f. will provide additional r.f. bypassing and help to reduce TVI.

(NOTE: *Part II of this article will appear in a subsequent issue.*)

Armed Forces Day Results

(*Continued from page 29*)

W9WIO	21-15-3	W2KVG	11-11-0
WØMYB	21-11-1	W6DVD	9- 5-2
W4IQR	21- 5-4	W2PF	9- 9-0
W1AW[34]	21- 3-5	W7MID	9- 5-2
W8AL**	20-13-3	W2ESM**	8- 6-0
W5HFB	18- 8-1	W2VL	7- 7-0
W9IML	18- 8-1	W7VO	7- 3-2
W4NTR[35]	17-17-0	W6IXH	6- 6-0
W3QS	15-15-0	KH6CD	6- 6-0
W2AHN	15-13-1	W1AHN	5- 5-0
W1BDV	15- 5-1	W6FYW	5- 5-0
W2PHO	14- 8-3	W2VDL	5- 5-0
W8DSE	14- 2-2	W6ISX	3- 3-0
W8DNB	14- 6-4	W8IAM	3- 3-0
W2VYB	14-12-1	W1HC	3- 3-0
W3MSU	12-10-1	W5QWK	3- 3-0
W2LGK	12-12-0	W2TUK	1- 1-0
W4EDA	11- 7-2	WØNIY	1- 1-0

Receiving Competition Winners

The following have received Certificates of Merit signed by the Secretary of Defense, the Honorable Louis Johnson, attesting to their proficiency in copying a 25-w.p.m. Armed Forces Day "Greeting to Amateurs."

*W1*AMQ, BB, BDI, IIB, OKX, QJM, QMJ, RFW, RYZ, SRM.

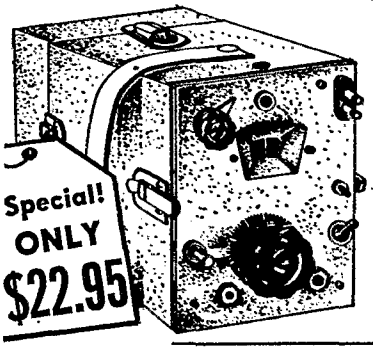
*W2*ALZ, ARO, AYG, BZJ, CJI, CLL, CSQ, DRV, ELR, GFG, HAZ, HJX, KHA, KVG, LCK, LEL, OBU, OCW, PFB, QHB, RSE, VWK, WCE, WH, WVC, WVE, ZI, *K2*CC.

*W3*ADE, CLY, DXK, EC, ECP, KGQ, KIP, LYN, MCG, OFU, OKS, PWI, QAC, QCB, QEU, ZJ.

*W4*FXG, IZG, KJ, MLH, NTR, ODA, OXX, PEC, PHM, SR.

(*Continued on page 82*)

ONLY THE RADIO SHACK HAS C-2 DIRECT-READING HETERODYNE FREQ-METERS TO SELL FOR $22.95!



- **BRAND NEW ARMY SURPLUS, EASILY WORTH $100!**
- **COMPACT, PORTABLE, ACCURATE TO .05%!**

ONLY 20 LEFT for the first 20 Hams who recognize this as one of the few classic bargains left on the shrinking surplus market. FEATURES: direct reading to within 1000 cycles, estimate to 250 cycles, no calibration book necessary! Fundamental range 5-10 mc, permits use with gear to 150 mc.! Five tubes; economical 1000 hour battery life! Built-in 1 meg crystal and 100 kc multivibrator INSURING ACCURACY OF .05% OR BETTER! Useful output of RF averages 25,000 microvolts over fundamental range! Audio output of 30 milliwatts at 500 cps when beating with 1 volt signal! In calibrate position, audio output varies from 4 milliwatts at 5 mc to .25 milliwatts at 10 mc! Compact, portable; leather carrying strap and cover included. Shipping weight 30 lbs. Only $22.95.

BC-406 MAKES A HOT 2, 5, 10-METER RECEIVER! ORIGINAL COST $292.00 — YOUR COST $11.95!

LOWEST PRICE EVER, and only two dozen left. CQ magazine for Feb., 1946, gives complete story and schematics for conversion to a sizzling-hot 15 tube 2-5-10-meter rcvr. 115/1/60 operation. Consists of 2 RF stages, 4 IF stages. IF frequency 19.5 mc. Unit now tunes 202-208 mc. Power supply alone is worth the price we ask for the entire BC-406 — 350-0-350 @ 150 mil xformer, four 8-henry @ 150 mil chokes, with four Tobe 8-8 plug-in oil condensers. Complete with all 15 tubes; in excellent condition. Heavy metal cabinet 25" x 11" x 8". Net weight 100 lbs.

CALL-LETTER TIE CLASP ONLY $1.15 EACH

Radio Shack is FIRST in the U.S. to bring you these novel and smart-looking clasps. Made of Durachrome-finished metal; your choice of background color — black, blue, light blue, green, yellow, orange, or red. Perfect for hams, broadcast stations, etc. You're allowed up to 7 letters or numbers at no extra cost — use a name instead of station if desired. IMPORTANT: state background color and call letters (or other message) when ordering. Only $1.75 each. QUANTITY PRICES (same letters and same background color) — lots of 10-24, $1.50 each; lots of 25-49, $1.35 each.

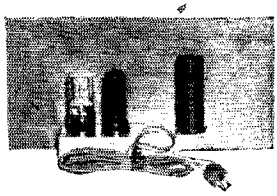
$100.00* HEAVY DUTY Power Xformer

115/1/60 input

ONLY $18.95

BRAND NEW, NOT SURPLUS! *Has an approximate list price of $100, so our price represents a phenomenal bargain. Specifications: 1750-0-1750 AC at 550 ma (ICAS); size 6¾x8x7½"; net weight 37 lbs. In battleship gray enamelled potted metal case with porcelain high voltage terminals. Conservatively rated, it will handle much larger than stated capacities. Mounts upright or inverted.

RCA CV-42 AC/DC POWER SUPPLY NOW ONLY $1.85

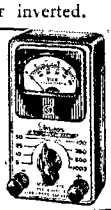


REGULARLY $4.95, and brand new! Scores of handy uses: as BATTERY ELIMINATOR for portable radios — ideal for electrifying RCA battery sets 25BK, 25BT2, 25BT3, 55F, Radiola 66-1, and other makes as well! Excellent B-SUPPLY for phone preamps. A-B SUPPLY for radio kits, FIELD EXCITER for electrodynamic speakers, BIAS SUPPLY for ham xmtrs, POWER SUPPLY for audio amplifiers and kits. Includes 35Z5GT rect. with DC filter system and dual ballast tube (both RCA tubes), mounted on 6¾ x 1¼ x 2" cadmium-plated chassis. A-supply of 8-9 volts @ 50 mils. B-supply 100 volts @ 10-15 mils (increase to 100 mils by 36-ohm 2W resistor shunting pins 2 and 3 of 35Z5GT). 105-120 volts.

1-METER-PLUS UHF XMTR/RCVR, ONLY $1.95

GOVERNMENT PAID $45 for this one! Makes precision citizen's band freq-meter, UHF hi-stability converter oscillator. Buy 2 and use as TV and FM wobbulator. Contains hold-plated resonator, two 955 tubes, antenna, 9½x6¾x6½" aluminum with compartment big enough to take an AC supply. Carrying handle; canvas carrying bag. Frequency range 234-258 mc. Net wt. 10 lbs. We include data for converting to citizen's band (460-470 mc) freq-meter.

SIMPSON ~~$29.~~ #284 MICRO-AMMETER $7.95



BRAND NEW, LIMITED QUANTITY. Excellent for photocell work, labs, schools, hams. Embodies basic movement for 50 microamps sensitivity with self-contained shunts. Can be used with external resistors for high-sensitivity voltmeter at 20,000 ohms/volt. Switch "short" position removes meter from circuit. Ranges 0-50/100/250/1000; 3% accurate.

AND REMEMBER: Radio Shack Corp. stocks complete lines of — Collins, National, Hallicrafters, Millen, Hammarlund, McMurdo Silver, Johnson, Stancor, Meissner, Lysco, Harvey Wells equipment. Write for our 152-catalog.

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WØAIR, ASO, BBL, BHA, DJE, EA, FID, FTJ, MYB, QVA, TDH.

AE3US, KG4AK, KG6DI, KH6FX, KH6LE, KP4IQ, KP4KD, KZ5PA, VE6RX.

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QRRR Winnipeg

(Continued from page 83)

The Alberta AEC was also alerted, and although far removed from the actual flood area the gang did some valuable work in the relaying of personal emergency traffic in and out of the disaster area. Traffic east was handled through the Saskatchewan Emergency Net, and traffic west was ably taken care of by the Kootenay and Okanagan gang. The Calgary organization under VE6TK and the Medicine Hat gang under VE6NA received particular words of praise from SCM VE6MJ, who says "It is difficult to estimate the tremendous boost that has been given amateur radio in the eyes of the general public as a result of this fine effort on the part of Canada's radio amateurs." Some of those who took part were VE6s AC, AO, DK, EO, ES, FK, IK, IY, JH, JJ, JV, KX, LX, MJ, NA, NF, OD, OE, OM, TK, TM, VA, WG, YM, ZL.

More than 200 amateurs took part in the Winnipeg disaster, with a great many more available and waiting to assist if needed. In addition, unlicensed individuals and XYLs helped in various ways (especially Mrs. VE4RO and Mrs. VE4SR in the commissary department) to lessen the burden on the operating personnel. The lessons learned during the three weeks or more during which the emergency existed will add to the awareness and preparedness of our Canadian brothers for emergency work. A great many thanks are also in order to those amateurs who sent in reports of the part they or their

(Continued on page 84)

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CRYSTALS Low Freq.

FT-241A holder ½" pin spacing, for ham and general use. Xtal controlled Signal Generators, marked in army Mc harmonic frequencies—Directions for deriving fundamental frequencies enclosed. Listed below by fundamental frequency, fractions omitted.

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49¢ each
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393 404
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395 408
396 409
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Frequency Standard 98.356 kc 3-pr.holder
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SPECIAL 200kc Xtals without holders. 21–32" x 23–32".
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HAM CRYSTALS

FT-243 holders, ½" pin spacing, for ham and experimental use. Fractions omitted.

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5030 6773 7973 8306
5485 6840 8240
6006 6873
6040 6906
6073 6973
6075 7740
6100 7773
6106 7806
6140 7840
6173 7873
each
49¢
10 for $4.50

3735 5850 6425 6806 7540
5305 5873 6440 7306 7573
5677 5875 6450 7340 7640
5700 5900 6473 7373 7673
5706 5906 6475 7406 7706
5740 5925 6506 7440 7806
5750 5940 6540 7473 8173
5760 5973 6573 7506 8340
5773 5975 6606
5775 6273 6640
5806 6340 6673
5825 6373 6706
5840 6406 6740
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6470
6407.9
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20x20	150		
200	25	2.65	1.06
20x20x20	150		
20	25	2.85	1.14
30x20	150		
20	25	2.20	.88
40x20	150		
20	25	2.30	1.02
40x30	150		
20	25	2.35	.94
40x40	150		
20	25	2.40	.96

In lots of 50 ass't additional 10% discount

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All new, boxed, below cost, new shipment just arrived.

.500 Spac. Cap. Per Sec.		.375 Spac. Cap. Per Sec.		.250 Spac. Cap. Per Sec.	
77	$19.20	11	$ 8.15	13	$ 7.95
87	20.65	45	12.90	62	12.55
96	22.15	58	14.35	78	13.95
105	23.80	70	15.90	95	15.40
115	25.20	82	17.20	111	16.80
124	26.65	106	20.15	127	18.25
		118	21.60	143	19.85
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ATTENTION HAMS!

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VOLTS	2-INCH	3-INCH
600	**$2.95**	**$3.95**
1000	**3.49**	**4.49**
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Ham Transformers, Peerless (Altec Lansing) new, not surplus, priced below cost.

Modulation Trans.—300 w. Universal No. M-2107T. List $70.00—only.....**$28.00**

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NEW—$1.95

VERY GOOD CONDITION — **$1.49**

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Brand new servo amplifier containing two beam power output tubes (1632) two twin triodes (1632 and 1634) two mica condensers, dozens of color coded half watt resistors, two dual and four section bathtub condensers, three transformers, two wafer switches, one volume control, four octal sockets. With schematic..... **$3.95**

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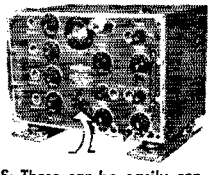
BENDIX 100 WATT TRANSMITTER

Only this switch used to change 10-20-40-80 meter bands



FOUR SEPARATE ELECTRONIC COUPLED OSCILLATORS: These can be easily converted to 20-40-80 meters. Crystal required for 10 meters. Each electronic coupled oscillator dial has 3000 divisions enabling quick precision shifting. This transmitter was constructed of the highest quality of precision parts, with laboratory precision. Four separate output tanks; one 4 position selector channel switch having seven sections which changes the ECO, IPA and output tanks simultaneously. All the controls are mounted on the front panel. The housing is cast aluminum; shields and case are sheet aluminum. Dimensions 11 x 12 x 15 inches, weighing 35½ lbs. Complete, simple instructions for conversion furnished. Uses three 807, four 12SK7 tubes; one 2 inch 5 amp. R.F. meter. A complete coverage transmitter, for the new or experienced amateur. A True Ham Value—complete with tubes.

ORIGINALLY $49.94 — Now Only

LIKE NEW	USED
$29.95	$19.95

SUN RADIO

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CQ DE W3PPQ

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organizations played in the emergency, especially VE4AM and VE4VK who were responsible for the greatest amount of information contained herein.

This report would not be complete without the addition of the calls of amateurs who were known to have participated, both in Canada and the United States, who have not thus far been mentioned. Since space does not permit a detailed account of their rôles, suffice it to say that the following, along with many others of whom we have not heard, are also deserving of the highest praise for their part in once again bringing sharply to public focus the value of the amateur in emergencies: WØs FIT, JWY; VE1s FQ, AW; VE2s CA, TA, UC, XP, ZF; VE3s AFH, AFZ, ANU, AUN, AUR, AYG, AZI, BER, BIS, BUR, CP, DDI, DDU, DFF, GO, HG, HO, LL, LZ, OH, PY, RI, RM, YJ, ZW; VE4s CD, IX, RM, RP; VE5EC; VE7s KL, OT, XV.

—*G.H.*

Converter for 144 Mc.

(*Continued from page 88*)

am also planning to install a mobile VFO to drive the Harvey Wells TBS-50 and, at that time, will put in a separate 24-volt SCR-274 transmitter dynamotor operating on only 12 volts to supply 250 volts for all three units. At present, I am robbing the car radio for power.

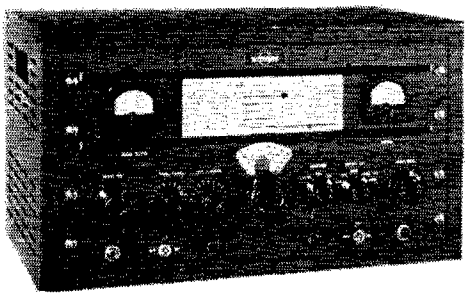
The antenna, a quarter-wave whip in the center of the car roof, is connected to the converter through RG-8/U 52-ohm coax and a change-over relay. The output of the converter feeds through RG-8/U to a 3-position switch in a shielded box. This switch selects either the car broadcast whip, the 10-meter whip on back or the output of the 2-meter converter, and feeds this to the 3-30 Gonset. An auxiliary switch shuts off the filaments in the 2-meter converter when it is not in use.

Conclusion

When checking coils by the method described earlier, it should be borne in mind that the interelectrode capacities change when the filaments are heated and also when the plate and screen voltages are applied. This change is an increase in capacity and may amount to several $\mu\mu$fd. This becomes important in the case of the r.f. grid coil which is tuned to 144 Mc. only by the input capacity of the 6AK5. When heater voltage was applied, the resonant frequency of the coil changed as much as several megacycles lower in frequency, and when plate and screen voltages were applied, it changed another few megacycles lower. The total change was between seven and eight megacycles. This change can be compensated for by a couple of revolutions of the slug screw in a direction to decrease the inductance. The main thing to watch out for when first checking the coils is that you have enough range on slugs to hit a maximum of 155 Mc. This is not too difficult as the r.f. grid coil easily tunes the range of 135-

(*Continued on page 86*)

THE DX SEASON IS COMING--
ARE YOU READY FOR IT?



Here's a transmitter in a class all by itself — nothing can compare with the many fine features of Hamdoms' favorite gear. Made by America's leading manufacturer of the finest broadcast, FM, and television transmitting equipment, the Collins 32V2 more than lives up to the reputation of the Collins name. Here is a rig that any ham can be proud to own and proud to boast of on the air! Listen around the bands — no one describes his Collins — he just mentions the name. That alone is sufficient to credit the source of that sharp, clean signal and clear, crisp modulation.

Collins has informed us that they anticipate no changes in the 32V2 for at least a year to come, so you can start enjoying yours *now*, and any possible price increase will enhance your already sound investmen

HARRISON HAS BRAND NEW, LATEST PRODUCTION, ORIGINAL FACTORY SEALED 32V2 TRANSMITTERS IN STOCK — FOR IMMEDIATE DELIVERY TO YOU! COMPLETE, LESS ONLY THE MIKE, KEY, AND ANTENNA, FOR A TOP VALUE INVESTMENT OF $575.00 ORDER YOURS TODAY.

Having long since placed substantial orders with the factory for the new Collins 75A2 receiver and the KW transmitter, *WE* can definitely give you the very earliest delivery! Your order, *NOW*, with a modest deposit, will bring you your new gear 'way ahead of those who procrastinate.

COLLINS 75A2 — $420.00 MATCHING SPEAKER — $20.00 COLLINS KW (appx.) $3000.00

P.S. — WE TRADE — AND HOW! IT WILL PAY YOU TO GET OUR HIGH ALLOWANCE FOR YOUR OLD GEAR. TELL US THE MAKE, MODEL; CONDITION AND APPEARANCE; ANY CIRCUIT CHANGES; AND ABOUT WHAT YOU WOULD LIKE TO GET FOR IT. YOU'LL GET OUR REPLY BY RETURN MAIL—WE'LL DO EVERYTHING POSSIBLE TO GET TOGETHER.

CHECK THESE HARRISON SPECIALS FOR BARGAINS YOU WON'T WANT TO PASS UP

WE GOT 'EM AGAIN — PE-103A DYNAMOTORS

These units are electrically new, but have been repainted due to storage rash. We had to poke around every nook and cranny of the States to find these — and at that, there aren't very many of them. They are on their bases, but the cables have been clipped off. It's first come, first served—while they last. (Be fair fellows, one to a customer—let the other fellow go mobile too.) ORDER YOURS NOW — (packed for shipment) — $13.95

LYSCO VFO TRANSMASTERS — IN STOCK

See our previous ads for details on this increasingly popular VFO-Transmitter, or write us today for full technical data. Also available are the Lysco Antenna Coupler—Model 50—$11.95 . . . The new, improved Lysco Dipmaster — Model DMR (AC-DC) — $33.50 . . . Lysco Mobile Converters for 10, 20, or 75—$32.50 with tubes —either model . . . Lysco Mobile Transmitters for 10 or 75 —either model, less tubes, $23.95

THERE'S STILL TIME TO GET THAT BEAM AND ROTATOR UP FOR FALL DX

HARRISON BEAM ROTATOR ASSEMBLY

Made from the preferred *small* prop pitch motor—completely converted—leads brought out. Includes coupler for beam mounting, selsyn motor for direction indication, attractive sloping panel cabinet with illuminated map indicator, and transformer for operating beam motor. All that is left for you to do is put it up and wire it per the diagram furnished. ITEM AN-1—$47.50

PREMAX RB-6309 — 3 ELEMENT BEAM KIT

Everything you need to put up a 6, 10, or 11 meter beam. Universal boom—adjustable elements—ready to be put together. Strong dural construction, light weight, low wind resistance, and T match are but a few of its many fine features. Packed ready for shipment to your QTH—A HARRISON SPECIAL—ONLY $24.95

BASIC KITS FOR THAT NEW MODULATOR OR FINAL AMPLIFIER DECK

ITEM MX-24 . . . . . ONLY $6.95

Includes 4 HK-24's, the popular medium mu triode, (use a pair—2 for spare), two standard tube sockets, a standard brand filament transformer (no surplus) capable of delivering 10 amps at 6.3 volts. ORDER NOW!

ITEM MX-25 . . . . . ONLY $23.95

Includes MX-24 kit plus standard brand (no surplus) driver and 125 watt modulation transformers. Will make fb 110 watt (conservative) class B modulator stage. Driver matches single or PP plates to PP class B grids—the modulation transformer is a universal type.

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225 GREENWICH ST.
NEW YORK 7, N. Y.

to 155 Mc. with the filament and plate voltage off, while the mixer grid coils cover from 140 to 160 Mc. under the same conditions.

If it is desired to check the coils with heater or heater and plate voltage applied, it will be necessary to apply some bias to the grid in the form of a flashlight battery or a cathode resistor. The resonant frequency of the 6AK5 grid coil could not be located with a grid dipper with heater voltage applied, but without bias. The grid-cathode was acting as a diode rectifying the signal from the grid dipper, and was equivalent to shunting the coil with around 500 ohms, reducing the Q to such an extent that no dip could be obtained. The increase in input capacity from cold to hot cut-off condition referred to above is due mostly to thermal expansion of the cathode. The increase from hot cut-off condition to operating condition is primarily attributable to the space charge existing between cathode and control grid.[3]

[3] "Input Admittance of Receiving Tubes," RCA Application Notes AN-118, RCA Tube Dept., Harrison, New Jersey.

50 Mc.

(*Continued from page 41*)

after? The extra incentive is placed there to get more fellows to use all the v.h.f. bands. We must have activity on 220 and 420, if we are to justify our retention of these high-priority slices of the spectrum. There is little doubt but that the contest incentive has helped to get more stations on these bands. And the large section totals awaiting the 50-Mc. operator have helped to encourage operation on that band to many who might not otherwise have considered using it.

Top score in the country was once again posted by Jim Thayer, W1FZ. Operating from his pet location atop Blue Job Mountain, Farmington, N. H., Jim piled up 112 contacts and a section multiplier of 20, on 50, 144, and 220 Mc. for a score of 2400 points. Wilson Norwood, W2IQQ, working from a hilltop location in North Caldwell, N. J., used all four bands to place second with 2288 points. His score might have been higher, but for a windstorm that wrecked his temporary antennas during the early-morning hours Sunday. A hurried SOS from the portable QTH brought assistance in the form of W2BVJ. Some fast and furious work enabled them to get the set-up back in working order in a matter of three hours or so. W1CTW, Arlington, Mass., also used four bands to score 2198 points.

The largest number of contacts and the highest one-band score were made by W2NLY, Oaktree, N. J. A huge and highly-effective 30-element array and 25 hours of operating out of a possible 34 enabled Jim to work 160 stations in 11 sections on 144 Mc. Another outstanding operating job was turned in by W6IHK/6. Working from a high spot in the Santa Monica Mountains on Saturday, and from Mt. Frazier on Sunday, Bill made 115 contacts in 5 sections for a score of 755 points. He had 9 QSOs on 420 Mc. in 2 sections.

Of the 36 section awards two were captured by members of the fair sex. Viola Kapp, W2FHJ, and Margaret Roberts, W8BFQ, both more than doubled the scores of their nearest competitors in the N.Y.C.-L.I. and Ohio Sections, respectively.

There was a gratifying response from sections that have been low activity spots in years gone by. Western New York topped the list with 22 reports in the final tabulation Illinois, Ohio, and many other sections showed much improved participation. Final scores appear below, grouped by ARRL divisions and sections. Columns give the total score, the number of contacts made, the section multiplier, and the bands used. A is 50 Mc., B 144 Mc., C 220 Mc., and D 420 Mc.

(*Continued on page 88*)

V.H.F. QSO Party, June 3rd-4th

ATLANTIC DIVISION

E. Pennsylvania

W3KKN	1620–108–15–A–B
W3FZQ	420– 42–10–A–B
W3QFM/3	224– 32– 7–B
W3IHF	6– 3– 2–B

Md.-Del.-D.C.

W3JVI	671– 61–11–A–B
W3QNC	182– 26– 7–A–B
W3LMC	148– 37– 4–B
W3LFN	69– 23– 3–B
W3AHQ	26– 13– 2–B
W3IGX	26– 13– 2–B
W3OTC	18– 9– 2–A
W3NH	9– 9– 1–B

So. New Jersey

W2QVH	1078– 77–14–A–B
W2PAU	650– 50–13–A–B
W2QED	450– 67– 6–B–D
W2MEU	260– 26–10–A
W2HRN	42– 10– 3–B–C

W. New York

W2ORI	672– 76– 7–B–D
W2PLU	288– 44– 6–B–D
W2KZ	248– 54– 4–B–D
W2ZUW	204– 51– 4–A–B
W2UTH	180– 45– 4–B
W2FBA	174– 29– 6–A–B
W2ZRW	135– 45– 3–B
W2OWF	120– 30– 4–B
W2SCZ	120– 40– 3–B
W2DPL	108– 36– 3–B
W2NES	108– 36– 3–B
W2ZHB	108– 36– 3–B
W2UPT/2	100– 20– 5–A–B
W2ZRC	78– 26– 3–B
W2WUX/2 [1]	63– 21– 7–B
W2SJV	48– 24– 2–B
W2FCG/2	38– 19– 2–B
W2UAD	25– 25– 1–B
W2UYS	22– 11– 2–B
W2QY	16– 16– 1–B
W2RXG	13– 13– 1–B
W2QXE [1]	8– 8– 1–B

W. Pennsylvania

W3QKI	330– 55– 6–B

CENTRAL DIVISION

Illinois

W9OBW	800– 68– 8–A–B–C–D
W9QKM	378– 54– 7–A–B
W9FVJ	192– 32– 6–B
W9IWE	186– 42– 3–B–D
W9DXX	108– 36– 3–B
W9WIO	104– 22– 4–A–B–C
W9RTY	90– 30– 3–B
W9NJZ	87– 29– 3–B
W9KJU	63– 21– 3–B
W9TAL	12– 6– 2–B
W9DRN	9– 9– 1–B

Indiana

W9ZHL	456– 38–12–A–B
W9JMS	243– 27– 9–A–B
W9DHJ	38– 19– 2–B

Wisconsin

W9KQM	204– 34– 6–A–B
W9TQ	93– 31– 3–B
W9FES	11– 11– 1–B

DAKOTA DIVISION

Minnesota

WØJHS	21– 7– 3–A–B

DELTA DIVISION

Tennessee

W4HHK	14– 7– 2–B

GREAT LAKES DIVISION

Kentucky

W4OXC	90– 15– 6–A–B
W4JDN	84– 21– 4–B
W4PCT	80– 20– 4–B
W4MKJ	42– 14– 3–B

Michigan

W8NNF	232– 29– 8–A–B

Ohio

W8BFQ	1212– 89–12–B–D
W8WSE	500– 50–10–A–B
W8WXV	440– 55– 8–B
W8LPD	320– 40– 8–A–B
W8LBH	190– 18– 5–A–C–D
W8WRN	140– 20– 7–A–B
W8VOZ	85– 17– 5–A–B
W8UZ	16– 8– 2–A–B
W8WAB	8– 8– 1–B
W8PDW	6– 6– 1–B
W8TCO	6– 3– 2–A
W8DFD	5– 5– 1–B

HUDSON DIVISION

E. New York

W2GYV	248– 31– 8–A–B
W2NJF	100– 25– 4–B
W2EFU	72– 18– 4–B
W2BVU	70– 14– 5–B
W2PV	63– 21– 3–B
W2YIK	16– 8– 2–B

N. Y. C. & L. I.

W2FHJ	1808–113–16–A–B
W2AOD	588– 60– 7–B–D
W2DHB	188– 47– 4–B
W2KU	165– 33– 5–B
W2WCR [1]	148– 37– 4–B
W2ZSD	64– 16– 4–B
W2TUK	22– 11– 2–B
W2LGK	14– 7– 2–B
W2JBQ	10– 5– 2–B

No. New Jersey

W2IQQ/2	2288– 91–16–A–B–C–D
W2NLY	1760–160–11–B
W2COT	1419–129–11–A–B
W2DZA	767– 35–13–A–B–C
W2ZDR	200– 40– 5–B

MIDWEST DIVISION

Kansas

WØIPI	91– 13– 7–A–B
WØDVV	20– 10– 2–B

Missouri

WØDDX	54– 14– 3–B–C
WØIHD	18– 6– 3–B

NEW ENGLAND DIVISION

Connecticut

W1HDQ [2]	2205– 97–21–A–B–D
W1REZ	836– 76–11–B
W1PNB	806– 54–13–A–B–D
W1HDF	517– 35–11–A–B–D
W1FTX [2]	119– 17– 7–A
W1MPO	90– 15– 6–A
W1QUJ	68– 17– 4–B

(Continued on page 90)

W1QIS[2]	51- 17- 3-A
W1BDI[2]	30- 10- 3-A-B
W1FWH[2]	6- 6- 1-B
Maine	
W1DEO/1[1]	832- 64-13-A-B
W1EIO	140- 20- 7-A-B
E. Massachusetts	
W1CTW	2198-121-14-A-B-C-D
W1HIL	405- 45- 9-A-B
W1MBS	360- 56- 6-B-C
W1BJN	248- 62- 4-B
W1MCR	212- 53- 4-B
W1MUD	180- 60- 3-B
W1SUR	104- 26- 4-B
W1RUU	87- 29- 3-B
W W	64- 16- 4-B
W1CTR/1	46- 23- 2-B
W1CTR	30- 15- 2-B
W1PYM	18- 9- 2-B
W1ISL/1	16- 8- 2-B
W1LYL	1- 1- 1-B
W. Massachusetts	
W1QXE	1027- 79-13-A-B
W1RFU	624- 52-12-A-B
W1RVW	243- 27- 9-A
W1NLE	51- 17- 3-B
New Hampshire	
W1FZ/1	2400-112-20-A-B-C
W1MHL/1	824-103- 8-B
Rhode Island	
W1GBQ	100- 25- 4-B
Vermont	
W1MEP	40- 10- 4-A-B
W1CGX	36- 9- 4-A

NORTHWESTERN DIVISION

Oregon	
W7DIS	10- 10- 1-B
Washington	
W7FIM	28- 14- 2-A-B
W7DYD	20- 10- 2-A-B
W7RT	9- 9- 1-B
W7EOP	3- 3- 1-B

PACIFIC DIVISION

Santa Clara Valley	
W6ZYH	315- 63- 5-B
W6ZBS	125- 25- 5-B
East Bay	
W6AJF	660- 62-10-A-B-D
San Francisco	
W6CDT	305- 61- 5-B
Sacramento Valley	
W6YMZ	370- 37-10-A-B
W6IHX	20- 10- 2-B
San Joaquin Valley	
W6BCL	400- 40-10-A-B
W6EXH	280- 35- 8-A-B
W6FQZ	102- 17- 6-A-B
W6VKD	100- 20- 5-B
W6IAZ	88- 22- 4-B

ROANOKE DIVISION

North Carolina	
W4CVQ	102- 17- 6-A-B
W4DCQ	27- 9- 3-B
Virginia	
W4AO	675- 75- 9-B
W4LVA	649- 59-11-A-B
W4JUY	33- 11- 3-A-B

SOUTHWESTERN DIVISION

Los Angeles	
W6IHK/6	755-115- 5-B-D
W6BHG	98- 49- 2-B

ONTARIO DIVISION

VE3BQN	736- 72- 8-A-B-C-D
VE3AIB	637- 91- 7-A-B
VE3AJJ	468- 78- 6-A-B
VE3BOW	336- 56- 6-A-B
VE3EAH	300- 60- 5-B-C
VE3AQG	275- 55- 5-B
VE3TI	126- 42- 3-B
VE3KM/3	112- 28- 4-A-B
VE3KM	7- 7- 1-B

Not eligible for award: [1] Multioperator station; [2] ARRL Hq. staff member.

Hinks & Kinks

(Continued from page 45)

A neat stand-off insulator can be made from the remainder of the barrel of the syringe. The inner glass piston which contained the penicillin makes a convenient form for winding small chokes, and the rubber portion of the syringe has possibilities for shock-mounting light gear. There isn't anything left over!

— Harley L. Christ, W9ALU

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(1) Advertising shall pertain to radio and shall be of nature of interest to radio amateurs or experimenters in their pursuit of the art.
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(7) Because error is more easily avoided, it is requested signature and address be printed plainly.
(8) No advertiser may use more than 100 words in any one issue nor more than one ad in one issue.

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Please note the 7¢ rate on Ham-ads is available to ARRL members only.

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QSLs. 100, $1.25 up. Stamp for samples. Griffeth, W3FSW, 1042 Pine Heights Ave., Baltimore 29, Md.

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SUBSCRIPTIONS. Radio publications a specialty. Earl Mead, Huntley, Montana, W7LCM.

QSL's high quality, fair prices. Samples? W7GPP, R. D. Dawson, 1308 E. Street, The Dalles, Oregon.

10-METER Beams, $19.50. Send Card for free information, Riverside Tool Co., Box 87, Riverside, Illinois.

CRYSTALS: Bassett Type 100A precision low-drift units made to your exact specified frequency within the 80 or 40 or 20 amateur bands, at $1.50 each, plus postage. Rex Bassett, Inc., Bassett Building, Ft. Lauderdale, Fla.

QSLS, Stationery, "etc." Taprint, Sumrall, Miss.

ZIPPO lighter. ARRL insignia and call sign, inlaid enamel, $5.00. Ideal birthday gift. McCarron, W2BNO, 384 E. 193 St., New York 58, N. Y.

WANTED: Marconi magnetic detector, multiple tuner; DeForest responder and audion control panels; other wireless gear prior to 1925. Franklin Wingard, Rock Island, Illinois.

QSLS, SWLS. Very attractive. Best in printing and prices. Kromekote or any other stocks. Samples. W4LXJ, Roop, Radford, Va.

MODERN QSLS. Sample booklet, 12¢. Stamps O.K. Westerners see samples at leading ham stores. van Groos. W6GFY, 1436 No. Serrano. Hollywood 27, Calif.

QSLS: Kromekote cards, priced right! Samples. W6YLJ, Imsande, 6106 Acacia, Los Angeles 56, Calif.

WILL trade buffet clarinet in good condition for BC-348 H, K, L, or R, Luster Ling, W5NLL, Corning, Ark.

SELL: Rare original Army Technical Manuals on BC-221 frequency meter. 162 pages specifications, schematics, instructions for maintenance, repair, all models. $2.00. SCR522A (BC624A-BC625A) schematic wiring diagram, 25¢ plus stamp. Want original Army Manual BC-348S. Frank Dunan, W3NB, 1717 Lang Place, N.E., Washington 2, D. C.

HAVE your QSL cards unique, with picture of yourself or your rig and ask your contacts for theirs. Sample for a stamp. Tifft, 501 Tifft Road, Dover, N. H.

LATEST Call Books, $2.00. Mead, Huntley, Mont.

"RADIO Communication Transmitters" by J. J. Hupert, M.Sc., Senior Lecturer, Physics Department, De Paul University. To our knowledge this publication represents the first attempt to bridge a gap existing in the literature on the principles of Radio Transmitter design. Cloth bound, $3.00. ATA Scientific Progress, Ltd., 63, Kensal Road, London W. 10, England.

FOR Sale: BC-312D, converted, $45.00; BC-224H, converted, $45.00. Both units in good condition, ready to go. Also SCR-522, $20.00 and BC-348R, $45.00. Unconverted. Both units complete with tubes and in good condition. Clement Gouveia, 3310 63rd St., Sacramento, Calif.

DECALCOMANIAS: Two inch gold and black. 20¢ each letter or number. B. J. Lumblad, WØBQJ, Box 331, Mason City, Iowa.

10 and 20 Meter beams, $19.25 up, aluminum tubing, etc. Willard Radcliff, Fostoria, Ohio.

NEW YORK Vicinity: For sale! HT-9 in good condition. Coils for 40, 20, 10, Spare 814. Cash and carry: $180.00. Will not ship. W2VQD, Mi 22756, J. Moran, 10539 87th St., Ozone Park, N. Y.

WANTED: 750 volt power supply, P.P. 807 Class C amplifier, modulator for P.P. 807's. Either complete units or components. Minton, W1PPA, 117 Church St., Hamden, Conn.

FOR Sale: 6 months old, like new. Precision ES-500 5" 'scope, $95.00; E-400 TV sweep marker Sig Gen, $85.00; E-200C RF Sig Gen. $50.00; audio oscillator, $25.00. Brand new, 2 Thordarson PP 6B4 amplifiers, each $60.00. L. Burzycki, W1PGD, 208 W. Thames St., Norwich, Conn.

522 Receiver-transmitter, complete power supply and cabinet, $55.00. W2NKH, 64 Chestnut St., Huntington, L. I., N. Y.

SELL: DB-22-A, $45.00, in good condition. L. O. Ester, W9OEV, 303½ S. 6th St., De Kalb, Illinois.

SELL, swap: 100-watt Stancor phone/cw xmitter, $90.00; Hallicrafters SX-25, $60.00; TR-4, $20.00; Command xmitters, rcvrs, $5.00 each, complete, Mark II, $20.00; Selsyns, $3.50; new TV booster, $15.00; Weston test set, new, $30.00. BC-659, $10.00; TBY instruction books and power supplies. B. C. Higley, W2OEA, 504 Rosewood Terrace, Linden, N. J.

FOR Sale: One transmitter, assembled. Lucky buyer receives 175 watts of power. $53.00. Contact W2ZBE, 330 Guilford Avenue, Baltimore 2, Md.

QSLS? SWLS? Cartoons? State-maps? Colorful? Photographic? QSL samples, 3¢. Sakkers, W8DED, Holland, Michigan. Specialist QSL Printers.

HALLICRAFTERS model SX-71 has our personal endorsement as an excellent receiver in its price range. Buy it at $179.50 from Evans Radio, Concord, N. H.

WANTED: MBF Collins, Southern California only. W6UPP, 1419 W. 9th Street, Santa Ana, Calif.

QSTs Wanted: February through September 1949, including both months. Don Friedmann, 6011 Wallis Ave., Baltimore 15, Maryland.

TRANSMITTER TVI proofed but still off the air? The King Hi-Pass Filter is guaranteed to eliminate TVI caused by fundamental. Completely wired and tested $2.95. Kits $1.95. Add 15¢ mailing. Regular 2" Gruen 0–150 microammeters, bakelite case, standard flush mount, perfect condition, $4.95. King Electric Co., 18944 Sorrento, Detroit 35, Mich.

PROP pitch motors unused brand new, complete instructions for conversion. Packed for shipment, $12.50 f.o.b. Roanoke, Virginia. Limited quantity. Wire or write W4JFV, Aldhizer.

BC-312M purchased new, only changes are: control socket removed and 6 V. filaments, AC supply, Gen. Motor, crystal, speaker, base, instruction book, $75.00 crated. A. Thuring, W7IWC, Longmire, Wash.

QSL-SWL cards! Samples. W1HJI, Cushing, Box 32A, Manchester, N. H.

TRADE Leica equipment. Telephoto lens, Wideangle lens. Enlarger. Complete Focaslide outfit. Also "Minox" tiny subminiature precision "Spy" camera. Need Collins receiver. Kilowatt power supply and modulator. W3PGB.

WANTED: Panoramic adaptor, 30 megacycle input, 500 Kc sweep. Panoramic Radio Corporation Model SA-3, T-1000 or equivalent. State price and condition. R. T. Ellis, W3NXN, 2008 Dayton Street, Silver Spring, Maryland.

NEW crystals for all commercial services at economical prices, also commercial regrinding. Over fourteen years of satisfaction and fast service! Eidson Electronic Co., Phone 3901, 1802 North Third St., Temple, Texas.

FOR Sale: 1922 Radio Digest; Vol. I, No. 1 — April 15 to July 22, 1922; Vol. II, July 15–Oct. 7, 1922; Good condition; H. E. Sund, jr. W6GOZ, 563 Boynton Ave., San Jose, California.

FOR Sale: HRO-M, Hallicrafters S-27, and Meissner signal shifter in 3½ ft. open rack; one Kw final with pair 257B's and associated power supplies and meters in four-ft. enclosed rack. All equipment in good operating condition. Price complete, $400.00. W2UHW, 18 Aster Lane, Levittown, L. I., N. Y.

WANTED: APR-4 receiver and tuning units. State condition and price. W2DB, 274 Boulevard, Scarsdale, N. Y.

BARGAINS: New and used transmitters-receivers-parts: Globe King, $299.00; HT-9, $225.00; Temco 75GA, $250.00; Sonar SRT-75, $139.00; ART 13, $129.00; new 150 watt phone, $199.00; HT-6, $85.00; 60 watt phone $89.00; Globe Trotter, $57.50; New Bud VFO, $39.50; new Meissner signal calibrators, $29.95; HRO complete, $129.00; SX-43, $129.00; NC-173, HQ-129X, $139.00; RME-45 $99.00; SX-25, $89.00; RME-69, $75.00; S-38, $29.95; VHF 152A; BC-610's and many others. Large stock trade-ins. Free trial. Terms financed by Leo, WØGFQ. Write for catalog and best deal to World Radio Labs, Council Bluffs, Iowa.

UNEXCELLED yet inexpensive ten meter converter: Country-wide unsolicited testimonials attest the superb performance that you, too, can obtain from our RF24 ten meter broad band converter. Featuring three tubes in a modern circuit and complete with instructions, we supply a coaxial connector and three spare tubes free. Output frequency is 7.5 Mc — input variable 20–30 Mc. Shipped postpaid and guaranteed to satisfy for but $16.00. The Overbrook Company, Overbrook 81, Mass.

IN34 crystal, 67¢. BC-458 less tubes, used, $3.98. Free bargain list. "TAB", 109 Liberty Street, New York City.

FOR Sale: Collins 32V1, SX-28A, DB-22A, D104, Directo-Beam rotator, 4-element Hy-Lite Antennae beam, phone patch. Best offer takes lot. No break-up considered. W1SNF, Box 429, Westover Field, Mass.

QSLS: Uncle Fred QSLs. Three colors and up. Rainbow map QSLs. Special DX QSLs. Bargain QSLs. Samples? Uncle Fred, Box 86, Lynn, Penna.

BARGAINS: New and reconditioned Collins, National, Hallicrafters, Hammarlund, RME, Millen, Gon-Set, others. Reconditioned S-38, $29.00; S40A, $59.00; SX-43, $119.00; SX-42, $179.00; HQ-129X, $119.00; NC-57, $59.00; NC-173, $139.00; NC-183, $189.00; RME-45, $89.00; HF-10-20, $49.00; VHF-152, $59.00; SX25, SX-28, SX-28A, S-36A, HT-18, HT-9, SX-62, NC-240D, HROSTA1, HRO7, HFS, S-22R, S-39, ART-13, BC-610, 32-V1, BC-221, Meck T-60, $79.00, others. Terms. Shipped on approval. Special reduced prices during August. Write for free list. Henry Radio, Butler, Mo.

FOR Sale: New 300-watt modulation transformer. UTC LS-66, $27.00. Gresham, W3QGN, U.S.N. Comm. Sta., High power radio, Annapolis, Md.

SWLS-QSLS. Samples 3¢. Harrison, 8001 Piney Branch Road, Silver Spring, Md.

SELL: Mackay 167BY transmitter with 750 watt power supply and NBFM built-in. Described Jan. 1948 CQ p. 77. $185.00. Good used 813 tubes, $2.50 each. Wanted: Any QSTs from Dec. 1915 through Dec. 1916. Wireless Specialty IP76 tuner, Marconi 106 tuner. L. Rizoli, W1AAT, 100 Bay View Ave., Salem, Mass.

PHONE patch schematic, practical discussion. $1.00. Nichols, W1MRK.

SALE or trade: 610E, speech amp. $400.00, 779 Pro $100. Want Panoramic Adaptor, 152A, tape recorder, Collins 75A, 32V, 310, AR88, W6ACD, 2825 Coolidge Ave., Oakland 1, California.

FOR Sale: ART-13 with AC filament and DC bias supply, power plug and cable. Good condition. One hundred dollars. F.o.b. Rushton, W2PVP, Bainbridge, N. Y.

ATTENTION Los Angeles hams, others: Trade 3600–1800–0–1800–3600 1000 mil transformer, 274 v series 3 mil meters, receiving tubes, dynamotors, other parts. Want: smaller power supply, final, rack, cabinet, 813, 4-125A and what have you? W6IUB, 3571 Burton, Lynwood.

FOR Sale: 1950 model 75A-1 receiver, $300.00, ART-13 with dynamotor, $145.00; Motorola 30-watt xmitter complete, $47.50; 5 volt 60 amp Fil xformers, $6.95; new 522, $22.50; new BC-645, $12.50. Need 5 amp. Variac, Gon-Set 3-30 converter. W5OWG, R. M. Reavis, Ardmore, Okla.

WANTED: Defective Eimac tubes. Byron Stamate, 2950 Sycamore St., Martinez, Calif.

BC-224F receiver, same as BC-348 with AC supply broadcast converter and speaker. Recently realigned and checked, $65.00. W4POH, Apt. 1, 106 Mendoza Ave., Coral Gables, Florida.

SELL: Transmitter, 80 to 10 meters, 135 watts, NBFM fone-c.w., 30" grey table rack. Includes VFX-680 exciter, crystal, additional 6L6 doubler. PP 1625 final using MB-150 plate tank. Three meters. Extra 1625's. Worked 98 countries this rig. Looks, works like commercial: $135.00. Heath model V2 VT voltmeter, wired, calibrated, $22.50. Simmons, WØARH, 810 E. Orchard, Kirksville, Mo.

SELL 62 ft. heavy galvanized steel square tower platform, ladder. Sacrifice for quick sale. Can't use here. N. Hale, WØJIH, 1040 Curran, Kirkwood, Mo.

QSL's. The W5RY Press offers highest quality cards and stationery for the discriminating amateur and SWL. Samples and prices on request. 643 Eagle Ave., Jackson, Miss.

FOR Sale: Collins 75A, six months old, in perfect condition. $300.00 F.o.b. Mesa. Dan Lamb, 229 West 1st St., Mesa, Arizona.

FOR Sale: BC-610E, complete, 80 to 10 meters. Excellent condition. 2 new spare 100TH's. $525.00. Also: BC-779 receiver, equivalent of Super Pro, also converted for 10. Very good condition. $95.00. Ed. Graf. W2HZK, 433 Harvard Ave., Hillside, N. J.

THE following items are For Sale or Trade: Model 101 Altec-Lansing AM-FM tuner with A-323-C power amplifier (used), $265.00; Model 604-B Altec-Lansing speaker with matching network (used) $120.00; Model 612 Altec-Lansing speaker baffle cabinet, $47.50; *Model K-8 Presto Recorder (used as is), $195.00;* Model 810-B Twintrack recorder (Amp. of America) used as is $150.00. Model S-47 Hallicrafters (used) $129.00; Model HQ-129X Hammarlund complete with speaker (used one week) $169.50; Model NC-173 National complete with speaker (used two days) $169.50; Model RD-122 Jensen console baffle with JCP-40 Jensen Speaker, $74.30; Model T-6MS (6" war surplus speakers in weather proof metal baffle) $6.95. Harry Robinson, W4BC, 81 Ora St., Asheville, N. C.

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GENERAL RADIO announces a new Parts Catalog listing all of the parts, components and accessories manufactured by G-R . . . the first catalog of its kind printed in a number of years.

Here you'll find complete specifications of the entire line of G-R high-quality parts and accessories, and a number of simplified unit instruments. Included are knobs, dials, plugs, and jacks, fixed and variable air condensers, attenuators, coaxial elements, decade inductors and resistors and capacitors, filters, simple bridges, amplifiers and oscillators, rheostats and potentiometers, U-H-F Wavemeters, and dozens of other essentials.

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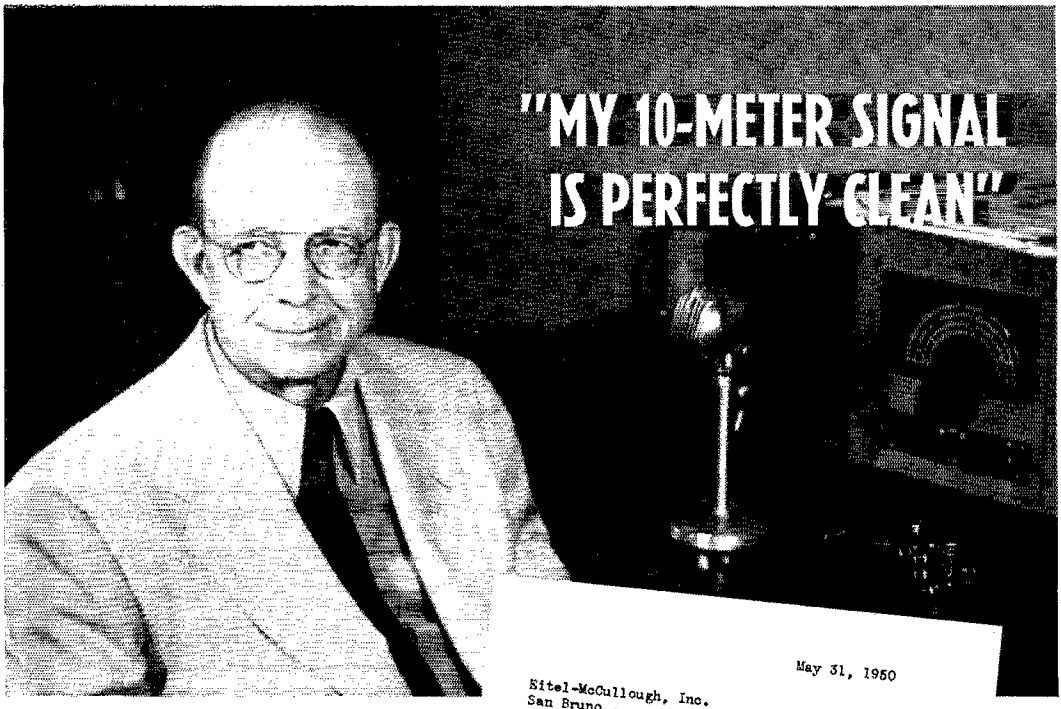

May 31, 1950

Eitel-McCullough, Inc.
San Bruno
California

Gentlemen:

I thought you might be interested to know that since installing a pair of your 4-125A tetrodes I have had no TVI. My exciter is now 1/10 the power it used to be and through using your tubes and normally sensible filtering techniques, my 10 meter fone signal is perfectly clean --- to the mutual appreciation of my neighbors and me. I believe I should mention, too, that I like the mileage I get from these tubes.

73,

Dr. W. S. Kelly

READ HOW DR. KELLY, W9MDO, OF CHICAGO LICKED TVI

Eimac tetrodes plus common sense circuit engineering are a sure-fire TVI eliminating team. Follow the advice of leading amateurs . . . rebuild right . . . with Eimac tubes.

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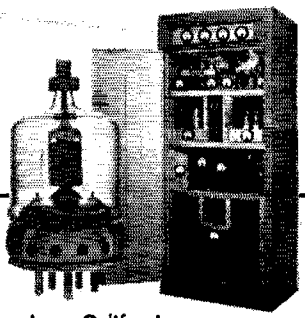

Eimac TUBES

261

EITEL-McCULLOUGH, INC.
San Bruno, California
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with one receiver . . .

the new HRO-50

Think of it! *Optimum* reception of CW, AM, NFM (with adapter) on any frequency from 50 kc. to 35 mc. (except 25 kc. either side of the 455 kc. I.F.) — *all* with one receiver! One more reason the new HRO-50 is the most versatile, as well as the finest receiver National has ever built . . . gives you so much *more* performance.

$335 less speaker;
Prices slightly higher
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SPECIFICATIONS

Freq. Range:	50-430 kc., 480 kc. — 35 mc.
Tube Complement:	6BA6, 1st r. f.; 6BA6, 2nd r. f.; 6BE6, mixer; 6C4, h. f. oscillator; 6K7, 1st i. f.; 6K7, 2nd i. f.; 6H6 det. and a.v.c.; 6H6, a.n.l.; 6SJ7, 1st audio; 6SN7, phase splitter and S-meter amp.; 6V6 (2) p.p. audio; 5V4G, rect.; 6J7, b.f.o.; OB2, volt. reg. *Accessories:* Crystal Calibrator, 6AQ5; NFM Adaptor, 6SK7, i.f. amp., 6H6, ratio det.; Selecto-o-ject, 12AX7 (2).
Power Input:	115/230 V. 50/60 cycles A.C.
Power Output:	8 watts undistorted, push-pull amplifier; fidelity ± 2 db 50-15,000 cycles.
Sensitivity:	1 microvolt or better at 6 db sig./noise.
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Drift:	Negligible after warm-up.
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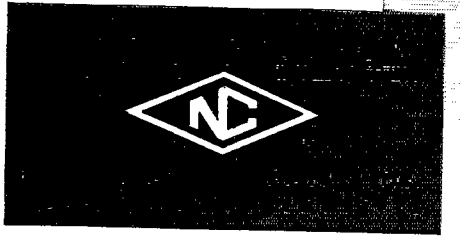

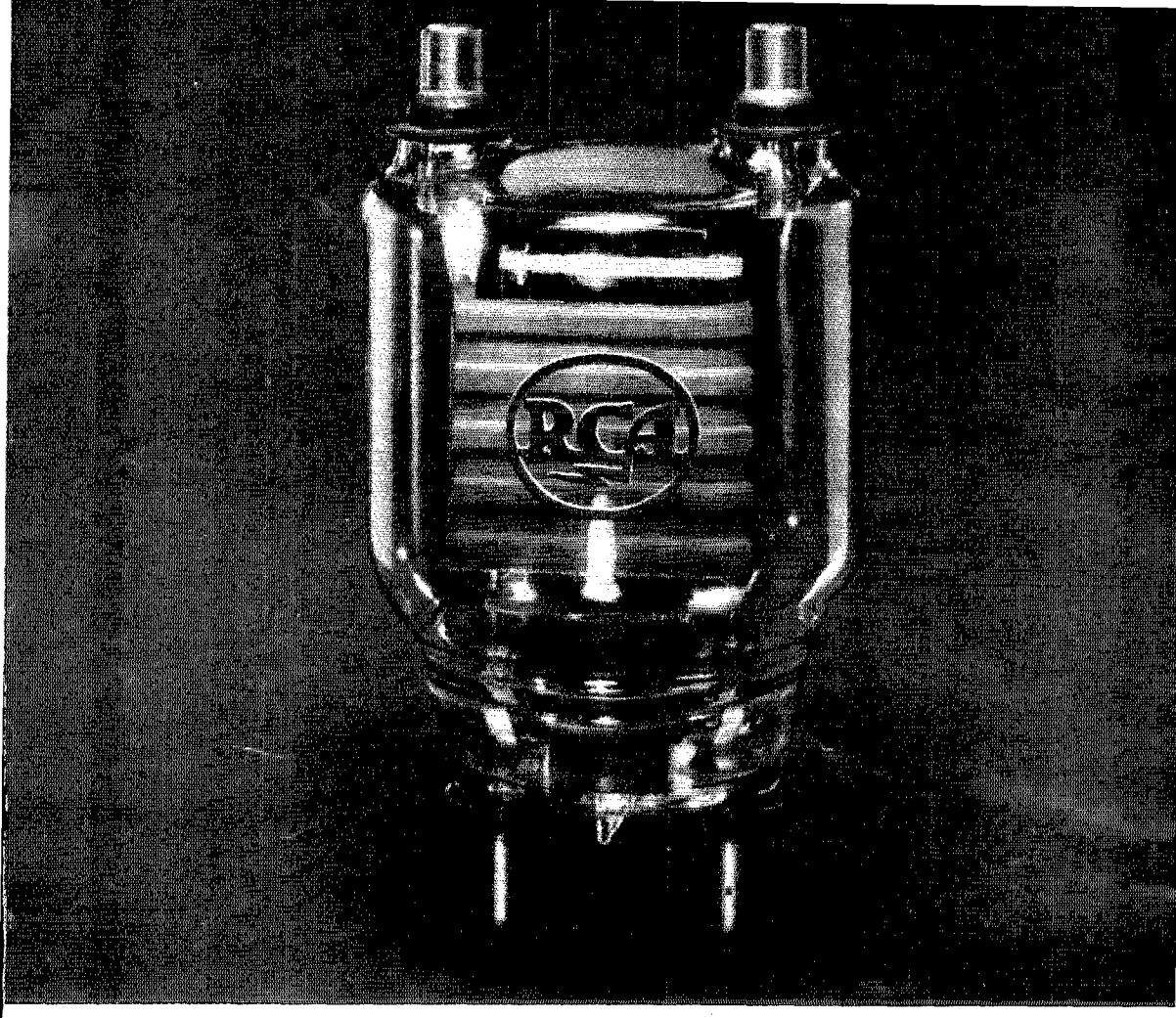

King of the finals...

MORE AND MORE AMATEURS with a special interest in high power are taking a second look at tubes for finals . . . and ending up with RCA 833-A's.

And for good reasons. The RCA 833-A—originally designed for 'round the clock service in broadcast stations—is one of the huskiest tubes ever built. In amateur cw or phone service it easily handles a full kilowatt input. What's more, this high-perveance power triode can be operated at a full 1-Kw input up to 30 Mc, and requires relatively low driving power.

For either cw or phone, balance the moderate price of the RCA 833-A against the *years* of solid, trouble-free service it will deliver. You'll agree you are getting a lot of performance for your money, plus pride of possession.

If you are planning a kilowatt, the RCA 833-A will be a welcome discovery. Your local RCA Tube Distributor will give you the complete dope . . . or, if you wish, write to RCA, Commercial Engineering, Section H48M, Harrison, N. J., for a copy of RCA Headliners for Hams which gives technical data and operating conditions.

RADIO CORPORATION of AMERICA

ELECTRON TUBES **HARRISON, N.J.**